

Activity report
Centre of Physics

December 2013



Centre of Physics
Activity report 2013

Índice

1.	Introduction.....	2
2.	Summary characterization of the Centre	4
3.	Organization.....	4
3.1.	Management Entities.....	4
3.2.	Research Groups.....	6
4.	Facilities and Infrastructure.....	7
4.1.	Research Laboratories.....	7
5.	Indicators of the Centre Performance.....	8
5.1.	Publications	8
5.2.	Seminars organized by the Centre	9
5.3.	Scientific Training.....	11
5.4.	Funding	11
5.5.	Scientific Production Indicators by group in 2013.....	12
6.	Research Groups	13
6.1.	Atomic, Molecular and Optical Group (FAMO).....	13
6.2.	Group of Cooperative Phenomena in Dielectrics (FCD)	24
6.3.	Group of Computational and Theoretical Physics (GFCT)	40
6.4.	Group of Physics of Nano Crystalline Materials (FMNC)	44
6.5.	Functional Coatings Group (GRF).....	50
6.6.	Complexity and Electronic Properties Group (GCEP)	69
6.7.	Group of Optics and Vision Science (OCV).....	79
7.	Financial Report	102
8.	Annex.....	103



1. Introduction

The Physics Centre of Minho University (CFUM) is a research unit with a multi-disciplinary scientific activity in the field of Pure and Physics and adjacent areas. It involves both theoretical and experimental studies as well as development for applications, and concerns four major areas of research: (1) Condensed Matter Physics, (2) Nanomaterials and Applications, (3) Molecular Physics and Biophysics, and (4) Optics and Vision Sciences. At present CFUM is organized in seven research groups, which involve most of the teaching staff of the Department of Physics of Minho University, several staff members of other Portuguese higher education institutions, a number of full time researchers contracted in the framework of the Ciéncia, Investigador FCT and Welcome II programs, Post-Docs, PhD students enrolled at the School of Sciences, and research students with short-term grants (see 1.3 for summary and group's sections for detailed information). CFUM's managing bodies are: (i) Director, elected among the Full or Associate Professor of the Physics Department, every three direct election, (ii) Deputy Director (appointed by the Director), (iii) Executive Committee, composed by the Director and the coordinators of the seven research groups, (iv) Scientific Council, composed by all members holding a PhD, and (v) Steering Committee, an advisory board constituted by internationally recognized scientists that help to evaluate and improve Centre's activities. There are currently 33 research laboratories located in two campi (Gualtar and Azurém). Technical support is provided by the personnel of the Department of Physics (one electronics engineer, one electronics technician, one specialized engineer supporting film deposition facilities and three general technicians in Gualtar plus two general technicians in Azurém). Administration support is provided by three experienced collaborators (personnel of the School of Science), one full time and two part-time. In addition, the CFUM itself contracts an additional collaborator who provides administration support to several projects in course and to activities aimed at attracting external funds.

The scientific production of the CFUM increased in 2013, compared to the previous years, as can be seen from Sec. 1.3. This is in spite of declining central funding of the Centre by the Foundation for Science and Technology (FCT). Nonetheless, in order to continue improving its scientific performance and the increasing importance of the competitive forms of funding, CFUM took course towards concentrating its research along a limited number of strategic lines related to the fields where there are already documented achievements, a critical mass of researchers involved and, therefore, a chance to attain international visibility and funding. This year's annual Workshop of the Centre (Jornadas CFUM 2013) was dedicated to this task. Five strategic lines of research at CFUM-UP have been identified as follows:

- (i) Plasmonics and coupled plasmon modes in nanostructures,
- (ii) Hybrid bionanosystems based on self-assembled structures, quantum dots, plasmonic and magnetic nanoparticles,
- (iii) Functional coatings and surface structure,
- (iv) Sensors and actuators: new materials and concepts;
- (v) Assessment and enhancing visual performances.

Research lines (i-iv) mainly belong to the field of hard and soft condensed matter. They have different rates of fundamental/applied and theoretical/experimental research but all of them are involved in studies across disciplines and collaboration with colleagues in Chemistry, Biology and Engineering. They also have links between themselves and each line involves several of CFUM's research groups.

The line (i) devoted to Plasmonics encompasses all studies of condensed matter systems containing nanosized components where the collective response of free electrons (i.e. plasmons) plays an important role in their physical properties. It concerns potential applications using fundamental results on the electronic properties of graphene and other modern materials.

There are two main avenues of investigation within the line (ii). One of these is based on exploring the potential of custom designed nanoparticles for a variety of applications ranging from fundamental studies of energy transfer in specially assembled systems of NPs, to a variety of bio-sensing and photocatalysis applications based on plasmonic resonances. A second focus of research is dedicated to taking advantage of liposomal systems in order to isolate, transport and deliver biological important payloads of genetic material or to accomplish the controlled release of certain drugs at site specific locations.



The line (iii) includes activities in which the nanostructure of technological surfaces and coatings is controlled in applied research projects with the goal to design and produce a functional device or part of it, namely, thin films for high efficient energy conversion, coatings with self-cleaning, de-pollution and anti-bacterial functions, and nanolayers for biodevices, biomedical applications, and food packaging.

The line (iv) takes advantage of competences of several research groups in order to develop new materials targeting mostly deformation and pressure sensors and actuators by using organic, inorganic and hybrid systems.

The center of gravity of the research line (v) lies between the Optics and Health Sciences. It is traditional within the CFUM and unique in Portugal, with links to some research topics within other lines.

In 2013 CFUM took an important decision of submitting a joint application with the Physics Centre of Porto (CFP) to the evaluation and future strategic funding of research centers by the FCT. Two research units agreed to join forces under the goal of attaining a new level of international visibility and scientific impact by taking advantage of the huge potential of more than eighty researchers currently based at the CFUM and CFP. The fusion of CFUM, a big interdisciplinary research Center mostly devoted to applied studies, with CFP, a smaller research unit fully dedicated to theoretical physics is seen as means to reach equilibrium between fundamental and applied, and theoretical and experimental studies. The two centers have been collaborating in the framework of common research projects (e.g. research in graphene has yielded a number of sound joint publications and PhD theses co-supervised by CFUM and CFP members) as well as in joint teaching programs developed by the Physics Departments of Minho and Porto Universities (such as MAP-Fis, a successful PhD Program in Physics). It is our hope that this decision will contribute to the still higher level of research performed at the joint Centre, CF-UM-UP, and help us to attract funds, both from national and international sources, as well as bring to our Centre creative scientists and talented research students.



2. Summary characterization of the Centre

Unit designation: Physics Centre of the University of Minho

Period of activity: Year of 2013

Researchers of UM Centre of Physics

Members	Number
Effective Members with Ph.D	55
Effective Members without Ph.D	1
Associate Members (all with Ph.D)	5
Post-Docs and Research Fellows with PhD	17
Ph. D Students (enrolled at ECUM/ total)	43/66
Other Research Students (grant holders at CFUM)	21

3. Organization

3.1. Management Entities

Director: Mikhail Vasilevskiy

Deputy Director: Sérgio Nascimento

Executive Committee Members:

1. Marta Maria Duarte Ramos
2. Sérgio Miguel Cardoso Nascimento
3. Joaquim Alexandre dos Santos A. O. Carneiro
4. Michael Scott Belsley
5. Bernardo Gonçalves Almeida
6. Francisco Macedo
7. Mário António C. de Castro Pereira

Members of the Scientific Council (effective CFUM members):

1. Anabela Gomes Rolo
2. Ana Pinho
3. António Manuel Gonçalves Baptista
4. António Mário Lourenço da Fonseca Almeida
5. António Queirós
6. Bernardo Gonçalves Almeida
7. Cacilda Maria Lima de Moura
8. Carlos José de Macedo Tavares
9. Eduardo Jorge Nunes Pereira
10. Elisabete Maria Santos Castanheira Coutinho
11. Etelvina de Matos Gomes



12. Filipe Macedo
13. Francisco José Machado Macedo
14. Guerorgi Smirnov
15. Ivan Larkin
16. Jaime Santos
17. João Linhares (since September 2013)
18. João Pedro dos Santos Hall de Agorreta de Alpuim
19. Joaquim Alexandre Carneiro
20. Jorge Manuel Martins Jorge
21. José Alberto Diaz Rey
22. José Carlos Viana Gomes
23. José Filipe Vilela Vaz
24. José Luís Pires Ribeiro
25. José Manuel González-Mejome
26. José Manuel Pereira Carmelo
27. Júlia Maria Simões Dias Barata Tovar Ayres Campos
28. Luís António Carvalho Gachineiro da Cunha
29. Luís Manuel Fernandes Rebouta
30. Luís Manuel Gomes Vieira
31. Luís Silvino Alves Marques
32. Manuel Filipe Pereira Cunha Martins Costa
33. Maria de Fátima Guimarães Cerqueira
34. Maria de Jesus Matos Gomes
35. Maria Elisabete da Cunha Dias Real Oliveira
36. Maria José Sampaio
37. Maria Madalena da Cunha Faria de Lira
38. Maria Teresa Pitta de Lacerda-Arôso
39. Mário António Caixeiro de Castro Pereira
40. Marlene Lucio (since September 2013)
41. Mário Rui da Cunha Pereira
42. Marta Maria Duarte Ramos
43. Martin Andritschky
44. Michael Scott Belsley
45. Mikhail Vasilevskiy
46. Nuno Miguel Machado Reis Peres
47. Paulo José Gomes Coutinho
48. Peter Shellenberg*
49. Ricardo Mendes Ribeiro
50. Sandra Maria de Braga Franco
51. Sandra Maria Fernandes Carvalho
52. Senen Lanceros-Méndez
53. Sérgio Miguel Cardoso Nascimento
54. Stanislav Ferdov
55. Teresa Maria dos Santos Ribeiro Viseu
56. Vasco Manuel Pinto Teixeira
57. Yuliy Bludov

*Until March 2013



Associate Members (emeritus members and teachers of other Portuguese universities):

1. José Manuel Martins Borges de Almeida (retired, UM)
2. Jorge António Silva Mendes (Polytechnic Institute, Vila do Conde)
3. Norberto Gonçalves (UTAD)
4. Li-Jian Meng (Polytechnic Institute, Porto)
5. Vasco Almeida (UBI)

Post-Doctorate Researchers and Research Fellows

1. Anura P Samantilleke
2. Bachu Rama Raju
3. Clarisse Ribeiro
4. Dmitry V. Isakov
5. Helder Correia (til August 2013)
6. Isabel Moura
7. Kamakshi Koppole
8. Koppople Sekhar
9. Luís Alves
10. Osamu Masuda
11. Pedro Martins
12. Peter Schellenberg (since March 2013)
13. Sergej Levichev
14. Vadim Ponomarenko
15. Vanessa Cardoso
16. Vitor Correia
17. Vitor Sencadas

3.2. Research Groups

According to the regulation of the Centre, the research activities have been developed within the following groups:

Research Group	Coordinator
Group of Atomic and Molecular Physics and Optics (FAMO)	Michael Scott Belsley
Group of Cooperative Phenomena in Dielectrics (FCD)	Bernardo Gonçalves Almeida
Group of Computational and Theoretical Physics (GFCT)	Marta Maria Duarte Ramos
Group of Physics of Nano Crystalline Materials (FMNC)	Mário António C. de Castro Pereira
Functional Coatings Group (GRF)	Joaquim Alexandre dos Santos A. O. Carneiro
Complexity and Electronic Properties Group (GCEP)	Francisco Macedo
Group of Optometry and Vision Science (OCV)	Sérgio Miguel Cardoso Nascimento



4. Facilities and Infrastructure

4.1. Research Laboratories

Laboratory - location	Group	Responsible
Photophysics I - Gualtar	FAMO	Elisabete Coutinho
Photophysics II - Gualtar	FAMO	Elisabete Coutinho
Preparation I – Gualtar	FAMO	Elisabete Coutinho
Biophysics – Gualtar	FAMO	Paulo Coutinho
Femtoseconds -Gualtar	FAMO	Michael Belsley
Emission Life Time - Gualtar	FAMO	Mário Rui Pereira
Crystal Growth – Gualtar	FCD	Etelvina de Matos Gomes
Doelectric Properties – Gualtar	FCD	Bernardo Gonçalves Almeida
Infrared Spectroscopy – Gualtar	FCD	Luís Vieira
Magnetic Properties and Electromechanical – Gualtar	FCD	Bernardo Gonçalves Almeida
Computational Physics – Gualtar	FCT	Luís Silvino Marques
Thin Films I - Gualtar	FMNC	Maria Jesus M. Gomes
Investigation of Ceramic - Azurém	FMNC	Mário Pereira
Preparation II – Gualtar	FMNC	Maria de Jesus Gomes
Thin Films II - Gualtar	FMNC	Mário Pereira
Raman Spectroscopy and Photothermal measurement – Gualtar	GCEP/GRF	Cacilda Moura / Francisco Macedo
Photoconductivity - Gualtar	GCEP	Fátima Cerqueira
Cold Atoms - Gualtar	GCEP	José Carlos Gomes
Devices and microfabrication – Azurém	GCEP	Luís Rebouta/Senen Lanceros-Mendez
Preparation – Azurém	GRF	Sandra Carvalho
Mechanical Properties – Azurém	GRF	Joaquim Carneiro
Functional Coatings I – Azurém	GRF	Vasco Teixeira/ Joaquim Carneiro/Luís Rebouta
Functional Coatings II – Azurém	GRF	Luis Rebouta
Electromechanical properties of materials – Azurém	GRF	Carlos Tavares/Senen Lanceros-Mendez
Laser Ablation - Azurém	GRF	Martin Andritschky
Corrosion and electrochemical testings - Azurém	GRF	Sandra Carvalho
Optoelectronics - Azurem	GRF	Carlos Tavares
Surface analysis - Azurem	GRF	Filipe Vaz
Visual Rehabilitation - Gualtar	OCV	António Baptista
Science of Vision and Colour – Gualtar	OCV	Sérgio Miguel Cardoso Nascimento
Ophthalmic Instrumentation – Gualtar	OCV	Sandra Maria Braga Franco
Microtopography – Gualtar	OCV	Manuel Filipe Costa
Research in Clinical and Experimental Optometry - Gualtar	OCV	Jorge Jorge/ José Manuel Meijome



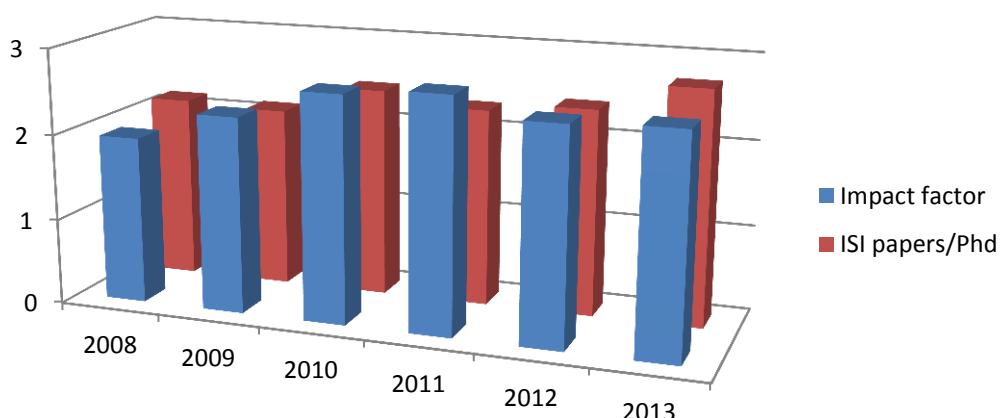
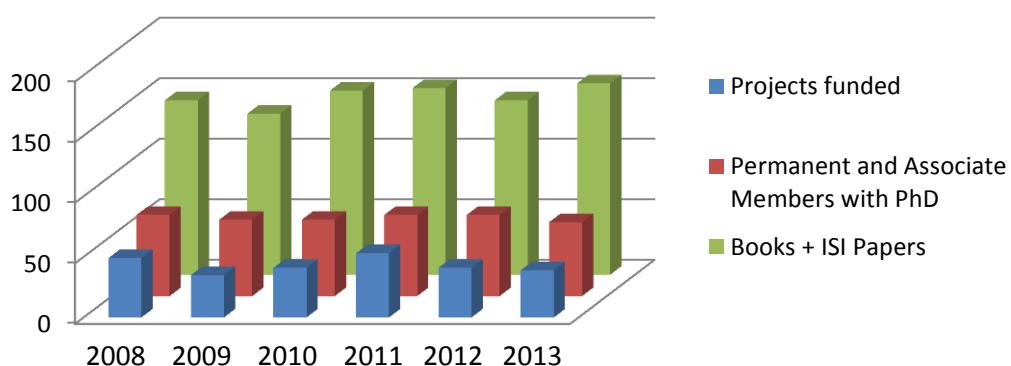
5. Indicators of the Centre Performance

5.1. Publications

The following table presents data on the scientific production of the Center of Physics in 2013:

Publications	Number
ISI papers (regular journal articles/ conference journal articles/ articles in proceedings)	147/6/13
Non ISI journal articles registered in SCOPUS	5
Book chapters	11
Patents (national /international)	1/6

The following figures show comparative data on the number of researchers (PhD) and scientific production since 2008.



5.2. Seminars organized by the Centre

5.2.1. Colloquia

Organizing Committee in the 1st semester:	Organizing Committee in the 2nd semester:
José Luis Ribeiro Nuno Peres Filipe Macedo	Martin Andritschky Fatima Cerqueira António Queirós

Titles and Speakers:

16 January 2013

Meta-materiais com parâmetros limite: propagação de luz sem difracção

Mário G. Silveirinha, Universidade de Coimbra, Instituto de Telecomunicações

27 February

Física dos buracos negros

Victor Cardoso, CENTRA - Instituto Superior Técnico

13 March 2013

A visual view on the reading deficit in dyslexia

Marieke van Asselen, IBILI – Faculdade de Medicina da Universidade de Coimbra

10 April 2013

Nanomedicine and biophotonics: a new frontier for Physics

Teresa Petersen, INL - Iberian Nanotechnology Laboratory

15 May 2013

Electronics at the atomic scale

Joaquin Fernandez-Rossier, INL - Iberian Nanotechnology Laboratory

12 June 2013

Efeitos quânticos em Biologia

Michael Scott Belsley, Departamento de Física da Universidade do Minho

30 October 2013

TENDÊNCIAS RECENTES A NÍVEL EUROPEU QUE AFECTAM A INVESTIGAÇÃO EM PORTUGAL

Helena Nazaré - Departamento de Física, Universidade de Aveiro

27 November 2013

OPTICAL, BIOLOGICAL AND ENVIRONMENTAL INTERACTIONS IN MYOPIA

Ian Flitcroft - Children's University Hospital, Dublin, Ireland

18 December 2013

FÍSICA E BRINQUEDOS

Manuel Joaquim Baptista Fiolhais - Faculdade de Ciência e Tecnologia, Universidade de Coimbra



5.2.2. Physics Seminars

Coordinator in 2013: Luis Vieira

Titles and speakers:

A. Stephen K. Hashmi (Institute of Organic Chemistry Ruprecht-Karls University Heidelberg, Germany) "Gold Catalysis – Catalysts, Methods, Mechanisms, Applications" January 10th.

Nuno Peres (Universidade do Minho) "Exact solution for square-wave grating covered with graphene: Surface plasmons-polaritons in the THz range" January 11th.

Rui Soares Barbosa (Dep. Computer Science, University of Oxford, UK) "The logic of non-locality and quantum informatics" March 6th.

Ana Célia Vila Verde (Max Planck Institute of Colloids and Interfaces, Theory and Bio-systems Department, Potsdam, Germany) "Cooperative slowdown of water rotation near densely charged ions is intense but short-range" March 27th.

Andrey L. Rogach (City University of Hong Kong, China) "Functional Hybrid Structures of Semiconductor and Metal Nanocrystals" April 26th.

Yuriy P. Rakovich (Centro de Fisica de Materiales, San Sebastian, Spain) "Quantum Dots for Enhanced Light Harvesting: Exploration of Energy Transfer from Semiconductor Nanocrystals to Photosynthetic Biological Complexes" April 26th.

Andrea Parisini (CNR-IMM Sezione di Bologna, Italy) "Seeing and measuring with electrons" May 10th.

Marian Cholewa (Rzeszow University of Technology, Rzeszow, Poland) "Development and applications of new nano-materials for high speed, high efficiency and high resolution radiation detectors" May 22th.

"An X-ray microprobe and its applications in high resolution imaging" May 22th.

Sara Costa (Department of Physics, Federal University of Minas Gerais (UFMG), Belo Horizonte MG, Brazil) "Carbon materials: from growth to applications, from a Raman spectroscopy point of view" June 14th.

António M. dos Santos (Quantum Condensed Matter Division, Neutron Sciences Directorate Oak Ridge National Laboratory, Oak Ridge Tennessee, USA) "Frontiers of Neutron Research at SNAP: Research on Solid State Physics, Chemistry and Geophysics" June 21st.

Filipe Pacetti Correia (Deloitte Consultores) "O que faz um físico teórico na consultoria" July 3rd.

Kristiaan Temst (Instituut voor Kern- en Stralingsphysica, KU Leuven, Belgium) "Exchange bias revisited: correlating structure with magnetism in Co-CoO systems made by oxygen implantation in Co thin films" September 4th.

5.2.3. Annual Workshop "Jornadas" of the Centre of Physics

At the 4 th of October, 2013, held the —Jornadas do CFUM 2013 devoted to Strategic Research Topics of the Centro de Física, at the Anfiteatro da Escola de Ciências, Gualtar, Braga.

Thin Vacuum Coatings and Structured Surfaces (Session Organiser: Martin Andritschky)



Hybrid bionanosystems based on self-assembled structures, quantum dots, plasmonic and magnetic nanoparticles
(Session Organiser: Paulo Coutinho)

Assessment and Enhancing Visual Performance (Session Organiser: Sérgio Nascimento)

Plasmonics and strongly correlated electrons in nanostructures (Session Organiser: Nuno Peres)

Sensors: new materials and concepts (Session Organiser: Senentxu Lanceros-Mendes)

Organization:

Mikhail Vasilevskiy

Martin Andritschky

Nuno Peres

Paulo Coutinho

Sérgio Nascimento

Senentxu Lanceros-Mendes

5.3. Scientific Training

The following table presents the number os individual projects conducted at the Center of Physics, lead to the achievement of evidence the Masters and Ph.D.:

MASTERS THESES (ENROLLED AT ECUM/TOTAL)		ONGOING	55/70
		COMPLETED	47/64
PH.D. THESES (ENROLLED AT ECUM/TOTAL)		ONGOING	32/49
		COMPLETED	11/16

5.4. Funding

	Funding assigned in 2013	Funding received in 2013	Funding executed in 2013	Nº of ongoing projects
Strategic project FCT/Incentive	114 056.00€	194 477.75€	138 970.24€	1
FCT projects	217 029.00€	511 237.22€	445 565.05€	24
National Proj. (bilaterals,...)	6 000.00€	6 000.00€	3 000.00€	2
International Proj. (FP7, ...)	137 602.00€	195 150.76€	59 628.68 €	2
Industry Proj. - international	53 426.00€	52 417.00€	60 800.00€	5
Industry Proj. - national	259 309.30€	144 176.44€	52 801.24€	6
Total	788 529.30€	1 103 459.17€	645 063.43€	40



5.5. Scientific Production Indicators by group in 2013

	FAMO	FCD	FCT	FMNC	GRF	GCEP	OCV	TOTAL
Nº Effective Members with Ph.D.	9	5	2	3	11	14	12	56
Nº Associate Members	0	1	0	0	1	1	2	5
Nº Post-Docs (total in 2013 / as on 31.12.2013)	3 3	6 5	2 1	2 1	0 0	3 3	1 0	17 13
Book Chapters	0	1	1/2	0	6 ^{1/2}	1	2	11
Regular articles published in ISI Journals	11 ^{1/3}	42 ^{1/3}	3 ^{1/3}	11 ^{1/3}	30 ^{1/2}	28 ^{1/2+2/3}	19	147
Average Impact factor	2.67	2.24	3.95	2.24	3.65	3.53	1.26	2.54
Conference Proceedings published in ISI Journals	1/2	1	0	0	1 ^{1/2}	3	0	6
ISI Conference Proceedings published in Conference Books	1/2	2	0	0	1	0	9 ^{1/2}	13
Invited Talks in Scientific Conferences	2	1	0	0	6 ^{1/2}	7	25 ^{1/2}	42
PhD Theses concluded (enrolled at ECUM / total)	2 2	5 8	1 1	3 3	0 2	0 0	0 0	11 16
PhD Theses in progress (enrolled at ECUM / total)	5 6	7 11	2 2	1 2	5 12	3 5	9 11	32 49
Externally funded projects (FP7, FCT, ADI)	3	4	0	1	7	7	6	28
Bilateral Cooperation Projects	1	0	0	0	1	0	0	2
Collaboration Projects with Industry	1	1	0	0	1	0	6	9
Patents (national/international)	0 0	1 0	0 0	0 0	0 3	0 0	0 3	1 6

- Strategic project included in the table 5.4



6. Research Groups

6.1. Atomic, Molecular and Optical Group (FAMO)

6.1.1. Summary description of the scientific work carried out by the group in 2013

- Photophysical studies of the interaction of lipid membranes, DNA and proteins of new potential antitumoral compounds (thienopyridine derivatives, quinolines);
- Development of nanoliposomes and magnetoliposomes (liposomes entrapping magnetic nanoparticles) for the encapsulation and transport of antitumoral compounds;
- Characterization of pDNA/DODAB/MO, pDNA/DODAC/Chol/MO and pDNA/DODAC/MO/CHEMs lipoplexes for gene transfection;
- Development of DODAX/MO liposomes finely tuned by monoolein for therapeutic siRNA delivery;
- Characterization of novel cationic Gemini surfactants based on the amino acid serine;
- Studies of the steady state and time-resolved photophysical properties of new pyrenylamino acid derivatives towards fluorescent probes for peptides and proteins;
- Evaluation of the photocatalytic activity of nanoparticles (semiconductor, magnetic or metallic) coated with a sol-gel TiO₂ layer;
- Core/shell nanoparticle deposition and self-organization as Langmuir-Blodgett films;
- Novel method to greatly improve the visibility of graphene flakes that employs refractive index optimization;
- Novel method to measure the spatial mode content of a statistically stationary cw laser beams.

6.1.2. Updated composition of the group

Principal investigator	Michael Belsley
Research area	Photophysics, Photochemistry, Biophysics, Nanomaterials
Group Members	<p><u>Effective members:</u></p> <p>Eduardo J. Nunes Pereira - Assistant Professor Elisabete MS Castanheira Coutinho - Assistant Professor Mário Rui C. Pereira - Assistant Professor Paulo J. G. Coutinho - Assistant Professor Maria Teresa R. Viseu - Assistant Professor Julia B. Ayres de Campos Tovar - Assistant Professor Maria Elisabete CD Real Oliveira - Associate Professor with Habilitation Michael Scott Belsley - Associate Professor with Habilitation Marlene Susana Lúcio – Researcher (since September 2013)</p> <p><u>Post Doctoral Researchers and Research Fellows with Ph.D.</u></p> <p>-Peter Schellenberg – Research Fellow with PhD (since March) - Bachu Rama Raju - FCT post-doc grant. -Luís Alves - FCT post-doc grant</p> <p><u>PhD and other research students :</u></p>



	Ana Cristina Norberto Gonçalves de Oliveira – PhD student
	Ana Rita Oliveira Rodrigues– PhD student
	Sara Filomena Ribeiro Pimenta– PhD student
	Maria Solange Dantas Carvalho– PhD student (Till July 2013)
	Arlindo Miguel Fontes Garcia– PhD student
	Rosa Cristina Moutinho Ferreira– PhD student
	João Paulo Neves da Silva– PhD student
	Maria Catarina Santos Carneiro– PhD student

6.1.3. Scientific Production

6.1.3.1. Regular articles published in ISI Journals

Comparison of IgA, TNF-α and surface tension of the tear film in two different times of the day. Ana Puinhas; Paula Sampaio; Elisabete M. S. Castanheira; M. Elisabete C. D. Real Oliveira, Madalena Lira. Contact Lens & Anterior Eye 36 (2013) 140– 145. IF: 1.500 FAMO, OCV

Enhancement of graphene visibility on transparent substrates by refractive index optimization. Gonçalves, H., Alves, L., Moura, C., Belsley, M., Stauber, T., Schellenberg, P., Optics Express 21 (10) 12934-12941 (2013) <http://hdl.handle.net/1822/25418>. IF: 3.546 FAMO, GRF

Ferroelectric characterization of aligned barium titanate nanofibres, Pedro Sá, Jose Barbosa, Igor Bdikin, Bernardo Almeida, Anabela G. Rolo, Etelvina de Matos Gomes, Michael Belsley, Andrei L Kholkin and Dmitry Isakov, J. Phys. D: Appl. Phys. 46 (2013) 105304 (6pp) doi:10.1088/0022-3727/46/10/105304 IF: 2.528 FAMO, GCEP, FCD

Fluorescence studies on potential antitumor 6-(hetero)arylthieno[3,2-b]pyridine derivatives in solution and in nanoliposomes, M. S. D. Carvalho, A. C. L. Hortelão, R. C. Calhelha, A. S. Abreu, Paulo J. G. Coutinho, Maria-João R. P. Queiroz, Elisabete M. S. Castanheira, Journal of Photochemistry and Photobiology A: Chemistry 264, 56-66 (2013); <http://hdl.handle.net/1822/24472> FAMO 2.925 IF: 2.416 FAMO

Holographic spatial coherence analysis of a laser”, Ferreira, Flavio; Belsley, Michael, Optics Letters, 38 (21), pp 4350-4353 (2013) IF:3.385 FAMO

New 1,3-diarylureas linked by C-C Suzuki coupling to the methyl 3-aminothieno[3,2-b]pyridine-2-carboxylate moiety: synthesis and fluorescence studies in solution and in lipid membranes, Maria-João R. P. Queiroz, Daniela Peixoto, Ana Rita O. Rodrigues, Pedro M. F. Mendes, Cádia N. C. Costa, Paulo J. G. Coutinho, Elisabete M. S. Castanheira, Journal of Photochemistry and Photobiology A: Chemistry 255, 27-35 (2013); <http://hdl.handle.net/1822/23329> FAMO IF: 2.416 FAMO



Novel Nile Blue derivatives as fluorescent probes for DNA, B. Rama Raju, Sarala Naik, Paulo J.G. Coutinho, M. Sameiro T. Gonçalves, Dyes and Pigments 99, 220-227 (2013); <http://dx.doi.org/10.1016/j.dyepig.2013.05.007> FAMO IF: 3.532 FAMO

Release of Volatile Compounds from Polymeric Microcapsules Mediated by Photocatalytic Nanoparticles, J. Marques, L. F. Oliveira, R. T. Pinto, P. J. G. Coutinho, P. Parpot, J. R. Góis, J. F. J. Coelho, F. D. Magalhães, C. J. Tavares, International Journal of Photoenergy 2013, Article ID 712603 (2013); <http://hdl.handle.net/1822/24546> FAMO+GRF IF: 2.663 FAMO, GRF

Spectroscopic, nonlinear optical and quantum chemical studies on pyrrolidinium p-hydroxybenzoate - A phase matchable organic NLO crystal, Shanmugam, G. and Belsley, M.S. and Isakov, D. and De Matos Gomes, E. and Nehru, K. and Brahadeeswaran, S., Spectrochimica Acta - Part A: Molecular and Biomolecular Spectroscopy 114, 284-292 (2013) IF: 1.977 FAMO, FCD

Synthesis and photophysical properties of side-chain chlorinated benzo[a]phenoxazinium chlorides, B. Rama Raju, A. Daniela G. Firmino, A. Luisa S. Costa, Paulo J. G. Coutinho, M. S. T. Gonçalves, Tetrahedron 69, 2451-2461 (2013); <http://dx.doi.org/10.1016/j.tet.2013.01.035> FAMO IF: 2.803 FAMO

Synthesis and photophysical studies of new pyrenylamino acids, Goreti Pereira, Elisabete M.S. Castanheira, Peter Schellenberg, M. Belsley, Paula M. T. Ferreira, Luís S. Monteiro, Tetrahedron 69, 10254-10261 (2013); <http://hdl.handle.net/1822/26698> FAMO IF: 2.803 FAMO

Synthesis of fluorescent alanines by a rhodium-catalysed conjugate addition of arylboronic acids to dehydroalanine derivatives, Paula M. T. Ferreira, Luís S. Monteiro, Goreti Pereira, Elisabete M. S. Castanheira, Christopher G. Frost, European Journal of Organic Chemistry 2013 (3), 550-556 (2013); <http://hdl.handle.net/1822/22066>; FAMO IF: 3.344 FAMO

Ultracold Atoms in Optical Lattices: Simulating Quantum Many-Body Systems", Michael Belsley, Contemporary Physics 54(2), pp.112-113 (2013) IF:2,614 FAMO

Yarn periodical errors determination using three signal processing approaches, Carvalho, V. and Belsley, M. and Vasconcelos, R.M. and Soares, F.O., Digital Signal Processing: A Review Journal 5, 1427-1440 (2013) IF: 1.918 FAMO

6.1.3.2. Conference Proceedings published in ISI Journals

Photocatalytic thin films coupled with polymeric microcapsules for the controlled-release of volatile agents upon solar activation, L.F. Oliveira, J. Marques, P.J.G. Coutinho, P. Parpot, C.J. Tavares, Journal of Physics: Conference Series 439 (2013) 012018. (Open Acess: <http://dx.doi.org/10.1088/1742-6596/439/1/012018>) <http://hdl.handle.net/1822/24547> FAMO, GRF

6.1.3.3. ISI Conference Proceedings published in Conference books

Comparison between three methods to value lower tear meniscos measured by Image software. Carlos García-Resúa, Hugo Pena-Verdeal, Madalena Lira, M. Elisabete Real Oliveira, María Jesús Giráldez, Eva Yebra-Pimentel. 8th Iberoamerican Optics Meeting and 11th Latin American Meeting on Optics, Lasers, and Applications 2013. Proc. of SPIE Vol. 8785, 8785EV 2013 SPIE · CCC code: 0277-786X/13/\$18 doi: 10.1117/12.2030433. OCV, FAMO



6.1.3.4. Master theses completed in 2013

Author: Paulo Machado

Supervisor: Manuel Filipe Costa

Title: Experiências Elementares de Física para Alunos do Ensino Pré-escolar e 1.º Ciclo

Terminated: December/2013 School of Sciences, UM

Author: Pedro Miguel Faria Mendes

Supervisor: Elisabete Coutinho, Paulo Coutinho

Title: Desenvolvimento de magnetolipossomas baseados em magnetite para aplicações na entrega de fármacos antitumorais

Terminated: June /2013 School of Sciences, UM

Author: Maria Fernanda Bessa Carvalho Nery

Supervisor: Teresa Viseu

Title: O Ensino e a Aprendizagem da Física Experimental do 10º ano de escolaridade: uma abordagem tecnológica

Terminated: December/2013 School of Sciences, UM

Author: Juan Andrés Quigua Arroyo

Supervisor: Yolanda Diebold Luque (Univ. Valladolid), M. Elisabete Oliveira

Title: Adipose tissue-derived mesenchymal stem cell (AT-MSC) interaction with human-fibrin bades matrices

Terminated: October/2013 School of Sciences, UM

Author:José Henrique Roque da Silveira Cachetas

Supervisor: Paulo Coutinho, Maria João Sousa Moreira (DB)

Title: Desenvolvimento e ensaios biológicos de bionanoconjugados baseados em pontos quânticos de CdSe/ZnS

Terminated: May /2013 School of Sciences, UM

Author:Ivo Edgar Araújo Lopes

Supervisor: M. Elisabete Oliveira, Andreia Gomes (DB)

Title:Desenvolvimento de lipoplexos estáveis DOBAD/MO/PEG-FOL para targeting de células seletivamente expressando receptor do folato

Terminated: March/2013 School of Sciences, UM

Author: João Carlos Henriques Guimarães

Supervisor: Dimitrios Stamou (Univ. Copenhagen), M. Elisabete Oliveira

Title: Interação Biomembranar - Parâmetros que influenciam a ligação de dendrimeros, péptidos lipidados e carregados eletricamente a biomembranas

Terminated: December/2013 School of Sciences, UM

Author: Hugo José Fernandes Carvalho

Supervisor: M. Elisabete Oliveira, Andreia Gomes (DB)

Title: Desenvolvimento de lipossomas sensíveis ao PH para aplicações biomédicas

Terminated: December/2013 School of Sciences, UM

Author: Hugo Manuel Castro Gonçalves

Supervisor: Michael Belsley, Peter Schellenberg



Title: Espectroscopia de fluorescência resolvida no tempo em estruturas nanoplasmonicas baseadas em grafeno
Terminated: December/2013 School of Sciences, UM

Author: Cátia Natércia Campos Costa

Supervisor: Elisabete Coutinho, Paulo Coutinho

Title: Estudo da interação de novos compostos potencialmente antitumorais com proteínas membranares e membranas biológicas

Terminated: December/2013 School of Sciences, UM

Author: César Bernardo

Supervisor: Peter Schellenberg,

Title: Synthesis, characterization, energy transfer and binding properties of quantum dots and it's superstructures

Terminated: December/2013 School of Sciences, UM

Author: José Alberto Martins (CQ)

Supervisor: António José Felgueiras Castro Nuno Michaelo (DQ), M. Elisabete Oliveira, Paula Sampaio (DB)

Title: Estudo computacional para a seleção de péptidos com potencial imunogénico para o desenvolvimento de estratégias imunoprotetoras contra Candida Albicans baseada em sistemas lipossomas

Terminated: September/2013 School of Sciences, UM

Author: André Eduardo Carneiro Dias

Supervisor: Karen L. Martinez (Univ. Copenhaga), Paulo Coutinho

Title: Biofunctionalization of InAs nanowires for biosensing

Terminated: September/2013 School of Sciences, UM

Author: Ricardo Baptista Lima

Supervisor: Etelvina Gomes, Dmitry Isakov, Bernardo Almeida

Title: Nanofibers of Biological Materials

Terminated: December/2013 School of Engeneering UM

Author: Tiago Monteiro

Supervisor: Etelvina Gomes, Dmitry Isakov;

Title: Nanofibers of small organic molecules for nonlinear optical applications

Terminated: October/2013 School of Engeneering UM

6.1.3.5. Ph.D. theses completed in 2013

Author: João Paulo Neves Silva

Supervisor: Elisabete Oliveira, Paulo Coutinho, Olga Coutinho (DB)

Title: Caracterização físico-química de liposomas catiónicos DNA e o estudo do seu potencial como vectores não-virais

Terminated: December/2013 School of Sciences, UM

Author: Maria Solange D. Carvalho

Supervisor: Elisabete Coutinho, M. João Queiroz (DQ)

Title: Novos compostos heterocílicos bioactivos fluorescentes: síntese, estudos fotofísicos de interação com ADN e membranas lípidas e ensaios de libertação controlada usando nanolipossomas

Terminated: July/2013 School of Sciences, UM



6.1.3.6. Master theses in progress in 2013

Author: Ana Cândida Lopes Hortelão

Supervisor: Elisabete Coutinho

Title: Biocompatible peptide hydrogels as drug delivery systems

Develloping at the School of Sciences since October 2013

Author: José Mário Ferreira Ramos

Supervisor: Elisabete Coutinho, Paulo Coutinho

Title: Produção de magnetolipossomas sólidos baseados em ferrites dopadas com manganês para aplicação na entrega de fármacos antitumorais

Developing since 2012 at the School of Sciences

Author: Ana Catarina Pereira Correia

Supervisor: Eduardo Pereira

Title: Transporte de radiação superdifuso

Develloping at the School of Sciences since 2012

Author: Bruno Filipe Pereira da Silva

Supervisor: Paulo Coutinho

Title: Biosensores baseados na associação de enzimas a superfícies plasmónicas de ouro

Develloping at the School of Sciences since 2013

Author: Catarina Dias da Costa

Supervisor: Eduardo Marques (UP), M. Elisabete Oliveira, Andreia Gomes (DB)

Title: Development of lipofection vectors based in novel serine-based cationic gemini surfactants finely tuned by monoolein for therapeutic siRNA delivery.

Develloping at the School os Sciences and University of Porto since September 2013

Author: Fátima Alexandra Meira Machado

Supervisor: M. Elisabete Oliveira, Andreia Gomes (DB)

Title: Desenvolvimento de uma formulação lipossomal para a entrega de péptidos para servir como vacina contra a leucemia mieloide crónica

Develloping at the School of Sciences since 2012

Author: Fernando Henriques Almeida

Supervisor: M. Elisabete Oliveira, Andreia Gomes (DB)

Title: Complexação simultânea de siRNA e pDNA em DODAB:MO para aumentar o silenciamento de genes.

Develloping at the School of Sciences since 2013

Author: Otilia Maria Gonçalves Lopes

Supervisor: Elisabete Coutinho, M. Elisabete Oliveira, Madalena Lira

Title: Estudo da adesão de proteínas a diferentes tipos de lentes de contacto

Develloping at the School of Sciences since 2012

Author: Sara Emanuela Silva Nogueira

Supervisor: Ana Preto (DB), M. Elisabete Oliveira, Andreia Gomes (DB)



Title: Development of new DODAX:MO:DC-chol nanoparticles containing BRAF-siRNAs for colorectal carcinoma therapy.
Develloping at the School os Sciences and University of Porto since September 2013

Author: Sílvia Rodrigues Gavinho

Supervisor: Paulo Coutinho, Elisabete Coutinho

Title: Desenvolvimento de magneto-lipossomas de nanopartículas de óxidos de ferro e cálcio para transporte e entrega de fármacos antitumorais

Develloping at the School of Sciences since October 2013

Author: Tânia Sofia Oliveira Ferreira

Supervisor: Elisabete Coutinho, Paulo Coutinho

Title: Desenvolvimento de magneto-lipossomas de nanopartículas de óxidos de ferro e magnésio para transporte e entrega de fármacos

Develloping at the School of Sciences since October 2013

Author: Diogo da Cunha Rodrigues (MEI)

Supervisor: João Luis Sobral (DI) Co-Supervisor: Eduardo Pereira

Title: Simulação em ambientes paralelos da dispersão de fotões num guia de luz.

Develloping at the School of Engeneering since September 2013

6.1.3.7. Ph.D. theses in progress in 2013

Author: Ana C. Oliveira

Supervisor: Elisabete Oliveira, Andreia Gomes (DB)

Title: Development of Monoolein-based lipofection vectors for therapeutic siRNA delivery

Develloping at the School of Sciences since 2011

Author: Ana Rita Oliveira Rodrigues

Supervisor: Elisabete Coutinho, Paulo Coutinho

Title: Magnetoliposomes of nickel-based nanoparticles for the delivery of potential antitumour drugs

Develloping at the School of Sciences since 2013

Author: Arlindo Miguel Fontes Garcia

Supervisor: Paulo Coutinho

Title: Preparação e caracterização fotofísica de nanopartículas semicondutoras de tipo núcleo/corona por moldagem com meios microheterogéneos

Develloping at the School of Sciences since 2008

Author: Rosa Cristina Moutinho Ferreira

Supervisor: Maria Manuela Raposo (DQ), Michael Belsley

Title: Innovative Two-Photon Absorbing (TPA) chromophores as sensors, photo-initiators or data storage elements: design, synthesis and development for applications

Develloping at the School of Sciences since 2012

Author: Catarina Carneiro

Supervisor: Elisabete Oliveira, Paula Sampaio (DB), Andreia Gomes (DB)

Title: Cationic liposomes as antigenic delivery systems: development of na immunoprotective strategy against fungal infactions



Developing at the School of Sciences since 2011

Author: Sara Filomena Ribeiro Pimenta

Supervisor: Graça Minas (C. Algoritmi), Elisabete Coutinho

Title: Espetroscopia integrada num microssistema para a deteção precoce de cancro

Developing at the School of Engineering since February 2013

6.1.4. Other scientific activities

6.1.4.1. Invited Lectures/seminars delivered by members of the group in national or international conferences

National

Monoolein-based self-assembled nanosystems for biophysical applications. M. Elisabete C.D, Real Oliveira, Jornadas do Centro de Física, 2013 FAMO

A soft method for the production of CdSe and CdSe/ZnS quantum dots, Paulo J. G. Coutinho, 11ENQF - 11º Encontro Nacional de Química-Física, Porto, 9-10 May 2013; <http://hdl.handle.net/1822/24063> FAMO FAMO

6.1.5. Other scientific activities

6.1.6. Funded projects ongoing

Title: Non-Linear Spectroscopy of organic donor-acceptor

Reference: PTDC/CTM/105 597/2008

Project Coordinator: Michael Scott Belsley

Funding awarded: 165 000.00 Euros

Start Date: March 2010

Duration: 3 years

Title: Espectroscópia ultra-rápida para estudos de dinâmica e reflexão dos electrões de Dirac no grafeno

Reference: PTDC/FIS/101434/2008

Project Coordinator: Tobias Stauber, Peter Schellenberg

Funding awarded: 161,000.00 Euros

Start Date: May 2010

Duration: 3 years

Title: Polímeros fotocrómicos activados por excitação com dois fotões

Reference: PTDC/CTM-POL/114367/2009,

Project Coordinator: Eduardo Pereira

Fundins awarded: 12.840.00 Euros

Start date: April 2011

Duration: 3 years



6.1.7. Other information

6.1.7.1. Other conference presentations given by members of the group in national or international conferences

- International

Oral Development of DODAB:MO Liposomes for Gene Delivery, J. P. Neves Silva, A. C. N. Oliveira, A. F. C. Gomes and M. Elisabete C.D, Real Oliveira, RICI5, Donostia S. Sebastian, 2013. FAMO

Oral Dioctadecyldimethylammonium Bromide/Chloride: Monoolein Liposomes for Nucleic Acid Delivery, A. C. Gomes, J. P. Neves Silva, A. C. N. Oliveira and M. Elisabete C.D, Real Oliveira,, ACS National Meeting, New Orleans, 245th American Chemical Society National Meeting April 7-11, 2013, New Orleans, LA. FAMO

Oral Graphene: A new material for photonics applications, P. Schellenberg , Hochschule Rhein Main, Rüsselsheim, Germany, 19.11.2013 FAMO

Oral Monoolein-based liposomes for siRNA delivery, Ana C. N. Oliveira, Thomas Martens, Koen Raemdonck, Andreia C. Gomes, Kevin Braekmans, M. Elisabete C.D, Real Oliveira, RICI5, Donostia S. Sebastian, 2013. FAMO

Poster Benzo[a]phenoxazinium chlorides possessing chlorinated terminals: synthesis, photophysics and photostability studies, Marcello M. T. Carvalho, B. Rama Raju, Paulo J. G. Coutinho, M. Sameiro T. Gonçalves, 10th Portuguese National Meeting of Organic Chemistry / 1st Portuguese-Brazilian Organic Chemistry Symposium, Lisbon Portugal , 4-6 September 2013; FAMO FAMO

Poster Comparison between three methods to value lower tear meniscus measured by Image software, Carlos García-Resúa, Hugo Pena-Verdeal1, Madalena Lira, M. Elisabete C.D. Real Oliveira, María Jesús Giráldez, Eva Yebra-Pimentel, ETOP, 2013. OCV,FAMO

Poster Comparison between three methods to value lower tear meniscus measured by Image software. Carlos García-Resúa, Hugo Pena-Verdeal, Madalena Lira, M. Elisabete Real Oliveira, María Jesús Giráldez, Eva Yebra-Pimentel. RIAO/OPTILAS 2013, VIII Iberoamerican Conference on Optics, XI Latinamerican meeting on Optics, Lasers and Applications. Faculdade de Ciências da Uinversidade do Porto, Portugal, 22- 26 julho. OCV, FAMO

Poster Development of an immunoprotective strategy against *C. albicans* systemic infections using cationic liposomes as antigenic delivery systems, Catarina Carneiro, Alexandra Correia, Célia Pais, Andreia Gomes, M. Elisabete C.D. Real Oliveira, Paula Sampaio- Fifth FEBS Advanced Lecture Course, May 25-31, 2013, La Colle sur Loup, France. FAMO

Poster Energy transfer in quantum nanodot superstructures of fractal dimensions, C. Bernardo, M. Belsley, P. Coutinho, I. Moura, M. Vasilevskiy, J.A. Martins, P.Schellenberg Conference on Methods and Applications of Fluorescence: Spectroscopy, Imaging and Probes (MAF-13), 08.09.13 - 11.09.13, Genoa, Italy GCEP, FAMO

Poster Energy transfer via exciton transport in quantum dot based self-assembled superstructures, C. Bernardo, M. Belsley, Paulo Coutinho, Peter Schellenberg, Isabel Moura, Yuriel Núñez Fernández, Tobias Stauber, and Mikhail Vasilevskiy, 13th International Conference on Optics of Excitons in Confined Systems OECS'13 , Rome, Italy, 9-13 September 2013. GCEP, FAMO



Poster Evaluation of optical properties of different types of contact lenses, Clara Pereira, Elisabete M. S. Castanheira, M. Elisabete C. D. Real Oliveira, Madalena Lira, International Conference of Optometry and Vision Science 2013 CIOCV'2013 , Braga Portugal , 13-14 April 2013; <http://hdl.handle.net/1822/24477> FAMO+OCV FAMO, OCV

Poster Fluorescence probing of energy transfer in quantum nanodot superstructures, C. Bernardo, M. Belsley, P. Coutinho, M. Vasilevskiy, J.A. Martins, P. Schellenberg 8th Workshop on Advanced Multiphoton and Fluorescence Lifetime Imaging Techniques, 01.07.13 - 02.07.13, Saarbrücken, Germany FAMO, GCEP

Poster Influence of power on central thickness and oxygen transmissibility of different contact lenses. Madalena Lira, Clara Pereira, M Elisabete C.D. Real Oliveira, Elisabete M. S. Castanheira. British Contact lens association. British Contact Lens Association BCLA , Manchester, 6-9 junho 2013. FAMO, OCV

Poster Magnetoliposomes based on magnetite nanoparticles, Elisabete M. S. Castanheira, Pedro M. F. Mendes, Paulo J. G. Coutinho, Bernardo G. Almeida, I. T. Gomes, J. P. Araújo, NanoPT2013 – International Conference in Nanoscience and Nanotechnology, Porto Portugal , 13-15 February 2013; <http://hdl.handle.net/1822/23066> FAMO+FCD FAMO, FCD

Poster Magnetoliposomes based on nickel/silica core/shell nanoparticles, Ana Rita O. Rodrigues, Elisabete M. S. Castanheira, Paulo J. G. Coutinho, Bernardo G. Almeida, I. T. Gomes, J. P. Araújo, NanoPT2013 – International Conference in Nanoscience and Nanotechnology, Porto Portugal , 13-15 February 2013; <http://hdl.handle.net/1822/23065> FAMO+FCD FAMO, FCD

Poster Optics, spectroscopy and plasmonics of graphene and graphene-chromophore structures, H. Gonçalves, M. Belsley, T. Stauber, L. Alves, C. Bernardo, C. Moura, G. Gomez Santos, P. Schellenberg 8th Workshop on Advanced Multiphoton and Fluorescence Lifetime Imaging Techniques, 01.07.13 - 02.07.13, Saarbrücken, Germany FAMO, GRF

Poster oral Development of DODAB:MO Liposomes for Intracellular Gene Delivery, J. P. Neves Silva , A. C. N. Oliveira, A. C. Gomes and M. Elisabete C.D, Real Oliveira, NanoFol-NanoDiara Conference -Nanoparticles for early Diagnostics of inflammatory diseases, November 20/21 2013, Lisbon. FAMO

Poster oral DODAC:MO:DC-Chol/CHEMS lipoplexes for gene delivery Odete Gonçalves, Hugo Carvalho, João P.N. Silva, Andreia C. Gomes and M. Elisabete C.D. Real Oliveira, RICI 5-Donostia-San-Sebastian, 26th-28th June 2013 FAMO

Poster Production and Photoactivity spectrum of Ni/TiO₂ core shell nanoparticles, P. Coutinho, B. Peixoto, R. Kabir, P. Schellenberg NanoPortugal International Conference 2013, 13.02.13 - 15.02.13, Porto, Portugal FAMO

Poster Self-assembled quantum dot based polycrystalline superstructures with energy transfer properties,C. Bernardo, M. Belsley, P. Coutinho, M. Vasilevskiy, P. Schellenberg Advanced school on modern trends of biophotonics for diagnosis and treatment of cancer and microbial control 2013, 11.04.13 - 19.04.13, Sao Paulo, Brazil FAMO, GCEP

Poster Self-assembled quantum dot based polycrystalline superstructures with energy transfer properties,C. Bernardo, M. Belsley, P. Coutinho, M. Vasilevskiy, P. Schellenberg NanoPortugal International Conference 2013, 13.02.13 - 15.02.13, Porto, Portugal FAMO, GCEP

Poster Study of dielectric, pyroelectric, piezoelectric and ferroelectric properties in polymer nanofibers composed of potassium sodium tartrate", P. Sá, J. Barbosa, B. Almeida, A.G. Rolo, E. de Matos Gomes, M. Belsley, D. Isakov, 13th International Meeting on Ferroelectricity IMF-13 , Kraków, Poland, 2-6 September, 2013 <http://hdl.handle.net/1822/24477> FCD, GCEP, FAMO



National

Poster Desenvolvimento de lipossomas DODAP:MO para entrega de drogas, Ana Carvalho, Andreia C Gomes, M-Elisabete C.D, Real Oliveira, Jornadas Biologia Aplicada, 2013 FAMO

Poster Development of stable lipoplexes DODAC/MO/PEG-FOL for selective delivery, via folate receptor of therapeutic siRNA, Ivo Lopes, Ana C.N. Oliveira, Marisa P. Sárria, João P. Neves Silva, Odete Gonçalves, Andreia C. Gomes and M. Elisabete C.D. Real Oliveira, XXXVIII, Jornadas Portuguesas de Genética, 2013, Vila Real. FAMO

Poster Festa da Ciência, Estelita Vaz, Alice Dias, Ana Carvalho, Ana Cunha, Arminda Manuela Gonçalves, Carlos Silva, Elisabete Coutinho, Luís Cunha, Maria Cláudia Araújo, Maria Teresa Almeida, Paula Ramos Nogueira, Pedro Pimenta Simões, Sandra Paiva, SciCom Pt 2013 - Congresso de Comunicação de Ciência, 26 a 28 de maio de 2013, Lisboa, Portugal. FAMO, GRF

Poster Tertúlias FNACiênciа: a socialização do conhecimento, Sandra Paiva, Alice Dias, Ana Carvalho, Ana Cunha, Arminda Manuela Gonçalves, Carlos Silva, Elisabete Coutinho, Luís Cunha, Maria Cláudia Araújo, Maria Teresa Almeida, Paula Ramos Nogueira, Pedro Pimenta Simões, Estelita Vaz, SciCom Pt 2013 - Congresso de Comunicação de Ciência, 26 a 28 de maio de 2013, Lisboa, Portugal. GRF, FAMO

6.1.8. Future research

We plan to continue the ongoing development of high-throughput biophysical strategies for the design of therapeutic nano-carriers with increased efficacy and reduced toxicity.

Carry out the material characterization of the photophysical mechanisms responsible for the activity of nanoparticle systems for optical biosensors or as efficient photo-catalysts.

Continue to develop and characterize novel fluorescent probes for biological applications including multiphoton absorption.

Develop femtosecond pump-probe techniques to directly follow the energy transfer path in nano-dot assemblies and micro-structured environments.



6.2. Group of Cooperative Phenomena in Dielectrics (FCD)

6.2.1. Summary description of the scientific work carried out by the group in 2013

- Systematic studies of ferroelectric-ferromagnetic multiferroic nanostructures including its structural elastomecanic properties, (by Raman spectroscopy of the characteristic phonon modes), magnetic (phase transitions, critical temperatures), piezoelectric and transport (magnetoresistance);
- Determination of the conditions for stabilization of incommensurate magnetic phases by means of symmetry arguments in the case of manganites ortonombics multiferroics of RMnO₃ (R is a rare land) ;
- Development of a method of modeling the infrared spectra of polycrystalline materials, based on measurements on the YMnO₃ ceramic, taking into account the resonant scattering of light by randomly oriented inclusions ;
- Optimization of the production of micro and nanofibers of ferroelectric materials, piezoelectric, and nonlinear optics, synthesized by electrospinning; observation of an increase in non- linear response due to the reduction of the inclusions at the nanoscale;
- Optimization of structural, mechanical, dielectric and piezoelectric composites consisting of (a) carbon nanotubes, (b) zeolite , (c) ferroelectric particles dispersed in a polymeric matrix PVDF ;
- Characterization of thermal degradation of the zeolite/PVDF composite as a function of the concentration of particles in the range of the gama PVDF phase;
- Determination of the relationship between processing conditions of the PVDF film and its dielectric and electromechanical properties, in particular the transformation of the alpha phase to the beta phase of the polymer.

6.2.2. Updated composition of the group

Research Group Title	Cooperative Phenomena in Dielectrics
Principal investigator	Bernardo Gonçalves Almeida
Research area	Condensed Matter Physics, Materials Science: <ul style="list-style-type: none">- Novel dielectric and multiferroic materials: syntheses, dielectric and magnetic properties, cooperative phenomena- Nanoscopic materials: piezoelectric composites, nanofibres, thin films
Group Members	<p><u>Effective Members:</u></p> <p>José Luís Ribeiro – Associate Professor with Habilitation Etelvina de Matos Gomes - Associate Professor Senen Lanceros-Mendéz - Associate Professor Bernardo Gonçalves Almeida - Assistant Professor Luís Manuel Gomes Vieira - Assistant Professor</p> <p><u>Associate Member:</u></p> <p>Jorge António Silva Mendes, Assistant Professor, Instituto Politécnico do Porto</p> <p><u>Post-Doctorate Researchers and Research Fellows with PhD:</u></p> <p>Dmitry V. Isakov– Research Fellow with PhD Vitor Sencadas – FCT Post-Doc grant Pedro Martins - FCT Post-Doc grant Vanessa Cardoso - FCT Post-Doc grant</p>



Vitor Correia - FCT Post-Doc grant
Clarisse Ribeiro - FCT Post-Doc grant

PhD and other Research Students:

José Barbosa - PhD student with FCT grant (BI) (Till September 2013)
Isabel Tarroso Gomes - PhD student with FCT grant (BI) (Till October 2013)
Sérgio Mendes, PhD student with FCT grant
Paulo Cardoso, PhD student with FCT grant
João Machado, PhD student with FCT grant
Susana Catarino, PhD student with FCT grant
Gabriel Mendes, PhD student with FCT grant
Juan Alberto Panadero, PhD student with FCT grant
Paulo Sousa - PhD student with FCT grant
Silvia Reis - PhD student with FCT grant
Jaime Silva - PhD student with FCT grant (Till September 2013)
Catarina Lopes - PhD student with FCT grant (Till September 2013)
Armando Ferreira - PhD student with FCT grant
Carlos Costa - PhD student with FCT grant
João Pereira - PhD student with FCT grant (Till December 2013)
Pedro Costa - PhD student with FCT grant
Helder Castro - PhD student with FCT grant
Marco Silva - PhD student with FCT grant
Daniela Correia - PhD student with FCT grant
Vania Pinto- PhD student with FCT grant
Joana Oliveira - PhD student with FCT grant
Ricardo Sousa - PhD student with FCT grant
Pedro Sá - FCT Grant (BI)
Anabela Areias – FCT Grant (BI)
José Carlos Ferreira – FCT Grant (BI)

6.2.3. Scientific Production

6.2.3.1. Regular articles published in ISI Journals

Battery separators based on vinylidene fluoride (VDF) polymers and copolymers for lithium ion battery applications, Costa, Carlos M.; Silva, Maria M.; Lanceros-Mendez, S. RSC ADVANCES Volume: 3 Issue: 29 Pages: 11404-11417 DOI: 10.1039/c3ra40732b Published: 2013 IF: 2.562 FCD

Bioactive albumin functionalized poly(lactic acid) membranes for improved biocompatibility. Nyanhongo, Gibson S.; Rodríguez, Rosario Díaz; Prasetyo, Endry Nugroho; Caparrós, Cristina; Ribeiro, Clarisse; Sencadas, Vitor; Lanceros-Mendez; Herrero Acero, Enrique; Guebitz, Georg Maximilian REACTIVE & FUNCTIONAL POLYMERS Volume: 73 Issue: 10 Special Issue: SI Pages: 1399-1404 DOI: 10.1016/j.reactfunctpolym.2012.12.007 Published: OCT 2013 IF: 2.505 FCD



Composition-dependent physical properties of poly[(vinylidene fluoride)-co-trifluoroethylene]-poly(ethylene oxide) blends, Costa, C. M.; Tamano Machiavello, M. N.; Gomez Ribelles, J. L.; et al. JOURNAL OF MATERIALS SCIENCE Volume: 48 Issue: 9 Pages: 3494-3504 DOI: 10.1007/s10853-013-7141-z Published: MAY 2013 IF: 2.163 FCD

Crystallization kinetics of montmorillonite/poly(vinylidene fluoride) composites and its correlation with the crystalline polymer phase formation. Lopes, A. C.; Coelho Ferreira, J. C.; Costa, C. M.; et al., Source: THERMOCHIMICA ACTA Volume: 574 Pages: 19-25 Published: DEC 20 2013 IF: 1.989 FCD

Development of inkjet printed strain sensors. Correia, V.; Caparros, C.; Casellas, C.; et al. SMART MATERIALS AND STRUCTURES Volume: 22 Issue: 10 Special Issue: SI Article Number: 105028 DOI: 10.1088/0964-1726/22/10/105028 Published: OCT 2013 IF: 2.024 FCD

Dielectric relaxation, ac conductivity and electric modulus in poly(vinylidene fluoride)/NaY zeolite composites. Lopes, A. C.; Costa, C. M.; Sabater i Serra, R.; et al. SOLID STATE IONICS Volume: 235 Pages: 42-50 DOI: 10.1016/j.ssi.2013.01.013 Published: MAR 21 2013 IF: 2.046 FCD

Effect of fiber orientation in gelled poly(vinylidene fluoride) electrospun membranes for Li-ion battery applications. Costa, C. M.; Nunes-Pereira, J.; Sencadas, V.; et al. JOURNAL OF MATERIALS SCIENCE Volume: 48 Issue: 19 Pages: 6833-6840 DOI: 10.1007/s10853-013-7489-0 Published: OCT 2013 IF: 2.163 FCD

Effect of poling state and morphology of piezoelectric poly(vinylidene fluoride) membranes for skeletal muscle tissue engineering , Martins, P. M.; Ribeiro, S.; Ribeiro, C.; et al. Source: RSC ADVANCES Volume: 3 Issue: 39 Pages: 17938-17944 DOI: 10.1039/c3ra43499k Published: 2013 IF: 2.562 FCD

Electrical and photocatalytic behavior of TaOxNy magnetron sputtered thins solid films, Daniel CRISTEA, Aurel CRISAN, Nuno BARRADAS, Eduardo ALVES, Pedro COSTA, Senen LANCEROS-MÉNDEZ, Luis CUNHA, , Metalurgia International Vol 18, special issue 6, 61-64 (2013) - <http://hdl.handle.net/1822/27167> IF: 0.134 FCD, GRF

Electro-mechanical properties of triblock copolymer styrene-butadiene-styrene/carbon nanotube composites for large deformation sensor applications. Costa, P.; Ferreira, A.; Sencadas, V.; et al. SENSORS AND ACTUATORS A-PHYSICAL Volume: 201 Pages: 458-467 DOI: 10.1016/j.sna.2013.08.007 Published: OCT 2013 IF: 1.841 FCD

Electrospun silk-elastin-like fibre mats for tissue engineering applications. Machado, Raul; da Costa, Andre; Sencadas, Vitor; et al. Biomedical materials (Bristol, England) Volume: 8 Issue: 6 Pages: 065009 DOI: 10.1088/1748-6041/8/6/065009 Published: 2013-Dec (Epub 2013 Nov 28) NO IF FCD

Energy harvesting performance of piezoelectric electrospun polymer fibers and polymer/ceramic composites. Nunes-Pereira, J.; Sencadas, V.; Correia, V.; et al. SENSORS AND ACTUATORS A-PHYSICAL Volume: 196 Pages: 55-62 DOI: 10.1016/j.sna.2013.03.023 Published: JUL 1 2013 IF: 1.841 FCD

Evaluation of the main processing parameters influencing the performance of poly(vinylidene fluoride-trifluoroethylene) lithium-ion battery separators, Costa, C. M.; Sencadas, V.; Rocha, J. G.; et al. JOURNAL OF SOLID STATE ELECTROCHEMISTRY Volume: 17 Issue: 3 Pages: 861-870 DOI: 10.1007/s10008-012-1928-8 Published: MAR 2013 IF: 2.279 FCD

Extrusion of poly(vinylidene fluoride) recycled filaments: Effect of the processing cycles on the degree of crystallinity and electroactive phase content. Lanceros, S. Silva, M. P.; Martins, R. S.; Carvalho, H.; et al. POLYMER TESTING Volume:



32 Issue: 6 Pages: 1041-1044 DOI: 10.1016/j.polymertesting.2013.05.010 Published: SEP 2013 IF: 1.646
FCD

Fatigue prediction in fibrin poly-epsilon-caprolactone macroporous scaffolds. Panadero, J A; Vikingsson, L; Gomez Ribelles, J L; et al. Journal of the mechanical behavior of biomedical materials Volume: 28 Pages: 55-61 DOI: 10.1016/j.jmbbm.2013.07.011 Published: 2013-Dec (Epub 2013 Jul 21) NO IF FCD

Ferroelectric characterization of aligned barium titanate nanofibres, Pedro Sá, Jose Barbosa, Igor Bdikin, Bernardo Almeida, Anabela G. Rolo, Etelvina de Matos Gomes, Michael Belsley, Andrei L Kholkin and Dmitry Isakov, J. Phys. D: Appl. Phys. 46 (2013) 105304 (6pp) doi:10.1088/0022-3727/46/10/105304 IF: 2.528 FAMO, GCEP, FCD

Gamma-Phase nucleation and electrical response of poly(vinylidene fluoride)/microporous titanosilicates composites . Caparros, Cristina; Lopes, Ana Catarina; Ferdov, Stanislav; et al. MATERIALS CHEMISTRY AND PHYSICS Volume: 138 Issue: 2-3 Pages: 553-558 DOI: 10.1016/j.matchemphys.2012.12.018 Published: MAR 15 2013 IF: 2.072 GRF, FCD

Improving the binding capacity of Ni²⁺ decorated porous magnetic silica spheres for histidine-rich protein separation, Benelmekki, M.; Caparros, C.; Xuriguera, E.; et al. COLLOIDS AND SURFACES B-BIOINTERFACES Volume: 101 Pages: 370-375 DOI: 10.1016/j.colsurfb.2012.07.014 Published: JAN 1 2013 IF: 3.554 FCD

Incommensurate magnetic structures of multiferroic MnWO₄ studied within the superspace formalism Urcelay-Olabarria, J. M. Perez-Mato, J. L. Ribeiro, J. L. Garcia-Muñoz, E. Ressouche, V. kumryev, A. A. Mukhin; Phys. Rev. B 87 (2013) 014419 IF: 3.767 FCD

Influence of solvent properties on the electrical response of poly(vinylidene fluoride)/NaY composites. Goncalves, R.; Lopes, A. C.; Botelho, G.; et al. JOURNAL OF POLYMER RESEARCH Volume: 20 Issue: 5 Article Number: 143 DOI: 10.1007/s10965-013-0143-3 Published: MAY 2013 IF: 2.019 FCD

Influence of zeolite structure and chemistry on the electrical response and crystallization phase of poly(vinylidene fluoride), Lopes, A. C.; Caparros, C.; Ferdov, S.; et al. JOURNAL OF MATERIALS SCIENCE Volume: 48 Issue: 5 Pages: 2199-2206 DOI: 10.1007/s10853-012-6995-9 Published: MAR 2013 IF: 2.163 GRF, FCD

Interface characterization and thermal degradation of ferrite/poly(vinylidene fluoride) multiferroic nanocomposites, Martins, P.; Costa, C. M.; Benelmekki, M.; et al. JOURNAL OF MATERIALS SCIENCE Volume: 48 Issue: 6 Pages: 2681-2689 DOI: 10.1007/s10853-012-7063-1 Published: MAR 2013 IF: 2.163 FCD

Introduction to the Special Issue for ISAF-ECAPD-PFM 2012; Pullar, Robert C.; Kholkin, Andrei L.; Lanceros-Mendez, Senentxu; IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL Volume: 60 Issue: 8 Pages: 1549-1550 DOI: 10.1109/TUFFC.2013.2733 Published: AUG 2013 IF: 1.822 FCD

Large linear anhysteretic magnetoelectric voltage coefficients in CoFe2O4/polyvinylidene fluoride 0-3 nanocomposites. Martins, P.; Moya, X.; Caparros, C.; et al. JOURNAL OF NANOPARTICLE RESEARCH Volume: 15 Issue: 8 Article Number: UNSP 1825 DOI: 10.1007/s11051-013-1825-9 Published: AUG 2013 IF: 2.175 FCD

Li-ion battery separator membranes based on poly(vinylidene fluoride-trifluoroethylene)/carbon nanotube composites. Nunes-Pereira, J.; Costa, C. M.; Leones, R.; et al. SOLID STATE IONICS Volume: 249 Pages: 63-71 DOI: 10.1016/j.ssi.2013.07.021 Published: NOV 1 2013 IF: 2.046 FCD



Mechanical, electrical and electro-mechanical properties of thermoplastic elastomer styrene-butadiene-styrene/multiwall carbon nanotubes composites, Costa, P.; Silva, J.; Sencadas, V.; et al. JOURNAL OF MATERIALS SCIENCE Volume: 48 Issue: 3 Pages: 1172-1179 DOI: 10.1007/s10853-012-6855-7 Published: FEB 2013 IF: 2.163 FCD

Microporous membranes of NaY zeolite/poly(vinylidene fluoride-trifluoroethylene) for Li-ion battery separators, Nunes-Pereira, J.; Lopes, A. C.; Costa, C. M.; et al. JOURNAL OF ELECTROANALYTICAL CHEMISTRY Volume: 689 Pages: 223-232 DOI: 10.1016/j.jelechem.2012.10.030 Published: JAN 15 2013 IF: 2.672 FCD

Multi layer spin-coating deposition of poly(vinylidene fluoride) films for controlling thickness and piezoelectric response, Cardoso, V. F.; Minas, G.; Lanceros-Mendez, S. SENSORS AND ACTUATORS A-PHYSICAL Volume: 192 Pages: 76-80 DOI: 10.1016/j.sna.2012.12.019 Published: APR 1 2013 IF: 1.841 FCD

Nanoparticle Size and Concentration Dependence of the Electroactive Phase Content and Electrical and Optical Properties of Ag/Poly(vinylidene fluoride) Composites. Lopes, Ana Catarina; Carabineiro, Sonia A. C.; Pereira, Manuel Fernando R.; et al. CHEMPHYSCHM Volume: 14 Issue: 9 Pages: 1926-1933 DOI: 10.1002/cphc.201300174 Published: JUN 24 2013 IF: 3.349 FCD

Novel poly(vinylidene fluoride-trifluoroethylene)/poly(ethylene oxide) blends for battery separators in lithium-ion applications, Costa, C. M.; Nunes-Pereira, J.; Rodrigues, L. C.; et al. ELECTROCHIMICA ACTA Volume: 88 Pages: 473-476 DOI: 10.1016/j.electacta.2012.10.098 Published: JAN 15 2013 IF: 3.777 FCD

Nucleation of the electroactive beta-phase, dielectric and magnetic response of poly(vinylidene fluoride) composites with Fe₂O₃ nanoparticles. Goncalves, R.; Martins, P. M.; Caparros, C.; et al. JOURNAL OF NON-CRYSTALLINE SOLIDS Volume: 361 Pages: 93-99 DOI: 10.1016/j.jnoncrysol.2012.11.003 Published: FEB 1 2013 IF: 1.597 FCD

On the use of crystal vibrational modes in the estimation of the anisotropic displacement parameters of hydrogen atoms in molecular crystals: para-Nitroaniline as a test case" C. Gustavo Pozzi, Adolfo C. Fantoni, Andrés E. Goeta, Etelvina de Matos Gomes, Garry J. McIntyre, Graciela Punte CHEMICAL PHYSICS, 423, 85-91 (2013). DOI: 10.1016/j.chemphys.2013.07.004 IF: 1.957 FCD

Optimization of the Magnetoelectric Response of Poly(vinylidene fluoride)/Epoxy/Vitrovac Laminates. Silva, M.; Reis, S.; Lehmann, C. S.; et al. ACS APPLIED MATERIALS & INTERFACES Volume: 5 Issue: 21 Pages: 10912-10919 DOI: 10.1021/am4031054 Published: NOV 13 2013 IF: 5.008 FCD

Osteoblast, fibroblast and in vivo biological response to poly(vinylidene fluoride) based composite materials . Costa, R.; Ribeiro, C.; Lopes, A. C.; et al. JOURNAL OF MATERIALS SCIENCE-MATERIALS IN MEDICINE Volume: 24 Issue: 2 Pages: 395-403 DOI: 10.1007/s10856-012-4808-y Published: FEB 2013 IF: 2.141 FCD

Piezoresistive response of carbon nanotubes-polyamides composites processed by extrusion, Lanceros. S, Arboleda, L.; Ares, A.; Abad, M. J.; et al. JOURNAL OF POLYMER RESEARCH Volume: 20 Issue: 12 Article Number: 326 DOI: 10.1007/s10965-013-0326-y Published: NOV 30 2013 IF: 2.019 FCD

Piezoresistive sensors for force mapping of hip-prostheses. Correia, V.; Sencadas, V.; Martins, M. S.; et al. SENSORS AND ACTUATORS A-PHYSICAL Volume: 195 Pages: 133-138 DOI: 10.1016/j.sna.2013.03.013 Published: JUN 1 2013 IF: 1.841 FCD



Polymer-based acoustic streaming for improving mixing and reaction times in microfluidic applications, V.F.C. ardoso, T. Knoll, T. Velten, L. Rebouta, P. M. Mendes, S. Lanceros-Méndez, G. Minas, RSC Adv., 4, 4292-4300 (2013) IF: 2.562 FCD, GRF

Polypropylene-Carbon Nanofiber Composites as Strain-Gauge Sensor, Rocha, Jose G.; Paleo, Antonio J.; van Hattum, Ferrie W. J.; et al. IEEE SENSORS JOURNAL Volume: 13 Issue: 7 Pages: 2603-2609 DOI: 10.1109/JSEN.2013.2252889 Published: JUL 2013 IF: 1.475 FCD

Preparation of Magnetoelectric Composites by Nucleation of the Electroactive beta-Phase of Poly(vinylidene fluoride) by NiZnFe₂O₄ Nanoparticles . Martins, P.; Costa, C. M.; Benelmekki, M.; et al. SENSOR LETTERS Volume: 11 Issue: 1 Special Issue: SI Pages: 110-114 DOI: 10.1166/sl.2013.2808 Published: JAN 2013 IF: 0.517 FCD

Relationship between electromechanical response and percolation threshold in carbon nanotube/poly(vinylidene fluoride) composites . Ferreira, A.; Martinez, M. T.; Anson-Casaos, A.; et al. CARBON Volume: 61 Pages: 568-576 DOI: 10.1016/j.carbon.2013.05.038 Published: SEP 2013 IF: 5.868 GRF, FCD

Rheological and electrical analysis in carbon nanofiber reinforced polypropylene composites, Lanceros, S. Paleo, Antonio J.; Silva, J.; van Hattum, F. W. J.; et al. JOURNAL OF POLYMER SCIENCE PART B-POLYMER PHYSICS Volume: 51 Issue: 3 Pages: 207-213 DOI: 10.1002/polb.23200 Published: FEB 1 2013 IF: 2.221 FCD

Spectroscopic, nonlinear optical and quantum chemical studies on pyrrolidinium p-hydroxybenzoate - A phase matchable organic NLO crystal, Shanmugam, G. and Belsley, M.S. and Isakov, D. and De Matos Gomes, E. and Nehru, K. and Brahadesswaran, S., Spectrochimica Acta - Part A: Molecular and Biomolecular Spectroscopy 114, 284-292 (2013) IF: 1.977 FAMO, FCD

Thermal and hydrolytic degradation of electrospun fish gelatin membranes. Sencadas V. Correia, D. M.; Padrao, J.; Rodrigues, L. R.; et al. POLYMER TESTING Volume: 32 Issue: 5 Pages: 995-1000 DOI: 10.1016/j.polymertesting.2013.05.004 Published: AUG 2013 IF: 1.646 FCD

Thermal Behavior of Layered Double Hydroxide Zn-Al-Pyrovanadate: Composition, Structure Transformations, and Recovering Ability Andrei N. Salak, João Tedim, Alena I. Kuznetsova, Luís G. Vieira, José L. Ribeiro, Mikhail L. Zheludkevich, and Mário G. S. Ferreira J. Phys. Chem. C, 117, 4152 (2013) <http://hdl.handle.net/1822/23122> IF: 4.814 FCD

Thermal degradation of Pb(Zr0.53Ti0.47)O₃/poly(vinylidene fluoride) composites as a function of ceramic grain size and concentration. Mendes, Sergio Firmino; Costa, Carlos Miguel; Sencadas, Vitor; et al. JOURNAL OF THERMAL ANALYSIS AND CALORIMETRY Volume: 114 Issue: 2 Pages: 757-763 DOI: 10.1007/s10973-012-2918-x Published: NOV 2013 IF: 1.982 FCD

Tribocorrosion behaviour of Ti-C-O-N nanostructured thin films (black) for decorative applications, P. Lima, M. Araújo, M.T. Mathew, L. A. Rocha, A.M. Pinto, J.M. Chappé, Marta M.D.Ramos, L. Marques, J.F. Pierson5, F. Vaz, Tribology International 68, 1-10 (2013).GRF GFCT IF: 1.536 FCT, GRF

γ -Phase nucleation and electrical response of poly(vinylidene fluoride)/microporous titanosilicates composites, Caparros, C., Lopes, A.C., Ferdov, S., Lanceros-Mendez, S. (2013) Materials Chemistry and Physics, 138 (2-3), pp. 553-558. Cited 1 time. IF: 2.072 GRF, FCD



6.2.3.2. Conference Proceedings published in ISI Journals

Pr_{0.5}Ca_{0.5}MnO₃ thin films deposited on LiNbO₃ substrates, I. T. Gomes, B. G. Almeida, J. P. Araújo, EPJ Web of Conferences, 40, 15010 (2013) <http://hdl.handle.net/1822/27363> FCD

6.2.3.3. ISI Conference Proceedings published in Conference books

An Overview of Modeling and Simulation for Lab-on-a-Chip Applications, Catarino, S. O.; Minas, G.; Miranda, J. M.; et al. Book Group Author(s): IEEE Conference: 3rd Portuguese Bioengineering Meeting Location: Univ Minho, Braga, PORTUGAL Date: FEB 20-23, 2013 Sponsor(s): IEEE; IEEE EMB Portugal Chapter; IEEE Women Engr Portugal Sect Source: 2013 IEEE 3RD PORTUGUESE MEETING IN BIOENGINEERING (ENBENG) Published: 2013 FCD

Piezoelectric transducer system for improving mixing in 96 well microplates, Silva, L. R.; Minas, G.; Lanceros-Mendez, S. Book Group Author(s): IEEE Conference: 3rd Portuguese Bioengineering Meeting Location: Univ Minho, Braga, PORTUGAL Date: FEB 20-23, 2013 Sponsor(s): IEEE; IEEE EMB Portugal Chapter; IEEE Women Engr Portugal Sect, Source: 2013 IEEE 3RD PORTUGUESE MEETING IN BIOENGINEERING (ENBENG) Published: 2013 FCD

6.2.3.4. Books and book chapters

Modeling Carbon Nanotube Electrical Properties in CNT / Polymer Composites. Silva, Jaime, Simoes, R., Lanceros-mendez, S., In New Frontiers of Nanoparticles and Nanocomposite Materials – Novel Principles and Techniques, Editors: A. Oechsner, A. Shokuhfar, 2013, (Advanced Structured Materials, Vol. 4) (pp. 287–295). Berlin: Springer-Verlag. doi:10.1007/8611 FCD

6.2.3.5. National Patents

Lanceros Mendez, Method for obtaining continuous filament textile, involves utilizing core composed of electrode, which is covered by other electrode and electrical insulating layer; Patent Number: PT105150-A1; Patent Assignee: Univ do Minho; Inventor(s): Teixeira Carvalho H M; Lanceros-Méndez S; De Amorim Novais Costa NOBR., 2012; Patent Number: PT105150-A1. FCD

6.2.3.6. Master Theses completed in 2013

Author: João Pinheiro Rocha,
Supervisor: S. Lanceros-Mendez
Title: Desenvolvimento de um sistema de medida do efeito magnetoelectrico
Terminated at 2013, At the School of Engeneering

Author: Nelson Castro
Supervisor: Rocha, S. Lanceros-Mendez
Title: Sistema de aquisição e comunicação para sensores magnetoelétricos
Terminated at 2013, At the School of Engeneering

Author: Rui Luz
Supervisor: Rocha, S. Lanceros-Mendez



Title: Organic Electronics – Implementation of Some Components and Organic Logic Simulation
Terminated at 2013, At the School of Engeneering

Author: Rui Pedro Ribeiro Martins
Supervisor: Rocha, S. Lanceros-Mendez
Title: Circuito Para Leitura e Aquisição de Dados de Um Sensor Químico
Terminated at 2013, At the School of Engeneering

Author: Sofia Portela
Supervisor: Rocha, S. Lanceros-Mendez
Title: Desenvolvimento de um circuito adaptativo de sensores piezoresisitivos
Terminated at 2013, At the School of Engeneering

Author: Tiago de Azevedo Costa
Supervisor: Rocha Rocha, S. Lanceros-Mendez
Title: Desenvolvimento e caraterização de diodos orgânicos emissores de luz
Terminated at 2013, At the School of Engeneering

6.2.3.7. Ph.D. Theses completed in 2013

Author: Ana Catarina Teixeira Castro Lopes
Supervisor: Senen L.Mendez, Isabel Neves (DQ)
Title: Development of electroactive polymer nanocomposites with porous structured materials
Terminated in September 2013, at the School of Sciences

Author: Isabel Tarroso Gomes
Supervisor: Bernardo Almeida, João Araújo (UPorto)
Title: Manganite thin films deposited on piezoelectric substrates
Terminated in September 2013, at the School of Sciences

Author: Jaime Pedro Oliveira Silva
Supervisor: Senen L. Mendez, Ricardo Simões (DEP)
Title: Study and optimization of the macroscopic response of carbon based nanocomposites for adavanced applications
Terminated in September 2013, at the School of Sciences

Author: João Pedro Nunes Pereira
Supervisor: Senen L. Mendez, José Gerardo (DEI)
Title: Polyvinylidene fluoride based nanocomposites for the development of energy systems
Terminated in December 2013, at the School of Sciences

Author: José Gusman Barbosa
Supervisor: Bernardo Almeida
Title: Nano-estruturas compósitas multiferroicas
Terminated in October 2013, at the School of Sciences

Author: Marcos Martins
Supervisor: G. Rocha, J. Cabral, S. Lanceros-Mendez



Title: Ultrasonic Wireless Broadband Communication System for Underwater Applications
Terminated in 2013, at the School of Engeneering

Author: Pedro Costa
Supervisor: Senen L. Mendez, Júlio Viana (DEP)
Title: Development of mechanical, electrical and electromechanical properties of copolymer styrene-butadiene-styrene with carbon nanotubes composites
Terminated in 2013, at the School of Engeneering

Author: Vitor Correia
Supervisor: Gerardo Rocha (DEI), Senen L. Mendez
Title: Development of piezoresistive sensors for biomedical applications
Terminated in 2013, at the School of Engeneering

6.2.3.8. Ph.D Theses in progress in 2013

Author: Attila Gören
Supervisor: Manuela Silva (DQ),
Title: Development of new organic electrodes for Lithium-ion rechargeable batteries
Development since September 2013 at the School of Sciences

Author: Carlos M. Silva Costa
Supervisor: Senen L. Mendez, Vitor Sencadas, José Gerardo Rocha (DEI)
Title: Electroactive polymer based porous membranes for energy storage applications
Development since 2010 at the School of Sciences

Author: Joana M. Guimarães Oliveira
Supervisor: Senen L. Mendez, M.Luís Neves, Júlio Santos (ESSE-Inst.Pol.Viana Castelo)
Title: Ensino das Ciências e Desenvolvimento: um estudo de caso na Guiné-Bissau
Development since 2010 at the School of Sciences

Author: Juan Alberto Panadero Pérez
Supervisor: Senen L. Mendez, José Luis Gomez Riballes (Univ. Valênci – Espanha)
Title: Active biomaterials for cell culture under mechanical stimulus applied to cartilage tissue engineering
Development since 2010 at the School of Sciences

Author: Ricardo Jorge E. M. Gonçalves Sousa
Supervisor: Senen L. Mendez, Maria Manuela Silva (DQ)
Title: Polymer based batteries fabricated by printing technologies
Development since 2012 at the School of Sciences

Author: Daniela Maria Silva Correia
Supervisor: António Maurício (DQ), Senen L. Mendez
Title: Desenvolvimento de membranas de quitosano para libertação controlada de fármacos
Development since 2012 at the School of Sciences

Author: Renato Gonçalves
Supervisor: Gabriela Botelho (DQ), Senen L. Mendez



Title: Desenvolvimentos de nanocompositos poliméricos de PVDF/Zeólitos para aplicações tecnológicas
Development since 2012 at the School of Sciences

Author: Cláudia Sofia Lehman Fernández

Supervisor: Senen L. Mendez, Luís Rebouta

Title: Development of magnetoelectric polymer based laminated composites

Development since 2012, PhD Erasmus-Mundus Vecceu, Chile

Author: Helder Castro

Supervisor: Gerardo Rocha (DEI), Senen L. Mendez

Title: Desenvolvimento de etiquetas RFID passivas e chipless para aplicação em produtos têxteis lar

Development since 2010 at the School of Engeneering

Author: Jieci-Wang (Dout.Erasmus-Mundus Vecceu)

Supervisor: Senen L. Mendez

Title: Modeling of the electrospinning process for the obtention of polymer micro and Nanofibers

Development since 2010, Doutoramento Erasmus-Mundus Vecceu, China

Author: Susana Oliveira Catarino

Supervisor: Senen L. Mendez

Title: Modelação, simulação e implementação do fenómeno de “acoustic streaming” produzido por polímeros piezoelectrinos para microbombamento e microagitação em micro dispositivos para análises de fluidos

Development since 2009 at the School of Engeneering

6.2.3.9. Master Theses in progress in 2013

Author: João Rodolfo Alves

Supervisor: Bernardo Almeida

Title: Filmes compósitos para junções de efeito túnel

Development since 2013 at the School of Sciences

6.2.4. Other scientific activities

6.2.4.1. Invited Lectures/seminars delivered by members of the group in national or international conferences

Polymer based magnetoelectric materials: present status, application and challenges. Martins, Pedro; Lanceros-Mendez, Senentxu. COST MPO904 Action, Recent advances in ferro/piezoelectric and multiferroic-based composites, Faenza Italy , 22-23 April 2013 FCD



6.2.5. Other information

6.2.5.1. Other conference presentations given by members of the group in national or international conferences

International

Oral Anisotropic magnetic sensor based on P VDF-TrFE / α -Fe2O3 nanorods multiferroic nanocomposites P. Martins, R. Gonçalves, P.M. Martins, and S. Lanceros-Mendez, Composites of Inorganic Nanotubes and Polymers Coinapo , Ercolano Naples , Italy, March 20 - 22, 2013 FCD

Oral Development of large deformation sensors based on styrene-butadiene-styrene / carbon nanotube composites, Pedro Costa, J. Viana and S. Lanceros-Mendez Third international conference on Electromechanically Active Polymer EAP transducers & artificial muscles Dübendorf Zürich , Switzerland 25-26 June 2013FCD

Oral Development of polymer nanocomposites for X-rays detection, P. M. Martins, P. Martins, V. Correia, G. Rocha and S. Lanceros-Mendez. Composites of Inorganic Nanotubes and Polymers Coinapo , Ercolano Naples , Italy, March 20 - 22, 2013FCD

Oral Efficient flexible nanogenerator made of organic ferroelectric dabcoHReO4, D. Isakov, E. de Matos Gomes, B. Almeida, I. Bdikin, A. Khoklin, Joint ISAF, UFC, EFTF and PFM Symposium, Prague, 23-25 July, 2013
<http://hdl.handle.net/> FCD

Oral Electroactive polymer composites: insights, applications and challenges, S. Lanceros-Mendez, COINAPO- Composite Materials of inorganic nanotubes and polymers, Crete Greece , 14-15 October 2013 FCD

Oral Electrospun recombinant Protein-Based Polymers fibre matrices for skin regeneration, Machado, Raul; Costa, André; Sencadas, Vitor; Gomes, Andreia; Lanceros-Mendez, Senentxu; Rodríguez-Cabello, José Carlos; Casal, Margarida Journal of Tissue Engineering and Regenerative Medicine, 7, Suplement s1, 12 TS14 . DOI: 10.1002/term.1822 FCD

Oral Influence of Dynamic Piezoelectric Stimulation on Pre-osteoblastic Cells Proliferation, Ribeiro, Cláisse; Moreira, Susana; Correia, Vitor; Sencadas, Vitor; Rocha, José G.; Gama, Francisco M.; Gómez Ribelles, José Luis; Lanceros-Méndez, Senentxu 25th European Conference on Biomaterials, Madrid Spain , 8-12 September 2013 FCD

Oral Influence of electrospinning parameters on Poly hydroxybutyrate electrospun membranes fiber size for tissue engineering applications, Correia, Daniela M.; Ribeiro, Cláisse; Botelho, Gabriela; Gomez Ribelles, José Luis, Lanceros-Méndez, Senentxu; Sencadas, Vitor XVIII Encontro Luso-Galego de Química, Vila Real Portugal , 28-30 November 2013 FCD

Oral Mapping social networks on Twitter: the ‘retweet’ as a social practice”, Amaral, Inês; Silva, Jaime; Lanceros-Mendez, Senentxu,“XXXIII SUNBELT” University of Hamburg, Hamburg, Germany 2013. FCD

Oral Nucleation of the electroactive β -phase, dielectric and magnetic response of poly vinylidene fluoride composites with Fe2O3 nanoparticles, J. Gutiérrez, A. Lasheras, J.M. Barandiarán, R. Gonçalves, P.M. Martins, C. Caparrós, M. Benelmekki, G. Botelho and S Lanceros-Mendez, ImagineNano, April 23-26, Bilbao, 2013 FCD

Oral Optimization of the magnetoelectric response of poly vinylidene fluoride /Vitrovac laminates M. P. Silva, S. Reis, S. Lehmann, A. Lasheras, P. Martins, S. Lanceros-Mendez, J. Gutiérrez and J. M. Barandiarán, EUROMAT 2013, Sevilla 8-13, September FCD



Oral Optimization of the magnetoelectric response of poly(vinylidene fluoride)/Vitrovac laminates, M.P. Silva, S. Reis, S. Lehmann, A. Lasheras, P. Martins, S. Lanceros-Mendez J. Gutiérrez and J.M. Barandiarán, A2III Multiferroic Single-Phase and Composite Materials for Novel Magnetoelectric Technologies at EUROMAT 2013, Sevilha (Espanha), 8-13 Setembro 2013, <http://euromat2013.fems.eu/welcome.html> FCD

Oral Tailoring electroactive response of poly vinylidene fluoride electrospun membranes for tissue engineering applications, Sencadas, Vitor; Ribeiro, Clarisse; Lanceros-Mendez, Senentxu Electrospinning, Principles, Possibilities and Practice 2013, London UK , 5-6 December 2013. FCD

Oral Tailoring zeolite/Poly vinylidene fluoride composites for emerging applications, A.C.Lopes, S. Lanceros-Mendez, 3rd International Conference on Materials and Applications for Sensor and Transducers, Prague Czech Republic , 13-17 September 2013 FCD

Oral Three layer polymer piezoelectric filaments produced by extrusion, R.S. Martins, R. Gonçalves, T. Azevedo, J. M. Nóbrega, H. Carvalho, S. Lanceros-Mendez and J. G. Rocha, Materiais 2013 – Internacional Conference, Coimbra Portugal , 25-27 March 2013. FCD

Oral TiAgx coated pressure sensors for lower limb prosthesis: effect of composition and structural changes in the electrical response of the films, C. Lopes, F. Macedo, A. Ferreira, S. Lanceros-Mendez, P. Pedrosa, C. Fonseca, F. Vaz, 8th International Conference on Materials Science & Engineering – BRAMAT 2013, Brasov, Romania, 28 February – 2 March 2013. FCD, GRF

Poster Advanced poly vinylidene fluoride based composites for sensor and actuator applications A. C. Lopes, P. Martins, and S. Lanceros-Mendez, 3rd International Conference on Materials and Applications for Sensor and Transducers, Prague Czech Republic , 13-17 September 2013 FCD

Poster Anisotropic magnetic sensor based on P VDF-TrFE /a- Fe2O3 nanorods multiferroic nanocomposites, P. Martins, R. Gonçalves, P.M. Martins and S. Lanceros-Mendez, Composites of Inorganic Nanotubes and Polymers COINAPO , Naples Ercolano , March 2013 FCD

Poster Comparative performance of polymer based scintillators for X-ray sensors P. M. Martins, P. Martins, V. Correia, G. Rocha and S. Lanceros-Mendez., EUROMAT 2013, Sevilla 8-13, September. FCD

Poster Core-shell multiferroic nanofibers produced by the electrospinning technique, P. Sá, J. Barbosa, I.T. Gomes, A.G Rolo, E. de Matos Gomes, D. Isakov, J.P. Araújo, P-E Coulom, J-E Wegrowe, B. Almeida, Joint European Magnetic Symposia, Rhodos, 25-30 August, 2013 <http://hdl.handle.net/> GCEP, FCD

Poster Edge magnetoplasmons in strongly non-uniform magnetic field. I Larkin, 20th International Conference on Electronic Properties of Two-Dimensional Systems, Wroclaw, Poland, July 2013. FCD

Poster Effect of NaY zeolite content on electrospun PVDF/NaY fiber meshes membranes for biomedical applications, A. C. Lopes, C. Ribeiro, V. Sencadas, G.Botelho, S. Lanceros-Mendez, Electrospinning, Principles, Possibilities and Practice 2013, London UK , 5-6 December 2013 FCD

Poster Effect of substrate piezoelectric strain on the resistance of PCMO manganite thin films, IT Gomes, JP Araújo, BG Almeida, EUROMAT2013 - European Congress and Exhibition on Advanced Materials and Processes, Sevilha, 8-13 September 2013 <http://hdl.handle.net/> FCD



Poster Electrical and photocatalytic behaviour of TaOxNy magnetron sputtered thin solid films,D. Cristea, A. Crisan, N. Barradas, E. Alves, L. Cunha, P.Costa, S. Lanceros.Mendez, International Conference on materials Science and Engineering BRAMAT 2013 , in Brasov, Romania 27 February-2 March 2013 FCD, GRF

Poster Electrophoretic deposition ofCoFe2O4 nanograins dispersed in a BaTiO3 matrix", J. Barbosa, C. Moura, M.R. Pereira, I. Gomes, J. Mendes, B. Almeida, EUROMAT2013 - European Congress and Exhibition on Advanced Materials and Processes, Sevilha, 8-13 September 2013 <http://hdl.handle.net/> GRF, FCD

Poster Electrospun silk-elastin-like fiber mats for tissue engineering applications, Machado, Raul; Costa, André; Sencadas, Vitor; Gomes, Andreia; Lanceros-Mendez, Senentxu; Rodríguez-Cabello, José Carlos; Casal, Margarida. MICROBIOTEC '13, Aveiro Portugal , 6-8 December 2013FCD

Poster Electrospun silk-elastin-like fiber mats with potential application for tissue engineering, Machado, Raul; Costa, André; Sencadas, Vitor; Gomes, Andreia; Lanceros-Mendez, Senentxu; Rodríguez-Cabello, José Carlos; Casal, Margarida Electrospinning, Principles, Possibilities and Practice 2013, London UK , 5-6 December 2013. FCD

Poster Electrospun silk-elastin-like fibre matrices for tissue engineering applications", Machado, Raul; Costa, André; Sencadas, Vitor; Gomes, Andreia; Lanceros-Mendez, Senentxu; Rodríguez-Cabello, José Carlos; Casal, Margarida European Symposium on Biopolymers ESBP 2013 , Lisboa Portugal , 7-9 October 2013. FCD

Poster Fabrication of recombinant silk-elastin-like fiber mats for tissue engineering applications", Machado, Raul; Costa, André; Sencadas, Vitor; Gomes, Andreia; Lanceros-Mendez, Senentxu; Rodriguez-Cabello, José Carlos; Casal, Margarida Materials Today Virtual Conference: Biomaterials, 19-21 November 2013, web conference: online at <http://www.materialstoday.com/virtualconference/materials-today-virtual-conference-biomaterials-2013> FCD

Poster Influence of electrospinning parameters on poly hydroxybutyrate electrospun membranes fiber size for tissue engineering applications. D.M. Correia, C. Ribeiro, J. C. Coelho, G. Botelho, J. L. Gomez Ribelles, S. Lanceros-Méndez, and V. Sencadas- Second Frontiers of Microscopy Virtual Conference, 2013. FCD

Poster Influence of thickness on the charge-ordering temperature of Pr0.5Ca0.5MnO3 manganite thin films deposited on LiNbO3 substrates, I.T. Gomes, B.G. Almeida, J.P. Araújo, NanoPT International Conference, Porto, 13-15 February, 2013 «<http://hdl.handle.net/> FCD

Poster Magnetoliposomes based on magnetite nanoparticles, Elisabete M. S. Castanheira, Pedro M. F. Mendes, Paulo J. G. Coutinho, Bernardo G. Almeida, I. T. Gomes, J. P. Araújo, NanoPT2013 – International Conference in Nanoscience and Nanotechnology, Porto Portugal , 13-15 February 2013; <http://hdl.handle.net/1822/23066> FAMO+FCD FAMO, FCD

Poster Magnetoliposomes based on nickel/silica core/shell nanoparticles, Ana Rita O. Rodrigues, Elisabete M. S. Castanheira, Paulo J. G. Coutinho, Bernardo G. Almeida, I. T. Gomes, J. P. Araújo, NanoPT2013 – International Conference in Nanoscience and Nanotechnology, Porto Portugal , 13-15 February 2013; <http://hdl.handle.net/1822/23065> FAMO+FCD FAMO, FCD

Poster Nanoparticle size and concentration dependence of the electroactive phase, electrical and optical properties of silver/poly vinylidene fluoride composites, A. C. Lopes, S. A.C. Carabineiro, M. F. R. Pereira, G. Botelho, S. Lanceros-Mendez, COINAPO- Composite Materials of inorganic nanotubes and polymers, Crete Greece , 14-15 October 2013 FCD



Poster Processing and Characterization of α -elastin Electrospun Membranes, Araújo, Joana; Padrão, Jorge; Silva, João P.; Dourado, Fernando; Correia, Daniela M.; Gomez Ribelles, José Luis; Sencadas, Vitor ; Lanceros-Mendez, Senentxu Materials Today Virtual Conference: Biomaterials, 19-21 November 2013, web conference: online at <http://www.materialstoday.com/virtualconference/materials-today-virtual-conference-biomaterials-2013> FCD

Poster Processing and characterization of α -elastin electrospun membranes. Araújo, J. Padrão, J. P. Silva, F. Dourado, D. M. Correia, J. L. Gomez Ribelles, S. Lanceros-Mendez and V. Sencadas - ESB, Madrid Espanha , 8-12 de Setembro, 2013. FCD

Poster Processing and characterization of α -elastin electrospun membranes. Araújo, J. Padrão, J. P. Silva, F. Dourado, D. M. Correia, J. L. Gomez Ribelles, S. Lanceros-Mendez and V. Sencadas - Materials Today, Virtual Conference, 2013. FCD

Poster Production and characterization of organic polar nanofibers produced by electrospinning, D. Isakov, R. Lima, T. Monteiro, P. Sa, E. de Matos Gomes, B. Almeida, Joint ISAF, UFFC, EFTF and PFM Symposium, Prague, 23-25 July, 2013 <http://hdl.handle.net/> FCD

Poster Properties and processing by extrusion of electrically conductive multilayer filaments comprising polymer composites, R.S. Martins, R. Gonçalves, T. Azevedo, J. M. Nóbrega, H. Carvalho, S. Lanceros-Mendez and J. G. Rocha, Materiais 2013 – Internacional Conference, Coimbra Portugal , 25-27 March 2013. FCD

Poster Quantitative Characterization of Bacterial Cell Loading with Nanoparticles C. Sousa, D. Sequeira, P. M. Martins, Y. Kolen'ko, S. Lanceros-Méndez, Dmitri Y. Petrovykh., AVS 60th International Symposium & Exhibition, Oct 27–Nov 1, 2013 FCD

Poster State of the art, current trends and open questions on polymer based magnetoelectric materials, P. Martins, and S. Lanceros-Mendez, 3rd International Conference on Materials and Applications for Sensor and Transducers, Prague Czech Republic , 13-17 September 2013 FCD

Poster Study of dielectric, pyroelectric, piezoelectric and ferroelectric properties in polymer nanofibers composed of potassium sodium tartrate", P. Sá, J. Barbosa, B. Almeida, A.G. Rolo, E. de Matos Gomes, M. Belsley, D. Isakov, 13th International Meeting on Ferroelectricity IMF-13 , Kraków, Poland, 2-6 September, 2013 <http://hdl.handle.net/> FCD, GCEP, FAMO

National

Oral development and applications of Zeolite/Polyvinylidene fluoride composites. A.C.Lopes, S. Lanceros-Mendez, 9º encontro nacional de catálise e materiais porosos, Porto Portugal , 6-7 Maio 2013 FCD

Oral Electrophoretic Deposition of CoFe2O4 nanograins dispersed in a BaTiO3 matrix, J. Barbosa, B.G. Almeida, MAP - Fis PhD Research Conference, Aveiro, 18 Janeiro, 2013 <http://hdl.handle.net/> FCD

Oral Filmes compósitos multiferroicos, B.G. Almeida, Jornadas do CFUM, 4 Outubro 2013 <http://hdl.handle.net/> FCD



Poster Tailoring PVDF-TrFE /zeolite membranes for drug release applications A. C. Lima, H. Salazar, A.C.Lopes, C.Ribeiro, G.Botelho, and S. Lanceros-Mendez 9º Encontro nacional de Catálise e materiais Porosos, Faculdade de Farmácia- Universidade do Porto, 6 e 7 de Maio de 2013 FCD

Poster Acoustic streaming mixer based on piezoelectric PVDF-TrFE for microfluidic applications, V. F. Cardoso1, L. Rebouta, S. Lanceros-Méndez, G. Minas, 3rd Portuguese Bioengineering Meeting, University of Minho, Campus de Gualtar, 2013. <http://hdl.handle.net/1822/26733> FCD, GRF

Poster Development of a sensor network for mapping pressure fields at the prosthesis/limb interface. A. Ferreira, F.Vaz, S. Lanceros-Mendez. 3rd Portuguese Bioengineering Meeting University of Minho, 20-22 fevereiro 2013. <http://enbeng2013.embs-pt.org> FCD, GRF

Poster Electromechanical response of carbon nanotube / polyvinylidene fluoride composites and its application to the limb/prosthesis pressure mapping. A. Ferreira, F.Vaz, S. Lanceros-Mendez. MAP-FIS PhD Research Conference 2012/2013, 18 Janeiro 2013. <http://www.map.edu.pt/fis/conference> GRF, FCD

Poster Polyhydroxybutyrate -Polyethylene oxide electrospun fibers containing chloexidine for controlled drug delivery applications, J. Fernandes, D. Correia, V. Sencadas, G. Botelho, S. Lanceros Mendez XXIII Encontro Nacional da Sociedade Portuguesa de Química, Universidade de Aveiro, 12 a 14 de Junho de 2013 FCD

Poster Polyhydroxybutyrate -Polyethylene Oxide electrospun fibers containing chlorhexidine for controlled drug delivery applications J.G. Fernandes, D.M. Correia, G. Botelho, V. Sencadas and S. Lanceros-Méndez, XXIII Encontro Nacional SPQ, Aveiro Portugal 12-14 de Junho, 2013. FCD

Poster Pr_{0.5}Ca_{0.5}MnO₃ thin films on LiNbO₃ substrates, I. Gomes, B.G. Almeida, MAP-Fis PhD Research Conference, Aveiro, 18 Janeiro, 2013 <http://hdl.handle.net/> FCD

Poster Synthesis of Bacterial cellulose-Polypyrrole composites with tailor-made conductivity, Sousa, Rui C.; Padrão, Jorge; Lanceros-Méndez, Senentxu; Sencadas, Vitor; Dourado, Fernando XIII Jornadas de Engenharia Química, Porto Portugal , 7 November 2013 FCD

6.2.6. Funded Projects Ongoing

Title: Micro e nanoestruturas com efeito magnetoestritivo gigante: produção, optimização em dispositivos multifuncionais (Strictive4Device)

Reference: PTDC/CTM-NAN/115125/2009

Project Coordenator: Bernardo Almeida

Funding awarded: 29.662.00 Euros

Start Date: March 2011

Duration: 1 year

Title: Nano estruturas de baixa dimensão para aplicações em óptica não-linear

Reference: PTDC/CTM-NAN/114269/2009

Project Coordenator: Dmitry Vladimirovich Isakov

Funding awarded: 78.461.00 Euros

Start Date: January 2011

Duration: 3 years



Title: Multiferroicos e magnetoeléctricos para spintrónica: barreiras e interfaces

Reference: PTDC/CTM/099415/2008

Project Coordenator: Bernardo Almeida

Funding awarded: 43.128.00 Euros

Start Date: June 2010

Duration: 3 years

Title: Simple

Reference: 23122

Project Coordenator: Senen Lanceros Mendez

Funding Awarded: 306353.13 Euros

Start date: January 2013

Duration: 2,5 years

Title: Vicer

Reference: Vicer

Project Coordenator: Senen Lanceros Mendez

Funding Awarded: 37752.00 Euros

Start date: January 2013

Duration: 2 years

6.2.7. Future Research

The production of low dimensional functionalized nanostructures (nanofibers, films, nanocomposites), will be explored and their cooperative behavior (ferroelectric, non-linear optical, multiferroic, electromechanical) will be characterized.

The phase transitions and relaxational phenomena in multiferroic ceramics and films will be studied and modeled.

The investigation of phase transitions, lattice dynamics and relaxational phenomena in novel H-bonded compounds and nanostructures and on layered double hydroxides will be performed.

The synthesis of high strain polymers and polymer composites, based on PVDF, and the relationship between their structure, morphology and electromechanical properties of will be characterized.



6.3. Group of Computational and Theoretical Physics (GFCT)

6.3.1. Summary description of the scientific work carried out by the group in 2013

- Development and studies of a model based on "nanorings" and "nanorods" imitating a self organized network of artificial neurons (Article published in Nature Communications);
 - Simulation of radio frequency discharges for an in lab study of planetary atmospheres.
- Modeling of the optical properties of thin films of electrical AlNyOx;
- Investigation of the air/water interface and adsorption homopolipeptides on gold surfaces by molecular dynamics;
 - Improvement of multi-scale model to investigate the operation of organic solar cells.

6.3.2. Updated composition of the group

Research Group Title	Computational and Theoretical Physics Group
Principal investigator	Marta Maia Duarte Ramos
Research area	Computational and theoretical study of organic, inorganic and biological material properties and processes at different length scales to improve the performance of existing materials and to help the design of new materials for technological applications
Group Members	<p><u>Effective members:</u></p> <p>Marta Maria Duarte Ramos – Associate Professor with Habilitation Luís Silvino Alves Marques – Assistant Professor</p> <p><u>Postdoctorate Researchers and Research Fellows with PhD:</u></p> <p>Helena Correia - FCT Post Doc grant Helder Barbosa - Part-time collaborator (since August) Ana Célia Vila Verde - External collaborator</p> <p><u>PhD and Research students:</u></p> <p>Sergey Pyrlin - PhD student with Marie Curie grant Vitor Vasconcelos - PhD student</p>

6.3.3. Scientific Production

6.3.3.1. Regular articles published in ISI Journals

A shadowed off-axis production of Ge nanoparticles in Ar gas atmosphere by pulsed laser deposition, J. Martín-Sánchez, A. Chahboun · S.R.C. Pinto, A.G. Rolo, L. Marques, R. Serna, E.M.F. Vieira, M.M.D. Ramos, M.J.M. Gomes , Applied Physics A 110, 585 (2013). <http://hdl.handle.net/1822/21047> FMNC GFCT 1.545 IF: 1.545 GCEP, FCT, FMNC

Influence of composition, bonding characteristics and microstructure on the electrochemical and optical stability of AlOxNy thin films, J. Borges, C. Fonseca, N.P. Barradas, E. Alves, T. Girardeau, F. Paumier, F. Vaz,* L. Marques, Acta Electrochimica 106, 23 (2013).<http://hdl.handle.net/1822/24545> GRF GFCT 3.777 IF: 3.777 GRF, FCT



Influence of stoichiometry and structure on the optical properties of AlN_xO_y films, J. Borges, N. Martin, N. P. Barradas, E. Alves, D. Eyidi, MF Beaufort, J.P. Riviere, F. Vaz, L. Marques, Journal of Physics D - Applied Physics, 46(1), 015305 (2013) IF: 2.528 <http://hdl.handle.net/1822/21066> GRF GFCT 2.528 GRF, FCT

Nanorings and rods interconnected by self-assembly mimicking an artificial network of neurons, Martha V. Escárcega-Bobadilla, Gustavo A. Zelada-Guillén, Sergey V. Pyrlin, Marcin Wegrzyn, Marta M.D. Ramos, Enrique Giménez, Andrew Stewart, Gerhard Maier, Arjan W. Kleij, Nature Communications 4, 2648 (2013). GFCT 10.0165 IF: 10.015 FCT

Unravelling the effect of strand orientation on exciton migration in conjugated polymers, H.M.G. Correia, H.M.C. Barbosa, L. Marques, M.M.D. Ramos, Computational Materials Science 75, 18 (2013) <http://hdl.handle.net/1822/23848> GFCT IF: 1.878 FCT

6.3.3.2. Books and book chapters

Tuneable properties of aluminium oxynitride thin films , Joel Borges, Nuno P. Barradas, Eduardo Alves, Nicolas Martin, Marie-France Beaufort, Sophie Camelio, Dominique Eyidi, Thierry Girardeau, Fabien Paumier, Jean-Paul Rivière, Filipe Vaz, Luis Marques , In: Metallic Oxynitride Thin Films by Reactive Sputtering and Related Deposition Methods. Processes, Properties and Applications, Editor: N. Martin, M. Fenker, F. Vaz, 2013, Bentham Science Publishers, Chapter 8, ISBN: 978-1-60805-157-1 <http://hdl.handle.net/1822/23980> GRF, FCT

6.3.3.3. Ph.D. theses completed in 2013

Author: Joel Nuno Ponto Borges

Supervisor: Luis Silvino

Title: Optimização do processo de deposição de oxinetretos metálicos por pulverização reativa magnetrão

Terminated as July 2013 at the School of Sciences

6.3.3.4. Ph.D. theses in progress in 2013

Author: Sergey Vladimirovich Pyrlin

Supervisor: Marta Ramos

Title: Modeling the physical properties of nanostructures and composites

Developing since 2011 at the School of Sciences

Author: Vitor Vasco Lourenço Vasconcelos

Supervisor: Jorge Pacheco (DMAT), Marta Ramos, Francisco C. Santos (DEI-IST)

Title: Processos de sinalização na emergência e auto-organização da cooperação

Developing since 2012 at the School of Sciences



6.3.4. Other information

6.3.4.1. Other Conference Presentations given by members of the group in national or international conferences

International

Oral Capacitively coupled radio-frequency N2 discharges at low pressures, Marques, L.; Alves, L. L.; Pintassilgo, C. D., et al. 9th Asia-European International Conference on Plasma Surface and Engineering - AEPSE 2013, Jeju, South Korea, August 2013 <http://hdl.handle.net/1822/26866> FCT

Oral Influence of composition, bonding characteristics and microstructure on the properties of AlNxOy films , J. Borges, N. Martin, N.P. Barradas, E. Alves, J. P. Riviere, D. Eyidi, M. F. Beaufort, T. Girardeau, F. Paumier, C. Fonseca, F. Vaz, L.Marques , EMRS-2013 Spring Meeting Strasbourg, France, May, 2013 <http://hdl.handle.net/1822/24295> GRF, FCT

Oral Influence of composition, bonding characteristics and microstructure on the properties of AlNxOy films, J. Borges, N. Martin, N.P. Barradas, E. Alves, J.P. Riviere, D. Eyidi, M. F. Beaufort, T. Girardeau, F. Paumier, C. Fonseca, F. Vaz, L.Marques, E-MRS 2013 Spring Meeting, May 27-31, Congress Center - Strasbourg, France. FCT, GRF

Oral Multiscale modeling of composite structure-property relations : application to electron transport in carbon nanotube reinforced polymer nanocomposites, Pyrlin, Sergey V.; Ramos, Marta M. D. , European Congress and Exhibition on Advanced Materials and Processes - Euromat 2013, Sevilla, Spain, September 2013 <http://hdl.handle.net/1822/26871> FCT

Oral The Influence of Polymer Nanomorphology on Exciton Dynamics - a Computational Study , Hélder M. C. Barbosa, Helena M. G. Correia, Luis Marques and Marta M. D. Ramos , International Conference for Composites/Nano Engineering - ICCE-21, Tenerife, Spain, July, 2013 <http://hdl.handle.net/1822/25051> FCT

Oral The role of composition, structure and morphology on the electrical, optical and electrochemical responses of AlNxOy films, Joel Borges; N. Martin; N. P. Barradas, L. Marques, F. Vaz, European Congress and Exhibition on Advanced Materials and Processes - Euromat 2013, Sevilla, Spain, September 2013 <http://hdl.handle.net/1822/26863> FCT, GRF

Poster Experiments and modelling in N2-H2 capacitively coupled radio-frequency discharges at low pressure, Marques, L.; Mahjoub, A.; Pintassilgo, C. D., XXXI International Conference on Phenomena in Ionized Gases – ICPIG, Granada, Spain, July, 2013 <http://hdl.handle.net/1822/26109> FCT

Poster Heisenberg Uncertainty Principle in High School Teaching , A. Pinto, L. Marques, Marta M.D. Ramos , NANODYF2013 SNNC 2013 , Medellín, Colombia, July, 2013 <http://hdl.handle.net/1822/25053> FCT

Poster Influence of electrode degradation on organic solar cells functioning – a computational study, Barbosa, Hélder M. C.; Correia, Helena M. G.; Marques, L., M. M. D. Ramos, 8th International Conference on Surfaces, Coatings and Nanostructured Materials - Nanosmat 2013, Granada, Spain, September 2013 <http://hdl.handle.net/1822/26860> FCT



Poster Optical emission spectroscopy study of pulsed laser deposition of semiconducting nanoparticles. , L. Marques, M. M. D. Ramos*, M. J.M. Gomes , NANOANTIOQUIA'2013 SNNC 2013 , Medellín, Colombia, July, 2013
<http://hdl.handle.net/1822/25055> FCT, FMNC

Poster Pulsed laser deposition of semiconducting nanoparticles : optical emission spectroscopy study, Marques, L.; Ramos, Marta M. D.; Gomes, M. J. M., 9th Asia-European International Conference on Plasma Surface and Engineering - AEPSE 2013, Jeju, South Korea, August 2013 <http://hdl.handle.net/1822/26857> FCT, FMNC

Poster Understand the importance of molecular organization at polymer-polymer interfaces in excitonic solar cells , Hélder M. C. Barbosa, Helena M. G. Correia, Luís Marques, Marta M. D. Ramos , EMRS-2013 Spring Meeting, Strasbourg, France, May, 2013 <http://hdl.handle.net/1822/24402> FCT

National

Poster First-Principles Study of Electronic Properties of Radical Polymers for Organic Battery Applications , Hélder M. C. Barbosa, Luís Marques, Marta M. D. Ramos , 11º Encontro Nacional de Química Física - 11ºENQF, Porto, Portugal, Maio, 2013 FCT

Poster Theoretical Study of Exciton Migration in Polymer-Based Solar Cells , Hélder M. C. Barbosa, Helena M. G. Correia, Luís Marques, Marta M. D. Ramos , 11º Encontro Nacional de Química Física - 11ºENQF, Porto, Portugal, Maio, 2013
<http://hdl.handle.net/1822/24077> FCT

6.3.5. Future Research

Modelling of biological systems
Modelling of organic electronic devices
Modelling and characterization of plasma devices
Modelling of multifunctional and composite materials



6.4. Group of Physics of Nano Crystalline Materials (FMNC)

6.4.1. Summary description of the scientific work carried out by the group in 2013

- Study of microstructure, dielectric and ferroelectric properties, and polarization switching response of pulsed laser deposited (PLD) Ba_{0.8}Sr_{0.2}TiO₃ thin films;
- Study of structural, optical and electrical properties of MOS capacitors containing a 8 nm-thick SiGe amorphous layer embedded in a SiO₂ matrix grown by RF magnetron sputtering;
- Preparation of ZnO based nanocrystals embedded in Al₂O₃ matrix with high crystalline quality using rapid thermal annealing;
- Study of the effect of temperature and gas atmosphere on the SPR and SERS activities of silver NP films grown by PLD.

6.4.2. Updated composition of the group

Research Group Title	Physics of Nanocrystalline Materials
Principal investigator	Mário A. C. Castro Pereira
Research area	Nanomaterials Physics and Nanotechnology
Group Members	<p><u>Effective members:</u></p> <p>M. Jesus M. Gomes – Full Professor António Mário Almeida – Assistant Professor Mário A. C. Castro Pereira – Assistant Professor</p> <p><u>Post-doctorate researchers and Research Fellows with Ph. D :</u></p> <p>Sergej Levichev – Pos-Doc (FCT) (Till July 2013) Koppople Sekhar – Pos-Doc (FCT, since December 2010) Kamakshi Koppole – Pós Doc (FCT) Adil Chahboun – External Colaborator</p> <p><u>Ph. D and other Research Students:</u></p> <p>Eliana Alexandra se Sousa Rodrigues - PhD student (FCT grant) (Till June 2013) José Pedro Basto da Silva - PhD student (FCT grant) (Till July 2013) Ouiame Karzazi – PhD student Sandra D.F.C. Moreira (based at Centre of Chemistry)- PhD student (FCT grant) (Till November 2013) Luis Fernandes Gonçalves (based at Centre of Chemistry)- PhD student (FCT grant)</p>



6.4.3. Scientific Production

6.4.3.1. Regular articles Published in ISI Journals

A shadowed off-axis production of Ge nanoparticles in Ar gas atmosphere by pulsed laser deposition, J. Martín-Sánchez, A. Chahboun · S.R.C. Pinto, A.G. Rolo, L. Marques, R. Serna, E.M.F. Vieira, M.M.D. Ramos, M.J.M. Gomes , Applied Physics A 110, 585 (2013). <http://hdl.handle.net/1822/21047> FMNC GFCT 1.545 IF: 1.545 GCEP, FCT, FMNC

Charge trapping properties and retention time in amorphous SiGe/SiO₂ nanolayers, E. M. F. Vieira, R. Diaz, J. Grisolía, A. Parisini, J. Martín-Sánchez, S. Levichev, A. G. Rolo, A. Chahboun, M. J. M. Gomes, J. Phys. D: Appl. Phys. 46 (2013) 095306 (5pp) doi:10.1088/0022-3727/46/9/095306 <http://hdl.handle.net/1822/23575> IF: 2.528 CGEP, FMNC

Development of new high transparent hybrid organic-inorganic monoliths with surface engraved diffraction pattern Sandra D. F. C. Moreira , Carlos J. R. Silva, Luis A. S. A. Prado, Manuel F. M. Costa , Victor I. Boev, J. Martín-Sánchez, M. J. M. Gomes Journal of Polymer Science Part B: Polymer Physics 50, 492-499(2013)in press. (Ref.POLB-23028). http://apps.webofknowledge.com/full_record.do?product=WOS&search_mode=GeneralSearch&qid=6&SID=W1nYmACxBxobI3qNCo9&page=1&doc=4 IF:2,221 OCV, FMNC

Effect of rapid thermal annealing on texture and properties of pulsed laser deposited zinc oxide thin films Sekhar, K.C. and Levichev, S. and Kamakshi, K. and Doyle, S. and Chahboun, A. and Gomes, M.J.M., Materials Letters 98, 149-152 (2013). URL: <http://www.sciencedirect.com/science/article/pii/S0167577X13002115> IF: 2,224 FMNC

Effects of oxygen partial pressure on the ferroelectric properties of pulsed laser deposited Ba_{0.8}Sr_{0.2}TiO₃ thin films, Silva J. P. B., Sekhar K. C., Almeida A., Moreira J.A., Pereira M., Gomes M. J. M., Applied Physics A-Materials Science & Processing Vol.113 [3] p.817-824 (2013). IF: 1.545 FMNC

Ferroelectric properties of pulsed laser deposited PZT (92/8) thin films, Silva J. P. B., Rodrigues S. A. S., Sekhar K. C., Pereira M., Gomes M. J. M., Journal Of Materials Science-Materials In Electronics Vol.24 [12] p. 5097-5101 (2013). IF: 1.486 FMNC

Improvement of the fatigue and the ferroelectric properties of PZT films through a LSCO seed layer, Rodrigues S.A.S., Silva J.P.B., Khodorov A., Martin-Sánchez J., Pereira M., Gomes, M.J.M., Materials Science And Engineering B-Advanced Functional Solid-State Materials, Vol.178 [18] p.1224-1229 (2013). IF: 1.846 FMNC

Influence of laser repetition rate on ferroelectric properties of pulsed laser deposited BaTiO₃ films on platinized silicon substrate, Silva J. P. B., Sekhar, K. C., Almeida, A., Agostinho Moreira, Pereira, M., Gomes, M. J. M., Applied Physics A-Materials Science & Processing, Vol.113 [2] p.379-384 (2013). IF: 1.545 FMNC

Influence of RF-sputtering power on formation of vertically stacked Si_{1-x}Gex nanocrystals between ultra-thin amorphous Al₂O₃ layers: structural and photoluminescence properties, E M F Vieira 1, J Martín-Sánchez, M A Roldan, M Varela, M Buljan, S Bernstorff, N P Barradas, N Franco, M R Correia, A G Rolo, S J Pennycook, S I Molina, E Alves, A Chahboun, and M J M Gomes, J. Phys. D: Appl. Phys. 46 (2013) 385301 (10pp) doi:10.1088/0022-3727/46/38/385301 IF:2.528 CGEP, FMNC

On the formation of an interface amorphous layer in nanostructured ferroelectric Ba_{0.8}Sr_{0.2}TiO₃ thin films integrated on Pt-Si and its effect on the electrical properties, Silva, J. P. B., Sekhar, K. C., Rodrigues, S. A. S., Pereira, M., Parisini, A., Alves, E., Barradas, N. P., Gomes, M. J. M.,APPLIED SURFACE SCIENCE Vol.: 278, p.136-141 (2013). IF:2,112 FMNC



Semiconductor layer thickness impact on optical and resistive switching behavior of pulsed laser deposited BaTiO₃/ZnO heterostructures, Sekhar KC, Silva, J. P. B., Kamakshi K., Pereira, M., Gomes, M. J. M., Applied Physics Letters Vol.102 [21] n° 212903 (2013). IF: 3.794 FMNC

Shadowed off-axis production of Ge nanoparticles in Ar gas atmosphere by pulsed laser deposition: Morphological, structural and charge trapping properties, J. Martín-Sánchez, I. Capan, A. Chahboun, S.R.C. Pinto, E.M.F. Vieira, A.G. Rolo, and M.J.M. Gomes, Applied Surface Science 280 (2013) 632– 640
<http://dx.doi.org/10.1016/j.apsusc.2013.04.170> <http://hdl.handle.net/1822/24681> (CGEP, FMNC) IF: 2.112
FMNC, GCEP

Strain induced enhanced ferromagnetic behavior in inhomogeneous low doped La_{0.95}Sr_{0.05}MnO_{3+δ} Das, S (Das, S.); Amaral, JS (Amaral, J. S.); De, K (De, K.) ; Willinger, M (Willinger, M.); Goncalves, JN (Goncalves, J. N.); Roy, A (Roy, A.) ; Dhak, P (Dhak, P.); Giri, S (Giri, S.); Majumder, S (Majumder, S.); Silva, CJR (Silva, C. J. R.); Gomes, MJM (Gomes, M. J. M.); Mahapatra, PK (Mahapatra, P. K.); Amaral, VS (Amaral, V. S.) Appl. Phys. Lett. 102, 112408 (2013);
<http://scitation.aip.org/content/aip/journal/apl/102/11/10.1063/1.4793657> <http://dx.doi.org/10.1063/1.4793657>
IF: 3,794 FMNC

Synthesis and characterization of organic-inorganic hybrid materials prepared by sol-gel and containing ZnxCd1-xS nanoparticles prepared by a colloidal method, Gonçalves, L.F.F.F., Silva, C.J.R., Kanodarwala, F.K., Stride, J.A., Pereira, M.R., Gomes, M.J.M, Journal of Luminescence 144 , pp. 203 (2013). IF: 2.144 FMNC

6.4.3.2. Master theses completed in 2013

Author: Sandra Maria Maia

Supervisor: Mário Almeida

Title: Monitorização acústica em ambiente escolar

Terminated at January 2013 at the School of Sciences

Author: Lídia M. Correia

Supervisor: Mário Almeida

Title: A Física no campo: como uma saída de campo em Biologia ou Geologia pode incluir a Física

Terminated at January 2013 at the School of Sciences

Author: Filomena Inês Mimoso Silva Campos

Supervisor: Maria Jesus M. Gomes

Title: Relatório de Atividade Profissional

Terminated at December 2013 at the School of Sciences

Author: Ana Luísa Carvalho Campos

Supervisor: Maria Jesus M. Gomes

Title: Nanociênciam e nanotecnologia no ensino básico (3º ciclo) e secundário

Terminated at December 2013 at the School of Sciences

Author: Alcina Maria Gonçalves Barreto Silva Rito

Supervisor: Mário Almeida

Title: Relatório de Atividade Profissional



Terminated at December 2013 at the School of Sciences

Author: Luís Carlos Silva Faria (MIEMAT)

Supervisor: Mario Pereira, Delfim Soares (DEM)

Title: Estudo e otimização do processo de secagem de compósitos cerâmicos abrasivos

Terminated at November 2013 at the School of Sciences

Author: Sandra Cristina Pinto Condeço Baptista

Supervisor: Paulo Varela (IE), Maria Jesus M. Gomes

Title: Guiões de ensino-aprendizagem das ciências para o 1º CEB: do circuito elétrico ao eletroíman

Terminated at November 2013 at the Education Institute

6.4.3.3. Ph.D. theses completed in 2013

Author: Eliana M. Fernandes Vieira

Supervisor: Anabela G. Rolo, Maria de Jesus M. Gomes, Adil Chahboun (FST Tanger, Marrocos).

Title: Estruturas baseadas em nanocristais de Si_{1-x}Gex em dielétricos com vista à aplicação em memórias.

Terminated at July 17th 2013 at the School of Sciences

Author: José Pedro Basto Silva

Supervisor: Maria Jesus M. Gomes, Mário Pereira, A. Khodorov

Title: Growth and study of layered ferroelectric thin film materials based structures of (BST) layers

Terminated at July 2013 at the School of Sciences

Author: Sandra Freitas Costa Moreira

Supervisor: Maria Jesus M. Gomes, M. Filipe Costa, Carlos Silva (DQ)

Title: Organic-inorganic composites with tailored optical properties by doping hybrid matrix with metal nanoparticles

Terminated at November 2013 at the School of Sciences

6.4.3.4. Master theses in progress in 2013

Author: Filipe da Silva Machado (MIEMAT)

Supervisor: Mario Pereira

Title: Organização de nano-partículas de parta a partir duma pre-forma de alumina.

Developing since March 2013 at the School of Engineering

6.4.3.5. Ph.D. theses in progress in 2013

Author: Ouiame Karzazi

Supervisor: Maria Jesus M. Gomes

Title: Growth and characterization of structural, optical, and magnetic properties of doped ZnO nanocrystals embedded in high-k dielectrics

Develloping since 2010 at the School of Sciences

Author: Amira Ahmed

Supervisor: Maria Jesus M. Gomes

Title: Electronic and optical study and modelling of active plasmonic nanostructures and QW's laser structures

Develloping since October 2013 at the School of Sciences



6.4.4. Funded Projects Ongoing

Title: Growth and characterization of ferromagnetic nanocrystals based in Zn_{1-x}F_xO/dielectric structures for spintronic applications

Reference: PTDC/FIS/098 943/2008

Project Coordenator: Maria de Jesus Matos Gomes

Funding awarded: 132 240,00 Euros

Start Date: May 2010

Duration: 3 years

6.4.5. Other information

6.4.5.1. Other conference presentations given by members of the group in national or international conferences

International

Poster Gold nanoparticles embedded in organic/inorganic hybrid matrix. Electrical and electrochemical behavior, Sandra D. F. C. Moreira, J. P. B. Silva, Carlos J. R. Silva, I.Capan, M. J. M. Gomes, Manuel F. M. Costa, SPIE Microtechnologies, Grenoble, França, 24-26 de Abril de 2013. FMNC

Poster An Example of Interdisciplinarity: Physics, Chemistry and Mathematics Merge with Biology and Geology in an Urban Field Trip, Lídia Guimarães, A. Mário Almeida, Ricardo Rodrigues dos Santos, Manuel F.M. Costa, Proceedings of the "10th International Conference on Hands-on Science. Educating for Science and through Science", Costa MF, Dorrio BV, Kires M, Eds. , ISBN 978-989-98032-2-0; 2013, 1st-5th July 2013; Pavol Jozef Šafárik University, Košice, Slovakia, pp 319-320 2013 FMNC, OCV

Poster Is it Necessary a Force for an Object to Move?, Alcina Rito, Rui Vila-Chã, A. Mário Almeida, Manuel F.M. Costa, Proceedings of the "10th International Conference on Hands-on Science. Educating for Science and through Science", Costa MF, Dorrio BV, Kires M, Eds. , ISBN 978-989-98032-2-0; 2013, 1st-5th July 2013; Pavol Jozef Šafárik University, Košice, Slovakia, pp 320 2013 FMNC, OCV

Poster Gold nanoparticles embedded in organic/inorganic hybrid matrix. Electrical and electrochemical behavior, Sandra D. F. C. Moreira, J. P. B. Silva, Carlos J. R. Silva, I.Capan, M. J. M. Gomes, Manuel F. M. Costa, SPIE Microtechnologies, Grenoble, França, 24-26 de Abril de 2013. FMNC

Poster Optical emission spectroscopy study of pulsed laser deposition of semiconducting nanoparticles. , L. Marques, M. M. D. Ramos*, M. J.M. Gomes , NANOANTIOQUIA'2013 SNNC 2013 , Medellín, Colombia, July, 2013 <http://hdl.handle.net/1822/25055> FCT, FMNC

Poster Pulsed laser deposition of semiconducting nanoparticles : optical emission spectroscopy study, Marques, L.; Ramos, Marta M. D.; Gomes, M. J. M., 9th Asia-European International Conference on Plasma Surface and Engineering - AEPSE 2013, Jeju, South Korea, August 2013 <http://hdl.handle.net/1822/26857> FCT, FMNC

National

Oral Ensino interdisciplinar das ciências: um contributo para a valorização do património natural e cultural.|| António Mário Almeida, Lídia Guimarães, Ana Cunha, Jorge M. V. Pamplona, I Congresso para a Ciência e Desenvolvimento dos Açores – Crise, Território e Paisagem, Angra do Heroísmo Portugal , 26 e 27 de Julho de 2013. FMNC



Poster Carga orgânica adicionada a FitoETAR por colmos de Phragmitesaustralis, Luís Manuel Oliveira, António Mário Almeida, Isabel A-P. Mina, MAP-biplant - Programa Inter-Universitário de Doutoramento em Biologia de Plantas, 4^a Workshop Anual Biplant - 18 e 19 julho de 2013, Porto. FMNC

6.4.6. Future Research

- Feasibility study, optimization procedure and large scale fabrication of semiconductor nanocrystals based photovoltaic system integrated to building material envelope (NC-PVIB) based on Si_{1-x}Gex (0<x<1) NCs embedded dielectric (SiO₂, SiC, Si₃N₄) layers;
- Continuation of the fabrication, study, and optimization of doped ZnO NCs embedded in several kinds of dielectric matrices (like SiO₂, Al₂O₃, BaTiO₃) for spin based flash memory application.
- Investigations of the possibility of development of technological devices based on surface plasmon resonance (SPR) or surface states in metal nanosized structures (Au, Ag, Co, FeO), embedded in transparent dielectric thin films (SiO₂, ZrO₂, Al₂O₃, HfO₂, HfAlO, TiO₂), in order to tailor the final properties for bio-sensor and photovoltaic applications. In other hand, organized structures of anodized aluminium produced by chemical electrolysis will be used as substrates for ordering the metal nanoparticles.

Development of the application of high-vacuum technologies of pulsed laser ablation (PLAD), RF-magnetron sputtering and Electron Beam (IBAD-EB) deposition techniques in aim to obtain materials with well characterized NCs suitable for use in the production of advanced devices.



6.5. Functional Coatings Group (GRF)

6.5.1. Summary description of the scientific work carried out by the group in 2013

- Development of new nanostructured coatings with antimicrobial activity for use in orthopedic prostheses and stents;
- Demonstration of anticancer activity of nanoporous titanium silicate;
- Manufacture of microporous foams with very low density using temperature-induced amorphization;
- Development of new photocatalytic surfaces for different technological applications: road pavements with self-cleaning and anti-pollution ability, insecticides/repellents with controlled release from materials with sunlight activation; surfaces with antibacterial properties;
- Optimization of thin films for energy conversion: solar thermal collectors and photovoltaic cells dye-sensitized;
- Optimization of optical and structural properties of thin films of transparent conducting oxides (TCO) for different high-tech applications (flexible electronics, photovoltaic solar cells, touch sensitive screens, biosensors);
- Development and modeling of the optical properties of thin films compounds (Metal/TiO₂) with surface plasmon resonance;
- Optimization for application in thin pressure sensors and electrodes for acquiring bio-signals (EEG and ECG), films deposited on polymeric materials;
- Fabrication by electrochemical techniques Anodic Porous Alumina films (AAP) and its application in biological systems ;
- Synthesis of membranes of thin films for biological applications.

6.5.2. Updated composition of the group

Research Group Title	Functional Coating Group (GRF)
Principal investigator	Joaquim Alexandre Carneiro
Research area	Materials Physics of Thin Films
Group Members	<p><u>Effective Members:</u></p> <p>Martin Andritschky – Full Professor Luís Rebouta – Associate Professor with Habilitation Filipe Vaz – Associate Professor with Habilitation Vasco Teixeira – Associate professor Cacilda Moura – Assistant Professor Carlos Tavares – Assistant Professor Joaquim Carneiro – Assistant Professor Luís Cunha – Assistant Professor Sandra Carvalho – Assistant Professor Teresa Aroso – Assistant Professor Stanislav Ferdov - Researcher</p> <p><u>Associate Member:</u></p> <p>Li-Jian Meng (ISEP)</p> <p><u>Post-Doctorate Researchers and Research Fellows with PhD:</u></p> <p>Pedro Carvalho – Scholarship Seventh Framework Programme (FP7) (Till September</p>



2013)
Mário Zamith – Assistant Professor

PhD Students:

Joel Nuno Pinto Borges - PhD student
Armando Ferreira – FCT Grant
Carlos Batista – FCT Grant
Cláudia Lopes – FCT Grant (BI)
Cibeli Garcia – FCT Grant
Fernando Ribeiro – FCT Grant
Isabel Carvalho – FCT Grant
Isabel Ferreri – FCT Grant
Mariana Marques – FCT Grant
Noora Manninen FCT Grant
Rita Rebelo – FCT Grant
Paulo Batista Pedrosa – FCT Grant
Sebastian Calderon Velasquez – FCT Grant
Sofia Azevedo – FCT Grant
Filipa Fernandes – FCT Grant (BI)

6.5.3. Scientific Production

6.5.3.1. Regular articles published in ISI Journals

A comparative rietveld refinement study of natisite prepared in different morphology, Ferdov, S. (2013) Journal of Chemical Crystallography, 43 (8), pp. 443-447. IF:0.513 GRF

A microporous titanosilicate for selective killing of HeLa cancer cells, Ferdov, S., Shikova, E., Ivanova, Z., Dimowa, L.T., Nikolova, R.P., Lin, Z., Shivachev, B.L. (2013) RSC Advances, 3 (23), pp. 8843-8848. Cited 1 time. IF: 2.562 GRF

Advanced surface characterization of silver nanocluster segregation in Ag–TiCN bioactive coatings by RBS, GDOES, and ARXPS, Escobar Galindo Ramon, Manninen Noora Kristiina, Palacio Carlos, Carvalho Sandra, Anal Bioanal Chem 405:6259–6269 (2013) <http://link.springer.com/article/10.1007%2Fs00216-013-7058-z#page-1> IF:3.659 GRF

Ag⁺ release and corrosion behavior of zirconium carbonitride coatings with silver nanoparticles for biomedical devices, S. Calderon V., R. Escobar Galindo, J.C. Oliveira, A. Cavaleiro, S. Carvalho, Surface and Coatings Technology, Volume 222, 15 May 2013, Pages 104–111 IF: 1.941 GRF

Ag⁺ release inhibition from ZrCN–Ag coatings by surface agglomeration mechanism: structural characterization, S. Calderon V, R. Escobar Galindo, N. Benito, C. Palacio, A. Cavaleiro and S. Carvalho, J. Phys. D: Appl. Phys. 46 (2013) 325303 IF:2.528 GRF

Crystal structure, thermal flexibility and structural transformations of tin umbite and copper exchanged tin umbite prepared from clear solution, Peixoto, M.A.R., Ferdov, S. (2013) Journal of Porous Materials, 20 (5), pp. 1171-1178. IF: 1.348 GRF



Crystal structures of Mg 2+, Ba 2+ and Cs + exchanged K-Na-ETS-4, Nikolova, R.P., Shivachev, B.L., Ferdov, S. (2013) Microporous and Mesoporous Materials, 165, pp. 121-126. Cited 2 times. IF: 3.365 GRF

Development of a quasi-dry electrode for EEG recording Mota, f. Vaz, A. R.; Duarte, L.; Rodrigues, D.; et al., SENSORS AND ACTUATORS A-PHYSICAL Volume: 199 Pages: 310-317 DOI: 10.1016/j.sna.2013.06.013 Published: SEP 1 2013 IF: 1.841 GRF

Development of photocatalytic asphalt mixtures by the deposition and volumetric incorporation of TiO₂ nanoparticles, J.O. Carneiro, S. Azevedo, V. Teixeira, F. Fernandes, E. Freitas, H. Silva, J. Oliveira, Construction and Building Materials, 38 (2013) 594–601. <http://hdl.handle.net/1822/21185> IF: 2.293 GRF

Development of tantalum oxynitride thin films produced by PVD: Study of structural stability. Cristea, D., Crisan, A., Barradas, N.P., Alves, E., Moura, C., Vaz, F., Cunha, L. Applied Surface Science 285P, 19-26 (2013) <http://hdl.handle.net/1822/27158>. IF: 2.112 GRF

Electrical and photocatalytic behavior of TaO_xNy magnetron sputtered thins solid films, Daniel CRISTEA, Aurel CRISAN, Nuno BARRADAS, Eduardo ALVES, Pedro COSTA, Senen LANCEROS-MÉNDEZ, Luis CUNHA, , Metalurgia International Vol 18, special issue 6, 61-64 (2013) - <http://hdl.handle.net/1822/27167> IF: 0.134 FCD, GRF

Electrochemical Anodizing, Structural and Mechanical Characterization of Nanoporous Alumina Templates, A. P. Samantilleke, J. O. Carneiro, S. Azevedo, T. Thuy and V. Teixeira, Journal of Nano Research, (25) (2013) 77-89. <http://hdl.handle.net/1822/26879> IF: 0.341 GCEP, GRF

Enhancement of graphene visibility on transparent substrates by refractive index optimization. Gonçalves, H., Alves, L., Moura, C., Belsley, M., Stauber, T., Schellenberg, P., Optics Express 21 (10) 12934-12941 (2013) <http://hdl.handle.net/1822/25418>. IF: 3.546 FAMO, GRF

Food contact surfaces coated with nitrogen-doped titanium dioxide: effect on Listeria monocytogenes survival under different light sources, D. Rodrigues, P. Teixeira, C.J. Tavares, J. Azeredo, Applied Surface Science 270 (2013) 1–5. (<http://dx.doi.org/10.1016/j.apsusc.2012.11.119>) IF: 2.112 GRF

Gamma-Phase nucleation and electrical response of poly(vinylidene fluoride)/microporous titanosilicates composites . Caparros, Cristina; Lopes, Ana Catarina; Ferdov, Stanislav; et al. MATERIALS CHEMISTRY AND PHYSICS Volume: 138 Issue: 2-3 Pages: 553-558 DOI: 10.1016/j.matchemphys.2012.12.018 Published: MAR 15 2013 IF: 2.072 GRF, FCD

Highly sensitive detection of pathogen Escherichia coli O157:H7 by electrochemical impedance spectroscopy, Teixeira. V, Barreiros dos Santos, M.; Agusil, J. P.; Prieto-Simon, B.; et al. ; BIOSENSORS & BIOELECTRONICS Volume: 45 Pages: 174-180 DOI: 10.1016/j.bios.2013.01.009 Published: JUL 15 2013 IF: 5.437 GRF

Hydrothermal synthesis of copper zirconium phosphate hydrate [Cu(OH)₂Zr(HPO₄)₂•2H₂O] and an investigation of its lubrication properties in grease, Zhang, X., Xu, H., Zuo, Z., Lin, Z., Ferdov, S., Dong, J. (2013) ACS Applied Materials and Interfaces, 5 (16), pp. 7989-7994. IF: 5.008 GRF



Improving Tribological Properties of Cast Al-Si alloys through Application of Wear-Resistant Thermal Spray Coatings, David Culliton, Anthony Betts, Sandra Carvalho, David Kennedy Journal of Thermal Spray Technology, DOI: 10.1007/s11666-013-9894-y IF: 1.481 GRF

Influence of Ag content on mechanical and tribological behavior of DLC coatings, Manninen Noora Kristiina, Ribeiro Fábio, Escudeiro Ana, Polcar Tomas, Carvalho Sandra, Cavaleiro Albano, Surface & Coatings Technology 232 440–446 (2013) <http://www.sciencedirect.com/science/article/pii/S0257897213004921> IF: 1.941 GRF

Influence of albumin on the tribological behaviour of Ag-Ti (C, N) thin films for orthopedic implants, C. F. Almeida Alves, F. Oliveira, I. Carvalho, A. P. Piedade and S. Carvalho; 2013 Materials Science and Engineering C, doi: 10.1016/j.msec.2013.09.031 NO IF GRF

Influence of composition, bonding characteristics and microstructure on the electrochemical and optical stability of AlOxNy thin films, J. Borges, C. Fonseca, N.P. Barradas, E. Alves, T. Girardeau, F. Paumier, F. Vaz,*, L. Marques, Acta Electrochimica 106, 23 (2013).<http://hdl.handle.net/1822/24545> GRF GFCT 3.777 IF: 3.777 GRF, FCT

Influence of stoichiometry and structure on the optical properties of AlNxOy films, J. Borges, N. Martin, N. P. Barradas, E. Alves, D. Eyidi, MF Beaufort, J.P. Riviere, F. Vaz, L. Marques, Journal of Physics D - Applied Physics, 46(1), 015305 (2013) IF: 2.528<http://hdl.handle.net/1822/21066> GRF GFCT 2.528 GRF, FCT

Influence of surface features on the adhesion of *Staphylococcus epidermidis* to Ag-TiCN thin films, Carvalho, I.; Henriques, M.; Oliveira, J.C.; Alves, C.F.A.; Piedade, A.P.; Carvalho, S., Science and Technology of Advanced Materials, 14(3), 1-10, 2013. IF: 3.752 GRF

Influence of thermal annealing on structural and optical properties of Au:TiO₂ nanocomposite film, A. Marin, D. Munteanu, E. Alves, N.P. Barradas, L. Cunha, C. Moura, Journal of Optoelectronics and Advanced Materials Vol. 15, 530-543 (2013) <http://hdl.handle.net/1822/27122> IF: 0.516 GRF

Influence of zeolite structure and chemistry on the electrical response and crystallization phase of poly(vinylidene fluoride), Lopes, A. C.; Caparros, C.; Ferdov, S.; et al. JOURNAL OF MATERIALS SCIENCE Volume: 48 Issue: 5 Pages: 2199-2206 DOI: 10.1007/s10853-012-6995-9 Published: MAR 2013 IF: 2.163 GRF, FCD

Low-density macroporous foams obtained from a molecular sieve by temperature-induced amorphization, Ferdov, S. (2013) Angewandte Chemie - International Edition, 52 (46), pp. 12135-12138. IF: 13.734 GRF

Mild hydrothermal synthesis, isomorphous substitution, crystal structure characterization and magnetic properties of BaMP2O₇ (M = Mn, Cu), Lopes, A.M.L., Oliveira, G.N.P., Ferdov, S. (2013) Solid State Sciences, 26, pp. 59-64. IF: 1.671 GRF

Modulated IR Radiometry Applied to Study Coatings with Gold Nanocluster Inclusions, Vaz, F.; Macedo, F.; Faria, R. T., Jr.; et al., INTERNATIONAL JOURNAL OF THERMOPHYSICS Volume: 34 Issue: 8-9 Special Issue: SI Pages: 1597-1605 DOI: 10.1007/s10765-013-1398-y Published: SEP 2013 IF: 0.568 GRF, GCEP

Nanocomposite Ag:TiN thin films for dry biopotential electrodes, Vaz, F. Pedrosa, P.; Machado, D.; Lopes, C.; et al., APPLIED SURFACE SCIENCE Volume: 285 Pages: 40-48 DOI: 10.1016/j.apsusc.2013.07.154 Part: A Published: NOV 15 2013 IF 2.112 GRF GCEP



Polymer-based acoustic streaming for improving mixing and reaction times in microfluidic applications, V.F.C. ardoso, T. Knoll, T. Velten, L. Rebouta, P. M. Mendes, S. Lanceros-Méndez, G. Minas, RSC Adv., 4, 4292-4300 (2013) IF: 2,562 FCD, GRF

Properties of tantalum oxynitride thin films produced by magnetron sputtering: The influence of processing parameters. Cristea, D., Constantin, D., Crisan, A., Abreu, C.S., Gomes, J.R., Barradas, N.P., Alves, E., Moura, C., Vaz, F., Cunha, L. Vacuum 98, 63-69 (2013) <http://hdl.handle.net/1822/27156>. IF: 1.530 GRF

Relationship between electromechanical response and percolation threshold in carbon nanotube/poly(vinylidene fluoride) composites .Ferreira, A.; Martinez, M. T.; Anson-Casaos, A.; et al. CARBON Volume: 61 Pages: 568-576 DOI: 10.1016/j.carbon.2013.05.038 Published: SEP 2013 IF: 5.868 GRF, FCD

Release of Volatile Compounds from Polymeric Microcapsules Mediated by Photocatalytic Nanoparticles, J. Marques, L. F. Oliveira, R. T. Pinto, P. J. G. Coutinho, P. Parpot, J. R. Góis, J. F. J. Coelho, F. D. Magalhães, C. J. Tavares, International Journal of Photoenergy 2013, Article ID 712603 (2013); <http://hdl.handle.net/1822/24546> FAMO+GRF IF: 2.663 FAMO, GRF

Structural and Morphological Changes In Ag:TiN Nanocomposite Films promoted by in-vacuum annealing, Machado, D.; Pedrosa, P.; Fonseca, C.; et al., JOURNAL OF NANO RESEARCH Volume: 25 Pages: 67-76 DOI: 10.4028/www.scientific.net/JNanoR.25.67 Published: 2013 IF: 0.341 GRF

Study of Vanadium Doped ZnO Films Prepared by dc Reactive Magnetron Sputtering at Different Substrate Temperatures Meng, Lijian; Teixeira, Vasco; Dos Santos, M. P., JOURNAL OF NANOSCIENCE AND NANOTECHNOLOGY Volume: 13 Issue: 2 Pages: 1381-1384 DOI: 10.1166/jnn.2013.6053 Published: FEB 2013 IF: 1.149 GRF

TiAgx thin films for lower limb prosthesis pressure sensors: Effect of composition and structural changes on the electrical and thermal response of the films, Vaz, F Lopes, C.; Goncalves, C.; Pedrosa, P.; et al., APPLIED SURFACE SCIENCE Volume: 285 Pages: 10-18 DOI: 10.1016/j.apsusc.2013.07.021 Part: A Published: NOV 15 2013 IF: 2.112 GRF GCEP

Tribocorrosion behaviour of ti-c-o-n nanostructured thin films (black) for decorative applications, P. Lima, M. Araújo, M.T. Mathew, L. A. Rocha, A.M. Pinto, J.M. Chappé, Marta M.D.Ramos, L. Marques, J.F. Pierson5, F. Vaz, Tribology International 68, 1-10 (2013).GRF GFCT IF: 1.536 FCT, GRF

γ -Phase nucleation and electrical response of poly(vinylidene fluoride)/microporous titanosilicates composites, Caparros, C., Lopes, A.C., Ferdov, S., Lanceros-Mendez, S. (2013) Materials Chemistry and Physics, 138 (2-3), pp. 553-558. Cited 1 time. IF: 2.072 GRF, FCD

6.5.3.2. Conferences Proceedings published in ISI Journals

Photocatalytic thin films coupled with polymeric microcapsules for the controlled-release of volatile agents upon solar activation, L.F. Oliveira, J. Marques, P.J.G. Coutinho, P. Parpot, C.J. Tavares, Journal of Physics: Conference Series 439 (2013) 012018. (Open Acess: <http://dx.doi.org/10.1088/1742-6596/439/1/012018>) <http://hdl.handle.net/1822/24547> FAMO, GRF



Influence of Substrate Temperature and Post-annealing Treatment on the Microstructure and Electric Properties of ZnO:Al Thin Films Deposited by Sputtering, C.B. Garcia, E. Ariza, C.J. Tavares, Materials Science Forum 730-732 (2013) 215-220. (<http://www.scientific.net/MSF.730-732.215>) GRF

6.5.3.3. ISI Conference Proceedings published in Conference books

Novel flexible Dry multipin electrodes for EEG: Signal quality and interfacial impedance of Ti and TiN coatings, Fiedler, P. and Fonseca, C. and Pedrosa, P. and Martins, A. and Vaz, F. and Griebel, S. and Haueisen, J., Proceedings of the Annual International Conference of the IEEE Engineering in Medicine and Biology Society, EMBS (2013) 547-550. DOI: 10.1109/EMBC.2013.6609558 GRF

6.5.3.4. Books and book chapters

Metallic Oxynitride Thin Films by Reactive Sputtering and Related Deposition Methods: Process, Properties and Applications. Bentham Science Publishers, e-Books. eISBN: 978-1-60805-156-4, 2013; ISBN: 978-1-60805-157-1, Publicação em Julho 2013. GRF

Nanoporous Alumina Templates: Anodisation and Mechanical Characterisation, A.P. Samantilleke, J.O. Carneiro, P. Alpuim, V. Teixeira and T.T. Thu Thuy, Chapter 12 in Nanotechnology Series Vol. 4: Nanomaterials and Nanostructures, edited by Naveen Kumar Navani, Shishir Sinha & J.N. Govil, Studium Press LLC (2013), ISBN: 1-62699-004-2 <http://hdl.handle.net/1822/22543> GRF

New strategies to fight bacterial adhesion in: Microbial Pathogens and Strategies for Combating Them: Science, Isabel Carvalho, M Henriques, S Carvalho, Technology and Education, Editor: A. Méndez-Vilas, 2013, Formatax, Badajoz, 1/Microbiology Book Series 4, 170-178. ISBN 978-84-939843-9-7 GRF

Tunable Properties of Zirconium Oxynitride Thin Films, Pedro Carvalho, Luis Cunha, Nuno Pessoa Barradas, Eduardo Alves, Juan Pedro Espinós and Filipe Vaz, Metallic Oxynitride Thin Films by Reactive Sputtering and Related Deposition Methods: Process, Properties and Applications, eISBN: 978-1-60805-156-4, 2013, ISBN: 978-1-60805-157-1, edited by Filipe Vaz, Nicolas Martin and Martin Fenker, Publisher Bentham Science Publishers, e-Books, (2013) Pp. 64-112. (<http://benthamscience.com/ebooks/9781608051564/index.htm>) GRF

Tunable Properties of Zirconium Oxynitride Thin Films, Pedro Carvalho, Luis Cunha, Nuno Pessoa Barradas, Eduardo Alves, Juan Pedro Espinós and Filipe Vaz, Chapter 4 - 64-112, in Metallic Oxynitride Thin Films by Reactive Sputtering and Related Deposition Methods, Filipe Vaz, Nicolas Martin and Martin Fenker (Eds) Bentham Science Publishers 2013, e-ISBN: 978-1-60805-156-4, 2013, ISBN: 978-1-60805-157-1 (2013). GRF

Residual Stresses in Thin Films Evaluated by Different Experimental Techniques, J. O. Carneiro, V. Teixeira and S. Azevedo, Encyclopedia of Thermal Stresses, Richard B. Hetnarski (Ed.), Springer Science + Business Media Dordrecht, 2013. (DOI 10.1007/978-94-007-2739-7). GRF

Tunable properties of aluminium oxynitride thin films , Joel Borges, Nuno P. Barradas, Eduardo Alves, Nicolas Martin, Marie-France Beaufort, Sophie Camilio, Dominique Eyidi, Thierry Girardeau, Fabien Paumier, Jean-Paul Rivière, Filipe Vaz, Luis Marques , In: Metallic Oxynitride Thin Films by Reactive Sputtering and Related Deposition Methods. Processes, Properties and Applications, Editor: N. Martin, M. Fenker, F. Vaz, 2013, Bentham Science Publishers, Chapter 8, ISBN: 978-1-60805-157-1 <http://hdl.handle.net/1822/23980> GRF, FCT



6.5.3.5. National Patents

6.5.3.6. International Patents

Andritschky, Martin , Rebouta, Luis Manuel Fernandes, Pischedow, Kaj A. METHOD FOR PROVIDING A THERMAL ABSORBER US 20130125876 (2013) GRF

Andritschky, Martin, Pischedow, Kaj A. , Rebouta, Luis Manuel Fernandes METHOD FOR MANUFACTURING THERMAL ABSORBER FOR SOLAR THERMAL COLLECTOR European Patent Application EP2678617 A1(2013) GRF

Andritschky, Martin; Rebouta, Luis Manuel Fernandes Pischedow, Kaj A. METHOD FOR PROVIDING A THERMAL ABSORBEREuropean Patent Application EP2564129 A1 (2013) GRF

6.5.3.7. Master theses completed in 2013

Author: Sara Manuela Neto Machado

Supervisor: Luís Rebouta, Fátima Cerqueira

Title: Deposition and characterization of ZnO nanoparticles

Terminated March 2013 at the School of Sciences

Author: Sandra Branco Soares

Supervisor: Luís Rebouta

Title: Optimization of barrier properties of a multilayer system for selective absorption of solar irradiation

Terminated January 2013 at the School of Sciences

Author: Isabel Carina Simões Silva

Supervisor: Joaquim Carneiro, Célia Pais (DB)

Title: Caracterização biológica de revestimentos à base de óxido de titânio dopado com metais de transição para aplicações anti-microbianas

Terminated June 2013 at the School of Sciences

Author: Cristina Isabel Batista Gonçalves

Supervisor: Filipe Vaz, Cláudia Lopes

Title: Estudo das Propriedades Físicas de Filmes Finos Aplicados a Sensores de Pressão em Próteses Ortopédicas

Terminated July 2013 at the School of Sciences

Author: Diogo da Silva Machado

Supervisor: Filipe Vaz, Paulo Pedrosa

Title: Estudo das Propriedades Físicas de Filmes Finos Aplicados a Sensores de Eletroencefalografia

Terminated July 2013 at the School of Sciences

Author: Anastácio Lemos Soares (Mest. em form. Formadores- EECN – Inst. Nac. de Form. de Docentes e Profissionais da Educação – Timor Leste

Supervisor: Cacilda Moura, Alberto Dias (DB)

Title: Elaboração de atividades/conteúdos para o ensino do sistema digestivo no 3º ciclo

Terminated July 2013 at the School of Sciences



Author: Clarisse Marisa Ribeiro
Supervisor: Graça Vasconcelos, Joaquim Carneiro
Title: Avaliação do Desempenho de Revestimento de TiO₂ na Durabilidade de Pedra de Construção.
Terminated December 2013 at the School of Engeneering

Author: Cristiana Alves
Supervisor: Sandra Carvalho
Title: Desenvolvimento de revestimentos nanoestruturados em substratos de titânio para implantes osteointegrados
Terminated October 2013 at the School of Engeneering

Author: Francelina da Costa Lao (Mest. em form. formadores- EECN – Inst. Nac. de Form. de Docentes e Profissionais da Educação – Timor Leste)
Supervisor: Cacilda Moura, Alberto Dias (DB)
Title: Elaboração de atividades/conteúdos para a lecionação da eletricidade no 3º ciclo
Terminated July 2013 at the School of Sciences

Author: Francisca Martins Belo
Supervisor: Cacilda Moura, Alberto Dias (DB)
Title: Elaboração de atividades/conteúdos para a lecionação do Sistema Solar no 3º ciclo
Terminated July 2013 at the School of Sciences

Author: Graciano de Jesus Baptista
Supervisor: Cacilda Moura, Alberto Dias (DB)
Title: Elaboração de atividades/conteúdos para o ensino do sistema circulatório no 3º Ciclo do Ensino Básico
Terminated July 2013 at the School of Sciences

Author: Joaninha Tílman da Costa
Supervisor: Cacilda Moura, Alberto Dias (DB)
Title: Elaboração de atividades/ Conteúdos para o ensino da poluição no 2º ciclo
Terminated July 2013 at the School of Sciences

6.5.3.8. Ph.D. theses completed in 2013

Author: Adnana Marin
Supervisor: Cacilda Moura, Daniel MUNTEANU (Brasov – România)
Title: Synthesis and characterization of transitional metal oxynitride multi-functional thin films deposited by reactive magnetron sputtering
Terminated 2013 at the University of Transilvânia Brasov

Author: Daniel Cristea
Supervisor: Aurel Crisan (Brasov – România), Luís Cunha
Title: Synthesis and characterization of transitional metal oxynitride multi-functional thin films deposited by reactive magnetron sputtering
Terminated September 2013 at the Transylvania University of Brasov – Roménia



6.5.3.9. Master theses in progress in 2013

Author: Ana Correia

Supervisor: Joaquim Carneiro, Vasco Teixeira

Title: Tratamento de águas industriais através da utilização de nanopartículas de TiO₂

Develloping since September 2013 At the School of Sciences

Author: Bruno Morais

Supervisor: Vasco Teixeira, Ana Vera Machado (DEP)

Title: Characterization of the micro and nanostructure of biocide nanocoatings based in transparent titanium dioxide nanocomposites deposited on polymeric foils for food packaging applications

Develloping since 2013 at the School of Sciences

Author: Carlos Filipe dos Santos Lima (MC-FCP)

Supervisor: Luís Cunha

Title: Pesquisa, seleção e aplicação de informação na resolução de problemas como processo de aprendizagem significativa de Física e Química por parte de alunos do ensino secundário

Develloping since October 2013 at the School of Sciences

Author: Julião da Costa Belo (Mest. em Ciências – Form. Cont. de Prof. – Esp. em Física e Química)

Supervisor: Cacilda Moura

Title: Radiação Nuclear: Riscos e Benefícios na Sociedade. Elaboração de conteúdos científico-pedagógicos para a lecionação no 12º ano de escolaridade em Timor-Leste

Develloping since 2013 at the School of Sciences

Author: Luís Pedro Monteiro Gonçalves

Supervisor: Carlos Tavares, Pedro Alpuim

Title: Superfícies fotocatalíticas sobre grafeno

Develloping since 2013 at the School of Sciences

Author: Miguel Ângelo Costa

Supervisor: Luís Cunha, Filipe Vaz

Title: Ressonância de Plasmões de Superfície. Aplicações a filmes finos

Develloping since 2013 at the School of Sciences

Author: Sara Manuela Fernandes Machado

Supervisor: Filipe Vaz, Luís Rocha (DEM)

Title: Tribocorrosion behaviour of the antimicrobial thin films on titanium dental implant materials

Develloping since 2013 at the School of Sciences

Author: Tiago Manuel Martinho Barbosa

Supervisor: Vasco Teixeira, Jorge Reinaldo Neves (DET)

Title: Caracterização da micro e nanoestrutura de filmes finos antibacterianos baseados em nanocompósito de óxidos transparentes aplicados em fibras têxteis

Develloping since 2013 at the School of Sciences



Author: Tiago Pereira

Supervisor: Carlos Tavares

Title: Desenvolvimento de revestimentos photocatalíticos de TiO₂ com rugosidade controlada

Develloping since 2013 at the School of Sciences

Author: Armando Libânio Fernandes Sá (Mest. em Ciências – Form. Cont. de Prof).

Supervisor: Cacilda Moura, Luís Cunha

Title: Experiências didáticas para o Ensino da Física de 11º ano escolaridade

Develloping since 2013 at the School of Sciences

Author: Ana Cláudia Peixoto Mota

Supervisor: Stanislav Ferdov, Edith Ariza Avila, Carlos Tavares

Title: Soft-chemistry syntheses of perovskite nanoparticles (ABO₃, where A=Ti⁴⁺ and B=Ba²⁺,Sr²⁺)

Develloping since 2012 at the School of Engeneering

Author: Ana Isabel Pereira

Supervisor: Carlos Tavares

Title: Desenvolvimento de membranas com revestimentos de Pd/Ag para a seletividade de hidrogénio atómico

Develloping since 2012 at the School of Engeneering

Author: André Sousa

Supervisor: Luís Rebouta

Title: Sistema ótico baseado em compostos de Si e Al para conversão fototérmica da radiação solar

Develloping since 2012 at the School of Engeneering

Author: Bianca Castanheira Caratão

Supervisor: Sandra Carvalho, Jorge Corker (IPN - Coimbra)

Title: Desenvolvimento e fabrico de estruturas para aplicações biomédicas por electrospinning

Develloping since 2013 at the School of Engeneering

Author: Cristina Isabel Batista Gonçalves

Supervisor: Filipe Vaz, Cláudia Lopes

Title: Estudo das Propriedades Físicas de Filmes Finos Aplicados a Sensores de Pressão em Próteses Ortopédicas

Develloping since 2012 at the School of Engeneering

Author: Diogo Machado

Supervisor: Filipe Vaz, Paulo Pedrosa

Title: Estudo das Propriedades Físicas de Filmes Finos Aplicados a Sensores de Electroencefalografia

Develloping since 2012 at the School of Engeneering

Author: Henrique Pizarro

Supervisor: Carlos Tavares

Title: Estudo da atividade photocatalítica de filmes finos de dióxido de titânio dopado com prata

Develloping since 2012 at the School of Engeneering



Author: Joana Ferraz Meyer
Supervisor: Cristina Louro, Filipe Vaz
Title: Superfícies Funcionais Aplicadas a Biomateriais Inteligentes
Develloping since 2012 at the University of Coimbra

Author: Lionel Azevedo
Supervisor: Filipe Silva, Filipe Vaz
Title: Desenvolvimento e caracterização de filmes finos para aplicações decorativas
Develloping since 2012 at the School of Engeneering

Author: Mariana Pastor
Supervisor: Joaquim Carneiro, Paula Sampaio (DB)
Title: Desenvolvimento de membranas de óxido de alumínio anodizado (AAO) para a produção de meios de crescimento celular seletivos
Develloping since 2012 at the School of Engeneering

6.5.3.10. Ph.D. theses in progress in 2013

Author: Carlos Peixoto Baptista
Supervisor: Vasco Teixeira, Ricardo Ribeiro
Title: Preparação e caracterização de filmes finos termocromáticos à base de VO₂ para aplicação em janelas inteligentes com control active do espectro solar
Develloping since 2008 at the School of Sciences

Author: Cláudia de Jesus Ribeiro Lopes
Supervisor: Filipe Vaz, José Fonseca (EngMat. – Univ. Porto)
Title: Estudo das Propriedades Físicas e Eletroquímicas de Filmes Finos Aplicados a sensores de pressão em próteses ortopédicas
Develloping since 2011 at the School of Sciences

Author: Isabel Maria Ferreri Gusmão e Silva
Supervisor: Sandra Carvalho, Mariana Henriques (DEB)
Title: Development of AG-Zr(C,O,N) multifuncional coatings for biomedical devices
Develloping since 2011 at the School of Sciences

Author: Isabel Soares Carvalho
Supervisor: Sandra Carvalho, Mariana Henriques (DEB)
Title: Development of anti-microbial multifunctional coatings based on Ag-Ti(C,O,N)
Develloping since 2010 at the School of Sciences

Author: Armando J. Barros Ferreira
Supervisor: Filipe Vaz, Senen L. Mendez
Title: Development of a pressure sensor network system for static and dynamic pressure measurements. Application to the limb/prostheses pressure mapping
Develloping since 2010 at the School of Sciences



Author: Cibeli Navarro Belleti Garcia

Supervisor: Carlos Tavares

Title: Estudo da utilização da microscopia electrónica de varrimento em materiais com aplicações emergentes em nanotecnologia

Develloping since 2009 at the School of Engeneering

Author: Fernando Manuel Silva Ribeiro

Supervisor: Joaquim Mendes, Luísa Andrade, Carlos Tavares

Title: Desenvolvimento da Tecnologia ETCO e Otimização da Selagem de Células Solares por Laser

Develloping since 2010 at FEUP snd EFACEC

Author: Mariana Kristiina Marques

Supervisor: Sandra Carvalho, Senen L. Mendez, Mariana Henriques (DEB)

Title: Development of multifunctional coatings deposited on polymer substrates

Develloping since 2011 at the School of Engeneering

Author: Noora Manninen

Supervisor: Albano Cavaleiro (EngMEC-Univ. Coimbra), Sandra Carvalho

Title: Development of a barrier for controlling the AG+ realese for antimicrobial activity on DLC-nIAg-DLC-Au based coatings for biomedical implants

Develloping since 2011 at the University of Coimbra

Author: Paulo Eduardo T. Batista Pedrosa

Supervisor: Filipe Vaz – Co-orientador

Title: Conductive thin-film coated flexible polymers: a new materials approach for designing biomedical electrodes and beyond

Develloping since 2011 at FEUP, Univ. do Porto

Author: Rita Daniela Nogueira Rebelo

Supervisor: Raul Fangueiro (DEC), Sandra Carvalho, Mariana Henriques (DEB)

Title: Hybrid braided stent with antimicrobial properties

Develloping since 2012 at the School of Engeneering

Author: Sebastian Calderon Velasco

Supervisor: Sandra Carvalho, Albano Cavaleiro (Eng.Mec.- FCTUC)

Title: Development of a diffusion barrier for controlling the Ag⁺ release on Zr(C,N)-nAg system for antimicrrobial activity

Develloping since 2010 at the School of Engeneering



6.5.4. Other scientific activities

6.5.4.1. Invited Lectures/seminars delivered by members of the group, in national or international

International

Bioactive coatings for medical industries S. Carvalho; 9th Asian-European International Conference on Plasma Surface Engineering AEPSE2013 , Jeju Island, Coreia GRF

Development of Tantalum oxynitride thin films produced by PVD: Study of structural stability, L. Cunha, M. F. Costa, C. Moura, F. Vaz, D. Cristea, A. Crisan, N. Barradas, E. Alves, International Conference on materials Science and Engineering BRAMAT 2013 , in Brasov, Romania 27 February-2 March 2013 GRF, OCV

Importance of advanced characterization techniques in the synthesis of novel nanomaterials, V. Teixeira, S. Azevedo, P. Carvalho, J. Carneiro, EMAS 2013-The 13th European Workshop on Modern Developments and Applications in Microbeam Analysis, Porto Portugal , 12-16 May, 2013. GRF

Nanobased concepts for innovative & Eco-Sustainable constructive material's surfaces, Joaquim Carneiro, Vasco Teixeira, Sofia Azevedo, 3rd Workshop Nanovalor - Industrial applications of nanotechnology, Porriño-Pontevedra Spain , January 29, 2013. GRF

Porous Tantalum structures for bone ingrowth on dental implant, S. Carvalho; XXII International Materials Research Congress 2013 - IMRC, Cancun, México GRF

(Keynote) Nanobased approaches for novel constructive material's surfaces, Joaquim Carneiro, Vasco Teixeira, Sofia Azevedo, AM2013-The 2nd International Congress on Advanced Materials, Zhengjiang China , 16-19 May, 2013. GRF

National

Nanotechnology applications in textiles, Joaquim Carneiro, Sessão NanoValor Academia to Business A2B /ERT Têxtil, Reitoria da Universidade do Porto Portugal , 29 maio 2013. GRF

6.5.5. Funded Projects Ongoing

Title: Protsensor – Um novo sistema de sensores em rede para medidas de pressão estática dinâmica. Aplicação no mapeamento de pressões exercidas em membros amputados/próteses.

Reference: PTDC/CTM-NAN/112574/2009

Project Coordenator: Filipe Vaz

Funding awarded: 77.232.00 Euros

Start Date: March2011

Duration: 3 years



Title: ANTIMICROBCOAT - Desenvolvimento de revestimentos multifuncionais com propriedades antimicrobianas para implantes ortopédicos

Reference: PTDC/CTM/102 853/2008

Project Coordenator: Sandra Carvalho

Funding awarded: 102 840.00 Euros

Start Date: March 2010

Duration: 3 years

Title: Síntese hidro-térmica e estruturas cristalina de novos sistemas de fosfatos inorgânicos metálicos

Reference: PTDC/CTM/108 953/2008

Project Coordenator: Stanislav Ferdov

Funding awarded: 17 520.00 Euros

Start Date: Abril 2010

Duration: 3 years

Title: Syntesis of solar-activated materials for the controlled release of volatile compounds

Reference: PTDC/CTM-NAN/119979/2010

Project Coordenator: Carlos Tavares

Funding awarded: 89904.00 Euros

Start Date: March 2012

Duration: 3 years

Title: NanoEcoBuil- Nanobased concepts for Innovative & Ecosustainable constructive material's Surfaces

Reference: PTDC/FIS/120412/2010

Project Coordenator: Joaquim Carneiro

Funding awarded: 31632.00 Euros

Start Date: April 2012

Duration: 3 years

Title: Windsc

Project Coordenator: Carlos Tavares

Funding awarded: 72382.07 Euros

Start Date: October de 2011

Duration: 3 years

Title: Wickeeg- Um novo electrodo para EEG baseado num polímero poroso para registo de EEG: do desenvolvimento dos materiais até aos testes in-vivo

Reference: PTDC/SAU-ENB/116850/2010

Project Coordenator: Filipe Vaz

Funding awarded: 37825.00 Euros

Start Date: March de 2012

Duration: 3 years



6.5.6. Other information

6.5.6.1. Other Conference Presentations given by members of the group in national or international conferences

International

Oral Au doped Al-N sputtered coatings for decorative applications, N.M. Figueiredo, F. Vaz, L. Cunha, S.E. Rodil, A. Cavaleiro, E-MRS 2013 Spring Meeting, May 27-31, Congress Center - Strasbourg, France. GRF

Oral Au-doped TiO₂ thin films: A low-frequency Raman study, S. Reymond-Laruinaz, L. Saviot, F. Vaz, V. Potin, M. C. Marco de Lucas", E-MRS 2013 Spring Meeting, May 27-31, Congress Center - Strasbourg, France. GRF

Oral Biomedical coatings for medical industries, I. Carvalho, R. Escobar Galindo, C.F. Almeida Alves, M. Henriques, A. Cavaleiro and S. Carvalho; Materiais 2013, Coimbra, Portugal GRF

Oral Biotemplates based on Alumina Nanostructures produced by anodizing process J. Carneiro, A. Samantilleke, S. Azevedo, P. Sampaio, M. Pastor, M. Maltez-da Costa, V. Teixeira, Materiais 2013, Coimbra Portugal , 25-27 March, 2013. GRF

oral Conventional and Non-conventional Applications of Ordered Molecular Sieves. Stanislav Ferdov, Jornadas do Centro de Física – 4 de Outubro 2013, Universidade do Minho, Braga. GRF

Oral Development of Anodic Aluminium Oxide AAO membranes for cell culture substrates, J. Carneiro, M. Peixoto, P. Sampaio, A. Samantilleke, S. Azevedo, F. Fernandes, M. Maltez-da Costa, V. Teixeira, NanoPt 2013 - Nanoscience and Nanotechnology International Conference, Porto Portugal , 13-15 February, 2013. GCEP, GRF

oral Development of PVD-deposited Pd-Ag functional thin film membranes on ceramic supports for hydrogen purification/separation, Carlos Tavares, 19th International Vacuum Congress IVC-19 , September 9-13, 2013, Paris, France. GRF

Oral Development of Tantalum oxynitride thin films produced by PVD, Luis CUNHA, Manuel Filipe COSTA, Daniel CRISTEA, Aurel CRIŞAN, 8th International Conference on Materials Science and Engineering – BRAMAT 2013, Braşov – Romania, 28 February – 2 March, 2013. GRF, OCV

Oral Development of Tantalum oxynitride thin films produced by PVD: Study of structural stability, L. Cunha, C. Moura, Filipe Vaz, D. Cristea, A. Crisan, N.P. Barradas, E. Alves, 8th International Conference on Materials Science & Engineering – BRAMAT 2013, Brasov, Romania, 28 February – 2 March 2013. GRF

oral Electron Microscopy Study of Perovskite Nanoparticles. C. Mota, E. Ariza, C. Tavares, S. Ferdov, Microscopy at the Frontiers of Science 2013 -3rd Joint Congress of the Portuguese and Spanish Microscopy Societies and Israel Society for Microscopy as invited guest Tarragona, Spain, 17-20th September 2013. GRF

Oral Influence of composition, bonding characteristics and microstructure on the properties of AlN_xO_y films , J. Borges, N. Martin, N.P. Barradas, E. Alves, J. P. Riviere, D. Eyidi, M. F. Beaufort, T. Girardeau, F. Paumier, C. Fonseca, F. Vaz, L.Marques , EMRS-2013 Spring Meeting Strasbourg, France, May, 2013 <http://hdl.handle.net/1822/24295> GRF, FCT



Oral Influence of composition, bonding characteristics and microstructure on the properties of AlNxOy films, J. Borges, N. Martin, N.P. Barradas, E. Alves, J.P. Riviere, D. Eyidi, M. F. Beaufort, T. Girardeau, F. Paumier, C. Fonseca, F. Vaz, L.Marques, E-MRS 2013 Spring Meeting, May 27-31, Congress Center - Strasbourg, France. FCT, GRF

Oral Influence of the composition and the reactivity of surface oxynitride layers on the fretting behavior of functionalized titanium plates: Nd:YAG surface laser treatments versus PVD ,F. Torrent, P. Berger, G. Pillon, L. Lavisson, F. Vaz, M. C. Marco de Lucas, E-MRS 2013 Spring Meeting, May 27-31, Congress Center - Strasbourg, France. GRF

Oral Modification of asphalt mixtures through the use of TiO₂ nanoparticles, S. Azevedo, J.O. Carneiro, E. Freitas, C. Nunes, Manuel F. M. Costa, F. Fernandes, H. Silva, J. Oliveira, V. Teixeira, Materiais 2013, Coimbra Portugal , 25-27 March, 2013. OCV, GRF

Oral Silver Activation on thin films of Ag-ZrCN coatings for an antimicrobial activity" I. Ferreri, S. Calderon, M. Henriques, A.P.Piedade, S. Carvalho, Materiais 2013. Coimbra Portugal , 25-27 March 2013 GRF

Oral Silver Segregation to Surface in Ag-DLC Thin Films Deposited by Magnetron Sputtering, N.K.Manninen; R. Escobar Galindo, A.Cavaleiro; S.Carvalho, Conference for Young Scientists in Ceramics, The Tenth Students' Meeting and 3rd ESR COST MP0904 Workshop, SM-2013, Novi Sad Serbia , 6-9 November 2013. <http://www.tf.uns.ac.rs/sm/> GRF

Oral Silver-doped TiNx nanocomposite thin films for biosignals (EEG and ECG) acquisition, P. Pedrosa, C. Lopes, F. Macedo, C. Fonseca, F. Vaz, 8th International Conference on Materials Science & Engineering – BRAMAT 2013, Brasov, Romania, 28 February – 2 March 2013. GRF

Oral Surface modification by two-step anodization of TaOx thin film, C. F. Almeida Alves, A. Cavaleiro and S. Carvalho; EUROMAT 2013 – European Congress and Exhibition on Advanced Materials and Processes, Sevilha, Espanha GRF

Oral Surface Segregation of Ag in Ag-DLC thin films produced by Magnetron Sputtering N.K.Manninen; R. Escobar Galindo, A.Cavaleiro; S.Carvalho, FEMS EUROMAT 2013, European Congress and Exhibition on Advanced Materials and Processes, Sevilla Spain , 8-13 September 2013. <http://euromat2013.fems.eu/welcome.html> GRF

Oral The role of composition, structure and morphology on the electrical, optical and electrochemical responses of AlNxOy films, Joel Borges; N. Martin; N. P. Barradas, L. Marques, F. Vaz, European Congress and Exhibition on Advanced Materials and Processes - Euromat 2013, Sevilla, Spain, September 2013 <http://hdl.handle.net/1822/26863> FCT, GRF

Oral Thin films composed of gold nanoclusters dispersed in a TiO₂ matrix for electrical and thermal devices applications, Filipe Vaz, Luis Cunha, Francisco Macedo, A. Cavaleiro, B.K. Bein, 8th International Conference on Materials Science & Engineering – BRAMAT 2013, Brasov, Romania, 28 February – 2 March 2013. GRF, GCEP

Oral TiAgx coated pressure sensors for lower limb prosthesis: effect of composition and structural changes in the electrical response of the films, C. Lopes, F. Macedo, A. Ferreira, S. Lanceros-Mendez, P. Pedrosa, C. Fonseca, F. Vaz, 8th International Conference on Materials Science & Engineering – BRAMAT 2013, Brasov, Romania, 28 February – 2 March 2013. FCD, GRF

Poster How to improve the antimicrobial activity on biomaterials? S. Carvalho, I. Carvalho, I. Ferreri, S. Velasco, M. Henriques, 1st Cluster Workshop in Materials and Nanotechnology, IST, Lisboa, Portugal GRF



poster A microporous titanosilicate for selective killing of HeLa cancer cells. S. Ferdov, E. Shikova, Z. Ivanova, L. T. Dimowa, R. P. Nikolova, Z. Line, A. P. Samantilleke, and B. L. Shivachev, 5th International Symposium on Advanced Micro- and Mesoporous Materials, Golden Sands, Bulgaria, 6-9 September, 2013. GRF

Poster Antibacterial Activity of TiO₂ Thin Film Produced by Pulsed Magnetron Sputtering on Cotton and Glass Substrates, C. Silva, J. Carneiro, C. Pais, P. Sampaio, S. Azevedo, P. Carvalho, F. Fernandes, V. Teixeira, NanoPt 2013 - Nanoscience and Nanotechnology International Conference, Porto Portugal , 13-15 February, 2013. GRF

Poster Corrosion resistance of ZrCN-Ag biocompatible coatings: effect of composition and structural features -S. Calderon V; A. Cavaleiro, S.Carvalho EUROCOR 2013, September 1-5, Estoril. GRF

Poster Deposition conditions optimization for zr-c-n-ag biocompatible coatings for prosthesis devices – S. Calderon V; M. Evaristo, A. Cavaleiro, S.Carvalho, Materiais 2013, Coimbra Portugal , 25-27 March 2013 GRF

Poster Electrical and photocatalytic behaviour of TaOxNy magnetron sputtered thin solid films,D. Cristea, A. Crisan, N. Barradas, E. Alves, L. Cunha, P.Costa, S. Lanceros.Mendez, International Conference on materials Science and Engineering BRAMAT 2013 , in Brasov, Romania 27 February-2 March 2013 FCD, GRF

Poster Electrophoretic deposition ofCoFe2O4 nanograins dispersed in a BaTiO₃ matrix", J. Barbosa, C. Moura, M.R. Pereira, I. Gomes, J. Mendes, B. Almeida, EUROMAT2013 - European Congress and Exhibition on Advanced Materials and Processes, Sevilha, 8-13 September 2013 <http://hdl.handle.net/> GRF, FCD

Poster EUREKA - ESURF - Surface Engineering for Sustainable Production and Products, S. Carvalho, Contribution of Sustainable Building to Meet U 20-20-20 Targets, PORTUGAL SB13, Guimarães, Portugal GRF

Poster Evaluation of the functional properties of construction surfaces by superficial addition of TiO₂ nanoparticles, G. Vasconcelos, J. Carneiro, F. Fernandes, C. Palha, Materiais 2013, Coimbra Portugal , 25-27 March, 2013. GRF

poster Hydrothermal synthesis of copper zirconium phosphate hydrate [Cu(OH)2Zr(HPO4)2·2H₂O] and an investigation of its lubrication properties in grease. Xiaosheng Zhang, Hong Xu, Zhijun Zuo, Zhi Lin, Stanislav Ferdov, Jinxiang Dong. The 7th Sino-US Joint Conference of Chemical Engineering, 14-18 October, Beijin, China, 2013. GRF

Poster Influence of Oxygen content on the structural, mechanical and electrical properties of Tantalum oxide thin films, C. F. Almeida Alves, M. Evaristo, A. Cavaleiro and S. Carvalho; Materiais 2013, Coimbra, Portugal GRF

Poster Mechanical characterization of electrospun alumina nanofibers, Edgar Carneiro, Pedro Sá, João Pedro Mendonça, Sandra Carvalho, NanoPortugal International Conference, Porto Portugal , 13-15 Fevereiro de 2013 GRF

Poster Nanobased strategies for the development of photocatalytic road pavements, S. Azevedo, J. Carneiro, F. Fernandes, E. Freitas, P. Pereira, V. Teixeira, NanoPt 2013 - Nanoscience and Nanotechnology International Conference, Porto Portugal , 13-15 February, 2013. GRF

Poster Optics, spectroscopy and plasmonics of graphene and graphene-chromophore structures, H. Gonçalves, M. Belsley, T. Stauber, L. Alves, C. Bernardo, C. Moura, G. Gomez Santos, P. Schellenberg 8th Workshop on Advanced Multiphoton and Fluorescence Lifetime Imaging Techniques, 01.07.13 - 02.07.13, Saarbrücken, Germany FAMO, GRF



Poster Production and Characterization of Ag nanoclusters produced by Gas Aggregation Cluster Source, N.K.Manninen, N.M.Figueiredo, S.Carvalho, A.Cavaleiro, VII International Materials Symposium MATERIAIS 2013, XVI meeting of SPM - Sociedade Portuguesa de Materiais, Coimbra Portugal , 25-27 March 2013. <http://www.spmateriais.pt/materiais2013>
GRF

Poster Silica nanoparticles effect on ceramic glaze properties, E. Carneiro, S. Carvalho, Materiais 2013, Coimbra Portugal , 25-27 de Março de 2013 GRF

Poster TiAgx coatings deposited on polymer based sensors for biomedical applications, S. M. Marques, V. Antunes, J. C. Oliveira, N. Manninen, S. Carvalho – GRF

National

Oral Structured thin films with multifunctional responses, L. Cunha, Jornadas do Centro de Física da Universidade do Minho 2013, 4 October 2013 GRF

Oral Utilização de nanopartículas de TiO₂ para o desenvolvimento de pavimentos rodoviários com capacidade fotocatalítica, J.O. Carneiro, E. Freitas, V. Teixeira, F. Fernandes, S. Azevedo, H. Silva, J. Oliveira, C. Nunes, 7º Congresso Rodoviário Português 7RP , LNEC, Lisboa Portugal 10-12 de abril 2013. GRF

Poster Acoustic streaming mixer based on piezoelectric PVDF-TrFE for microfluidic applications, V. F. Cardoso, L. Rebouta, S. Lanceros-Méndez, G. Minas, 3rd Portuguese Bioengineering Meeting, University of Minho, Campus de Gualtar, 2013. <http://hdl.handle.net/1822/26733> FCD, GRF

Poster Development of a sensor network for mapping pressure fields at the prosthesis/limb interface. A. Ferreira, F.Vaz, S. Lanceros-Mendez. 3rd Portuguese Bioengineering Meeting University of Minho, 20-22 fevereiro 2013. <http://enbeng2013.embs-pt.org> FCD, GRF

Poster Electromechanical response of carbon nanotube / polyvinylidene fluoride composites and its application to the limb/prostheses pressure mapping. A. Ferreira, F.Vaz, S. Lanceros-Mendez. MAP-FIS PhD Research Conference 2012/2013, 18 Janeiro 2013. <http://www.map.edu.pt/fis/conference> GRF, FCD

Poster Festa da Ciência, Estelita Vaz, Alice Dias, Ana Carvalho, Ana Cunha, Arminda Manuela Gonçalves, Carlos Silva, Elisabete Coutinho, Luís Cunha, Maria Cláudia Araújo, Maria Teresa Almeida, Paula Ramos Nogueira, Pedro Pimenta Simões, Sandra Paiva, SciCom Pt 2013 - Congresso de Comunicação de Ciência, 26 a 28 de maio de 2013, Lisboa, Portugal. FAMO, GRF

Poster Tertúlias FNACiênciA: a socialização do conhecimento, Sandra Paiva, Alice Dias, Ana Carvalho, Ana Cunha, Arminda Manuela Gonçalves, Carlos Silva, Elisabete Coutinho, Luís Cunha, Maria Cláudia Araújo, Maria Teresa Almeida, Paula Ramos Nogueira, Pedro Pimenta Simões, Estelita Vaz, SciCom Pt 2013 - Congresso de Comunicação de Ciência, 26 a 28 de maio de 2013, Lisboa, Portugal. GRF, FAMO



6.5.7. Future Research

The general goals for future research are aligned with those of the strategic research lines of the Centre where the group is involved, mainly for the areas related with

- (i) thin films for high efficient energy conversion,
- (ii) self-cleaning, de-pollution, anti-bacterial functions, and
- (iii) nanotechnology for biodevices, food packaging and biomedical applications.



6.6. Complexity and Electronic Properties Group (GCEP)

6.6.1. Summary description of the scientific work carried out by the group in 2013

Theoretical results:

- Modelling, confirming the experimental observation of strong coupling between light and matter in heterostructures with atomic thickness (article published in Science);
- Analytical description based on perturbation theory, of the ground state and the elementary excitations in a condensate
- excitation polaritons in a laterally confined semiconductor microcavity;
- Experimental demonstration and modeling of anisotropic process in resonance energy transfer (FRET) in structures (dendrites) composed by J aggregates and quantum dots due to fractal geometry of these structures;
- Study of the fractionalization of charge and spin beyond the Luttinger liquid paradigm;
- Studies of plasmon-polariton in several planar structures involving graphene and "gratings" , in order to develop new devices to the THz zone;
- Studies of the optical properties of multilayer graphene at arbitrary incidence ;
- DFT Computational studies of the electronic structure of new materials 2D quasi- type MoS₂. The results of these studies were experimentally verified at the National University of Singapore.

Experimental results:

- Development of "gratings" for use in graphene -based devices for the THz spectral region ;
- Development of micro and nano- graphene devices using UV optical lithography and electron beam lithography , respectively ; study of the effect of the metal used as the contact doping of graphene ;
- Crystallization and activation of dopants in Si thin films (10-50 nm) by laser irradiation; fabrication of doped nanocrystalline Si by laser irradiation without the use of micropiezo-resistance lithographic methods;
- Development of experimental modulated photothermal radiometry device, especially through the construction and testing of new systems of amplification and signals filtering;
- Manufacturing of sensitized quantum dots of CdSe for Grätzel solar cell type;
- Experimental studies of vibration modes in solid solutions of Si, Ge and Sn;
- Application of photothermal radiometry modulated technique to the study and characterization of thin films deposited on different substrates;
- Studies of surface effects in modulated photothermal radiometry measurements.

6.6.2. Updated composition of the group

Research Group Title	Complexity and electronic properties
Principal investigator	Francisco José Machado de Macedo
Research area	Condensed Matter Physics
Group Members	<p><u>Effective Members:</u></p> <p>Anabela G Rolo – Assistant Professor Francisco J M Macedo – Assistant Professor Jaime E V S M Santos - Researcher (Ciéncia 2008) João Pedro H A Alpuim – Assistant Professor José Carlos V Gomes – Assistant Professor José M P Carmelo – Full Professor</p>



Gueorgui V Smirnov– Full Professor
Maria Fátima G Cerqueira – Assistant Professor
Maria José F A F Sampaio – Assistant Professor
Mikhail I Vasilevskiy– Full Professor
Nuno M R Peres– Full Professor
Ricardo P L M M Ribeiro – Assistant Professor
Yuliy Bludov - Researcher (Ciência 2008)
Ivan Larkin- Senior Researcher (Wellcome II)

Associate Members:

Norberto Gonçalves – Assistant professor (UTAD)

Post-doctorate researchers and research Fellows with PhD:

Anura P Samantilleke – Research Fellow
Vadim Ponomarenko – Research Fellow
Isabel Moura – Post-Doc

PhD and other research students:

Filipe Oliveira - PhD student with FCT grant
Emilio Vieira Pinto - PhD student with FCT grant
Flavio Portas Pinheiro - PhD student with FCT grant

6.6.3. Scientific Production

6.6.3.1. Regular Articles Published in ISI Journals

A primer on surface plasmon-polaritons in Graphene, Bludov, Yu V.; Ferreira, Aires; Peres, N. M. R.; Vasilevskiy, M. I. INTERNATIONAL JOURNAL OF MODERN PHYSICS B 27(10) 1341001 (2013) <http://hdl.handle.net/1822/27112> IF:0,358 GCEP

A shadowed off-axis production of Ge nanoparticles in Ar gas atmosphere by pulsed laser deposition, J. Martín-Sánchez, A. Chahboun · S.R.C. Pinto, A.G. Rolo, L. Marques, R. Serna, E.M.F. Vieira, M.M.D. Ramos, M.J.M. Gomes , Applied Physics A 110, 585 (2013). <http://hdl.handle.net/1822/21047> FMNC GFCT 1.545 IF: 1.545 GCEP, FCT, FMNC

Averaging Methods for Design of Spacecraft Hysteresis Damper, R. Gama, A. Guerman, A.M. Seabra, G. Smirnov, Mathematical Problems in Engineering, Nº 483457, 2013 IF: 1,383GCEP

Band nesting and the optical response of two-dimensional semiconducting transition metal dichalcogenides A. Carvalho, R. M. Ribeiro, A. H. Castro Neto Phys. Rev. B 88 (2013) 115205 IF: 3.767 GCEP

Charge and spin fractionalization beyond the Luttinger-liquid paradigm, A. Moreno, A. Muramatsu J. M. P. Carmelo, Physical Review B 87, 075101 (2013). IF: 3.767 GCEP



Charge trapping properties and retention time in amorphous SiGe/SiO₂ nanolayers, E. M. F. Vieira, R. Diaz, J. Grisolia, A. Parisini, J. Martín-Sánchez, S. Levichev, A. G. Rolo, A. Chahboun, M. J. M. Gomes, J. Phys. D: Appl. Phys. 46 (2013) 095306 (5pp) doi:10.1088/0022-3727/46/9/095306 <http://hdl.handle.net/1822/23575> IF: 2.528 GCEP, FMNC

Condensed exciton polaritons in a two-dimensional trap: Elementary excitations and shaping by a Gaussian pump beam, Núñez Fernández, Yu., Vasilevskiy, M. I., Trallero-Giner, C. and Kavokin, A., Phys. Rev. B 87, 195441-7 (2013) <http://hdl.handle.net/1822/27368> IF: 3,767 GCEP

Copper(II)-imida-salen Complexes Encapsulated into NaY Zeolite for Oxidations Reactions, Iwona Kuźniarska-Biernacka, M. Alice Carvalho, Soren B. Rasmussen, Miguel A. Bañares, Krzysztof Biernacki, Alexandre L. Magalhães, Anabela G. Rolo, António M. Fonseca, Isabel C. Neves, European Journal of Inorganic Chemistry, Volume 2013, Issue 31, (2013) pages 5408–5417, November 2013 <http://onlinelibrary.wiley.com/doi/10.1002/ejic.201300656/abstract> DOI: 10.1002/ejic.201300656 IF: 3,120 GCEP

Electrochemical Anodizing, Structural and Mechanical Characterization of Nanoporous Alumina Templates, A. P. Samantilleke, J. O. Carneiro, S. Azevedo, T. Thuy and V. Teixeira, Journal of Nano Research, (25) (2013) 77-89. <http://hdl.handle.net/1822/26879> IF: 0.341 GCEP, GRF

Enhancing the absorption of graphene in the terahertz, N. M. R. Peres e Yu. V. Bludov, EuroPhysics Letters 101, 58002 (2013). IF: 2.260 GCEP

Exact solution for square-wave grating covered with graphene: Surface plasmon-polaritons in the THz range, N. M. R. Peres, Yu. V. Bludov, Aires Ferreira e M. I. Vasilevskiy, Journal of Physics: Condensed Matter 25, 125303 (2013). IF: 2.355 GCEP

Ferroelectric characterization of aligned barium titanate nanofibres, Pedro Sá, Jose Barbosa, Igor Bdikin, Bernardo Almeida, Anabela G. Rolo, Etelvina de Matos Gomes, Michael Belsley, Andrei L Kholkin and Dmitry Isakov, J. Phys. D: Appl. Phys. 46 (2013) 105304 (6pp) doi:10.1088/0022-3727/46/10/105304 IF: 2.528 FAMO, GCEP, FCD

Influence of RF-sputtering power on formation of vertically stacked Si_{1-x}Gex nanocrystals between ultra-thin amorphous Al₂O₃ layers: structural and photoluminescence properties, E M F Vieira 1, J Martín-Sánchez, M A Roldan, M Varela, M Buljan, S Bernstorff, N P Barradas, N Franco, M R Correia, A G Rolo, S J Pennycook, S I Molina, E Alves, A Chahboun, and M J M Gomes, J. Phys. D: Appl. Phys. 46 (2013) 385301 (10pp) doi:10.1088/0022-3727/46/38/385301 IF: 2.528 GCEP, FMNC

Instabilities, solitons and rogue waves in PT-coupled nonlinear waveguides, Bludov, Yu V.; Driben, R.; Konotop, V. V.; Malomed; B.A. JOURNAL OF OPTICS 15(6) 064010 (2013) <http://hdl.handle.net/1822/27114> IF: 1.990 GCEP

Modulated IR Radiometry Applied to Study Coatings with Gold Nanocluster Inclusions, Vaz, F.; Macedo, F.; Faria, R. T., Jr.; et al., INTERNATIONAL JOURNAL OF THERMOPHYSICS Volume: 34 Issue: 8-9 Special Issue: SI Pages: 1597-1605 DOI: 10.1007/s10765-013-1398-y Published: SEP 2013 IF: 0.568 GRF, GCEP

Nanocomposite Ag:TiN thin films for dry biopotential electrodes, Vaz, F. Pedrosa, P.; Machado, D.; Lopes, C.; et al., APPLIED SURFACE SCIENCE Volume: 285 Pages: 40-48 DOI: 10.1016/j.apsusc.2013.07.154 Part: A Published: NOV 15 2013 IF 2.112 GRF GCEP



Nano-ilmenite FeTiO₃: synthesis and characterization, A.T. Raghavender, N.H. Hong, A.P. Samantilleke, Vasilevskiy, M., M.F. Cerqueira, Z. Skoko Journal of Magnetism and Magnetic Materials 331, 129–132 (2013) <http://www.sciencedirect.com/science/article/pii/S0304885312009316> IF: 1.826 GCEP

Observation of Intra- and Inter-band Transitions in the Optical Response of Graphene, Leandro M. Malard, Kin Fai Mak, A. H. Castro Neto, N. M. R. Peres e Tony F. Heinz, New Journal of Physics 15 , 015009 (2013). IF: 4.063 GCEP

Origin of indirect optical transitions in few-layer MoS₂, WS₂ and WSe₂ Weijie Zhaoa, R. M. Ribeiro, Minglin Toha, Alexandra Carvalho, Christian Kloc, A. H. Castro Neto, Goki Eda Nano Lett. 13 (2013) 5627 IF: 13.025 GCEP

Phonon modes and Raman scattering in SixGe_{1-x} nanocrystals: microscopic modelling, Vasin, A. S., Vikhrova, O. V. and Vasilevskiy, M. I., Physica Status Solidi (C) 10, 701 – 4 (2013) NO IF GCEP

Probing spatial correlations in a system of polarizable nanoparticles via measuring its optical extinction spectrum", Pereira, R. M. S., Pereira, P., Smirnov, G., and Vasilevskiy, M. I., Europhysics Letters, 102, 67001-6 (2013). <http://hdl.handle.net/1822/24735> IF: 2.260 GCEP

Resonance energy transfer in self-organized organic/inorganic dendrite structures, Melnikau, D., Savateeva, D., Lesnyak, V., Gaponik, N., Núñez Fernández, Y., Vasilevskiy, M. I., Costa, M. F., Mochalov, K. E., Oleinikov, V. and Rakovich, Y. P., Nanoscale 5, 9317-23 (2013). IF: 6.233 GCEP

Shadowed off-axis production of Ge nanoparticles in Ar gas atmosphere by pulsed laser deposition: Morphological, structural and charge trapping properties, J. Martin-Sánchez, I. Capan, A. Chahboun, S.R.C. Pinto, E.M.F. Vieira, A.G. Rolo, and M.J.M. Gomes, Applied Surface Science 280 (2013) 632– 640 <http://dx.doi.org/10.1016/j.apsusc.2013.04.170> <http://hdl.handle.net/1822/24681> (CGEP, FMNC) IF: 2.112 FMNC, GCEP

Spinon and eta-spinon correlation functions of the Hubbard chain, P. D. Sacramento, Y. C. Li, S.-J. Gu, J. M. P. Carmelo, European Physical Journal B 86, 507 (2013). IF: 1.282 GCEP

Stable dark solitons in PT-symmetric dual-core waveguides, Bludov, Yu V.; Konotop, V. V.; Malomed, B. A. PHYSICAL REVIEW A 87(1) 013816 (2013) <http://hdl.handle.net/1822/23637> IF: 3.042 GCEP

Strong light-matter interaction in systems described by a modified Dirac equation, N. M. R. Peres e Jaime E. Santos, Journal of Physics: Condensed Matter 25, 305801 (2013). IF: 2.355 GCEP

Strong Light-Matter Interactions in Heterostructures of Atomically Thin Films L. Britnell, R. M. Ribeiro, A. Eckmann, R. Jalil, B. D. Belle, A. Mishchenko, Y.-J. Kim, R. V. Gorbachev, T. Georgiou, S. V. Morozov, A. N. Grigorenko, A. K. Geim, C. Casiraghi, A. H. Castro Neto, K. S. Novoselov Science 340 (2013) 1311 IF: 31.027 GCEP

Study on excimer laser irradiation for controlled dehydrogenation and crystallization of boron doped hydrogenated amorphous/nanocrystalline silicon multilayers, F. Gontad, J.C. Conde, S. Filonovich, M.F. Cerqueira, P. Alpuim, S. Chiussi Thin Solid Films 536, 147–151 (2013) <http://www.sciencedirect.com/science/article/pii/S0040609013006196> IF: 1.604 GCEP

Superfluidity breakdown of periodic matter waves in quasi-one-dimensional annular traps via resonant scattering with moving defects, Yulin, A. V.; Bludov, Yu. V.; Konotop, V. V.; Kuzmiak, V.; Salerno, M. PHYSICAL REVIEW A 87(3) 033625 (2013) <http://hdl.handle.net/1822/27117> IF: 3.042 GCEP



The effect of argon plasma treatment on the permeation barrier properties of silicon nitride layers, S. Majee , M.F. Cerqueira, D. Tondelier, B. Geffroy, Y. Bonnassieux, P. Alpuim, J.E. Bourée Surface & Coatings Technology 235, 361-366 (2013) <http://www.sciencedirect.com/science/article/pii/S0257897213007494># IF: 1,941 GCEP

Thermodynamics of a Potts-like model for a reconstructed zigzag edge in graphene nanoribbons, J. N. B. Rodrigues, P. A. D. Gonçalves, Jaime E. Santos and A. H. Castro Neto, Phys. Rev B 87, 134204 (2013). IF: 3.767 GCEP

TiAgx thin films for lower limb prosthesis pressure sensors: Effect of composition and structural changes on the electrical and thermal response of the films, Vaz, F Lopes, C.; Goncalves, C.; Pedrosa, P.; et al., APPLIED SURFACE SCIENCE Volume: 285 Pages: 10-18 DOI: 10.1016/j.apsusc.2013.07.021 Part: A Published: NOV 15 2013 IF: 2.112 GRF GCEP

Unusual reflection of electromagnetic radiation from a stack of graphene layers at oblique incidence, Bludov, Yu V.; Peres, N. M. R.; Vasilevskiy, M. I. JOURNAL OF OPTICS 15(11) 114004 (2013) <http://hdl.handle.net/1822/27119> IF: 1.990 GCEP

Zero finite-temperature charge stiffness within the half-filled 1D Hubbard model, J. M. P. Carmelo, Shi-Jian Gu, P. D. Sacramento, Annals of Physics 339, 484 (2013). IF: 3.318 GCEP

6.6.3.2. Conference Proceedings published in ISI Journals

Magnetic Gradient edge magnetoplasmons in non-uniform magnetic field.O G Balev and I A Larkin. J. Phys.: Conf. Ser. 2013. — V. 456 — P. 012023 GCEP

Shubnikov-de Haas effect in tilted magnetic fields in wide quantum well. I A Larkin, Sebastian Ujevic, S Wiedmann, N Mamani, G M Gusev, A K Bakarov and J C Portal. J. Phys.: Conf. Ser. 2013. — V. 456 — P. 012025. GCEP

Visualization of wave function of quantum dot at Fermi-edge singularity regime.I A Larkin, Yu N Khanin, E E Vdovin, Sebastian Ujevic and M Henini J. Phys.: Conf. Ser. 2013. — V. 456 — P. 012024. Volume 2013, Article ID 483457, 7 pages, DOI: 10.1155/2013/483457 GCEP

6.6.3.3. Books and Book chapters

Optical Properties of Bulk and Nanocrystalline Cadmium Telluride, Chapter 1; Cadmium Telluride Quantum Dots Yuriel Núñez Fernández and Mikhail I. Vasilevskiy, : Advances and Applications, eds. J. Donegan and Yu. Rakovich, Pan Stanford Publishing, USA, 2013, ISBN: 9789814316057. <http://www.crcpress.com/product/isbn/9789814316057> GCEP

6.6.3.4. Master theses in progress in 2013

Author: Luís Pedro Monteiro Gonçalves

Supervisor: Pedro Alpuim, Carlos Tavares

Title: Superfícies photocatalíticas sobre grafeno

Develloping since 2013 at the School of Engeneering



Author: Paulo André Gonçalves
Supervisor: Nuno Peres, João Lopes do Santos (Univ. Porto)
Title: Efeitos plasmónicos em grafeno
Develloping since 2012

Author: Tran Thi Thu Thuy
Supervisor: Anura Samantilleke (CF), Joaquim Carneiro, Vasco Teixeira
Title: Nanoporous Alumina Templates
Develloping since 2011 at the School of Engeneering

Ph.D. theses in progress in 2013

Author: Emílio Marins Vieira Pinto
Supervisor: João Pedro Alpuim
Title: Células solares de filme fino de silício depositadas sobre substratos flexíveis
Develloping since 2009 at the School of Sciences

Author: Filipe André Peixoto Oliveira
Supervisor: Mikhail Vasilevskiy, Fátima Cerqueira, Jorg Scgulze, Univ.Estudarda (Alemanha)
Title: Photonic integrated circuit (PIC) devices for inter-chip optical communication using GsSn alloy layers grown on Silicon substrates
Develloping since 2010 at the School of Sciences

Author: Flávio Luís Portas Pinheiro
Supervisor: Jorge Pacheco (DMAT), Nuno Peres
Title: Caracterização de processos de auto-organização em redes complexas adaptativas
Develloping since 2012 at the School of Sciences

Author: Bruno Amorim
Supervisor: Francisco Guinea (Univ. Autónoma de Madrid), Nuno Peres
Title: Tailoring the opto-electronic properties of grapheme by mechanical deformations
Develloping since 2009 at Universidad Autónoma de Madrid, España

Author: George Luiz Machado Junior
Supervisor: Pedro Alpuim
Title: Dispositivos nanoeletrónicos de grafeno para aplicações em biossensores e em electrónica flexível
Develloping since 2013 at the School of Engeneering

6.6.4. Other scientific activities

6.6.4.1. Invited Lectures/seminars delivered by members of the group, in national or international

International

Exact solution for square-wave grating covered with graphene: Surface plasmon-polaritons in the THz range
RIAOPHTILAS 2013,Peres, N. 22 a 26 de Julho de 2013, Porto, Portugal. GCEP



Exact solution for square-wave grating covered with graphene: Surface plasmon-polaritons in the THz range, Peres, N; NanoPT2013, 13 a 15 de Fevereiro de 2013, Porto, Portugal : GCEP

Excitation of surface polaritons in graphene and other accompanying phenomena, Bludov, Yu V.; Peres, N. M. R.; Vasilevskiy, M. I. Conference "Graphene Nanophotonics", Benasque, Spain, March, 3-8, 2013. GCEP

Exotic Finite-temperature Charge Transport Properties of the 1D Half-filled Hubbard Model, JMP Carmelo,"Program on Correlations and Topology in Quantum Matter - 2013", realizado no Beijing Computational Science Research Center, Pequim, China, 8 a 30 de Julho de 2013 GCEP

Optical phonons in nanocrystal quantum dots: FIR absorption, Raman scattering and polaron effect, M. I. Vasilevskiy, Alexander von Humboldt Workshop on Optical Spectroscopy of Semiconductor Nanoparticles, Chemnitz, Germany, April 18-th, 2013. GCEP

Surface plasmon-polaritons in graphene: a way to tunable excitation, Bludov, Yu V.; Peres, N. M. R.; Vasilevskiy, M. I. Workshop on graphene and other 2D materials: A roadmap for Portugal, School of Science, University of Minho, Braga, Portugal, June, 18, 2013. GCEP

National

Collective effects in absorption and emission of light in ensembles of nanocrystal quantum dots, M. I. Vasilevskiy, MAP-Fis PhD Research Conference 2012/13, Aveiro, Portugal, 18-01-2013 GCEP

6.6.4.2. Lectures / seminars delivered by members of the group at UM or other institutions

Raman Scattering on Photonics in Semiconductor Nanocrystals, Quantum Contrivement and Alloying effects; M. I. Vasilevskiy, Institut Fur Halbleiter Technik, Universitat Stutgard, Germany, 28th of march 2013

6.6.5. Funded Projects Ongoing

Title: Variant – Análise Variacional: Teoria e Aplicações

Reference: PTDC/MAT/111809/2009

Project Coordenator: Gueorgui Smirnov

Funding awarded: 22.248.00 Euros

Start Date: April 2011

Duration: 3 Years

Title: Estruturação Funcional, Interacção entre Partículas e Transferências de Energia em Conjuntos de Pontos Quânticos Nanocristalinos

Reference: PTDC/FIS/113199/2009

Project Coordenator: Mikhail Vasilevskiy

Funding awarded: 141.247.00 Euros

Start Date: February 2011

Duration: 3 Years

Title: Construção de uma experiência de consensação de Bose-Einstein baseada num microchip para levar a cabo experiências com o objetivo de desenvolver o protótipo de um magnetômetro de alta sensibilidade.

Reference: PTDC/FIS/102797/2008



Project Coordenator: José Carlos Gomes

Funding awarded: 126.000.00 Euros

Start Date: May 2010

Duration: 3 Years

Title: Construction of a chip-scale SERF-type atomic magnetometer

Reference: PTDC/FIS/122689/2010

Project Coordenator: José Carlos Viana Gomes

Funding awarded: 79000.00 Euros

Start Date: February 2011

Duration: 3 Years

Title: Modos guiados em estruturas com simetria paridade tempo

Reference: PTDC/FIS-OPT/1918/2012

Project Coordenator: Yuly Bludov

Funding awarded: 7080.00 Euros

Start Date: June de 2013

Duration: 2 Years

Title: NanoCIS – Development of a new generation of CIGS- based solar cells

Reference: FP7-People-2010-IRSES

Coordinator: Anura Samantilleke

Funding: 105.000.00 Euros

Starting date: 2011

Duration: 4 Years

Title: Graphene Flagship

Reference: FP7-ICT-2013-FET-F (604391)

Coordinator: Nuno Peres

Funding: 275520.00 Euros

Starting date: 2013

Duration: 3 Years

6.6.6. Other information

6.6.6.1. Other Conference Presentations given by members of the group in national or international conferences

International

Oral Development of Anodic Aluminium Oxide AAO membranes for cell culture substrates, J. Carneiro, M. Peixoto, P. Sampaio, A. Samantilleke, S. Azevedo, F. Fernandes, M. Maltez-da Costa, V. Teixeira, NanoPt 2013 - Nanoscience and Nanotechnology International Conference, Porto Portugal , 13-15 February, 2013. GCEP, GRF

Oral Dynamics of two - dimensional electron gas in non – uniform magnetic field. I Larkin, 25th IUPAP Conference on Computational Physics, Moscow August 2013. GCEP



Oral Edge magnetoplasmons in strongly non-uniform magnetic field. I Larkin, International Conference "NanoPT 2013", February, 2013, Porto, Portugal. GCEP

Oral Effect of argon plasma treatment on the barrier properties of HW-CVD silicon-nitride films, S. Majee, M.F. Cerqueira, D. Tondelier, B. Geffroy, Y. Bonnassieux, P. Alpuim presenting author , J. E. Bourée, 2013 JSAP-MRS Joint Symposia, September 16-20, Kyoto, Japan GCEP

Oral Elementary excitations in exciton-polariton Bose-Einstein condensate confined in a two-dimensional parabolic trap, C. Trallero-Giner, M. I. Vasilevskiy, A. V. Kavokin and Y. Núñez-Fernández, 13th International Conference on Optics of Excitons in Confined Systems OECS'13 , Rome, Italy, 9-13 September 2013. GCEP

Oral Influence of Low Energy Ar Plasma Treatment on the Moisture Barrier Performance of Hot Wire -CVD Grown SiNx Multilayers, P. Alpuim - P. Alpuim, S. Majee, M. F. Cerqueira, D. Tondelier, B. Geffroy, Y. Bonnassieux, J. E. Bourée, JSAP-MRS 2013, Kyoto 16-20 September 2013, Kyoto, Japan GCEP

Oral Physics and applications of surface plasmon-polaritons in graphene, Yu. V. Bludov, N. M. R. Peres, and M. I. Vasilevskiy, XVII International Symposium "Nanophysics & Nanoelectronics", Nizhny Novgorod, Russia, March, 11-15, 2013. GCEP

Oral Piezoresistive Sensor Fabrication by Direct Laser Writing on a-Si:H, P. Alpuim - P. Alpuim, M. F. Cerqueira, G. Junior, J. Gaspar, J. Borme, JSAP-MRS 2013, Kyoto 16-20 September 2013, Kyoto, Japan GCEP

Oral Piezoresistor Sensor Fabrication by Direct Laser Writing on Hydrogenated Amorphous Silicon, P. Alpuim presenting author , M.F. Cerqueira, J. Noh, J. Gaspar, and J. Borme, 2013 JSAP-MRS Joint Symposia, September 16-20, Kyoto, Japan GCEP

Oral PT -symmetric dual-core waveguides: modulational instability, dark solitons, rogue waves, Bludov, Yu V.; Driben, R.; Konotop, V. V.; Malomed; B.A. II Porto Meeting on Theory and Experiment in Nonlinear Physics, Porto, Portugal, June 20-22, 2013. GCEP

Oral The Effect of Argon Plasma Treatment on the Performance of Silicon Nitride Permeation Barrier Multilayers for Organic Photovoltaics, S. Majee presenting author , M. F. Cerqueira, D. Tondelier, J. C. Vanel, B. Geffroy, Y. Bonnassieux, P. Alpuim, J. E. Bourée, E-MRS 2013 Spring Meeting, Symposium S, Congress Center, May 27-31, Strasbourg, France GCEP

Oral Thin films composed of gold nanoclusters dispersed in a TiO₂ matrix for electrical and thermal devices applications, Filipe Vaz, Luis Cunha, Francisco Macedo, A. Cavaleiro, B.K. Bein, 8th International Conference on Materials Science & Engineering – BRAMAT 2013, Brasov, Romania, 28 February – 2 March 2013. GRF, GCEP

Poster Core-shell multiferroic nanofibers produced by the electrospinning technique, P. Sá, J. Barbosa, I.T. Gomes, A.G Rolo, E. de Matos Gomes, D. Isakov, J.P. Araújo, P-E Coulom, J-E Wegrowe, B. Almeida, Joint European Magnetic Symposia, Rhodos, 25-30 August, 2013 <http://hdl.handle.net/> GCEP, FCD

Poster Energy transfer in quantum nanodot superstructures of fractal dimensions, C. Bernardo, M. Belsley, P. Coutinho, I. Moura, M. Vasilevskiy, J.A. Martins, P.Schellenberg Conference on Methods and Applications of Fluorescence: Spectroscopy, Imaging and Probes (MAF-13), 08.09.13 - 11.09.13, Genoa, Italy GCEP, FAMO



Poster Energy transfer via exciton transport in quantum dot based self-assembled superstructures, C. Bernardo, M. Belsley, Paulo Coutinho, Peter Schellenberg, Isabel Moura, Yuriel Núñez Fernández, Tobias Stauber, and Mikhail Vasilevskiy, 13th International Conference on Optics of Excitons in Confined Systems OECS'13 , Rome, Italy, 9-13 September 2013. GCEP, FAMO

Poster Fluorescence probing of energy transfer in quantum nanodot superstructures, C. Bernardo, M. Belsley, P. Coutinho, M. Vasilevskiy, J.A. Martins, P. Schellenberg 8th Workshop on Advanced Multiphoton and Fluorescence Lifetime Imaging Techniques, 01.07.13 - 02.07.13, Saarbrücken, Germany FAMO, GCEP

Poster Light transmission through a thin metallic film. I LARKIN, Interdisciplinary Surface Science Conference (ISSC-19). Nottingham, United Kingdom, March, 2013. GCEP

Poster Optical and structural properties of Au:ZnO thin films, A.G. Rolo, J.A. Santos, C. Kübel, M. Fialho, N. Franco, N. P. Barradas, E. Alves, E-MRS 2013 SPRING MEETING, Symposium: O - Synthesis, processing and characterization of nanoscale multi functional oxide films IV, Congress Center - Strasbourg, France, May 27-31, 2013. GCEP

Poster Self-assembled quantum dot based polycrystalline superstructures with energy transfer properties,C. Bernardo, M. Belsley, P. Coutinho, M. Vasilevskiy, P. Schellenberg Advanced school on modern trends of biophotonics for diagnosis and treatment of cancer and microbial control 2013, 11.04.13 - 19.04.13, Sao Paulo, Brazil FAMO, GCEP

Poster Self-assembled quantum dot based polycrystalline superstructures with energy transfer properties,C. Bernardo, M. Belsley, P. Coutinho, M. Vasilevskiy, P. Schellenberg NanoPortugal International Conference 2013, 13.02.13 - 15.02.13, Porto, Portugal FAMO, GCEP

Poster Shubnikov - de Haas effect and spin-splitting in tilted magnetic fields in wide quantum well. I LARKIN, 20th International Conference on Electronic Properties of Two-Dimensional Systems, Wroclaw, Poland, July 2013. GCEP

Poster Study of dielectric, pyroelectric, piezoelectric and ferroelectric properties in polymer nanofibers composed of potassium sodium tartrate", P. Sá, J. Barbosa, B. Almeida, A.G. Rolo, E. de Matos Gomes, M. Belsley, D. Isakov, 13th International Meeting on Ferroelectricity IMF-13 , Kraków, Poland, 2-6 September, 2013 <http://hdl.handle.net/10238/1000> FCD, GCEP, FAMO

Poster The role of Sn on the crystallinity quality of epitaxial GeSn films grown on Si", E. Alves, N. Catarino, N. Franco, N. Barradas, F. Cerqueira, F. Oliveira. J. Werner, M. Oheme. J. Schulze, 21 st International Conference on Ion beam analysis IBA 2013, Seattle, Washington, USA, 23-28 June 2013 P-mon-I GCEP

6.6.7. Future Research

Deep understanding of graphene properties. Plasmonics of graphene.

Nanoplasmonics oriented either for theoretical studies or for potential applications in advanced optical techniques, such as THz spectroscopy.

Bose Einstein condensates described by Gross-Pitaevskii equation.

Theoretical and experimental approaches to self-assembled structures made of colloidal semiconductor quantum dots. Development, growth and characterization of materials for applications in photovoltaic solar cells, focused on the improvement of photovoltaic conversion efficiency in thin film silicon solar cells fabricated on plastics.



6.7. Group of Optics and Vision Science (OCV)

6.7.1. Summary description of the scientific work carried out by the group in 2013

- Refinement of the results from a commercial partial coherence optical interferometer to measure the eye length in different directions;
- Development of an experimental set-up consisting of a monocular and binocular Badal system to change the focus of an optical system in a dynamic way for night myopia experiments;
- Evaluation of multifocal systems, allowing for a better understanding of the different visual outcomes with different lens designs in presbyopes;
- Demonstration that contact lens (CL) care systems play an important role in changes of surface roughness and refractive index of CL;
- Demonstration that there are daily variations in the composition and properties of the tear film, indicating that changes occur without being caused by CL wear or by the presence of ocular and systemic pathologies;.
- Measurements of the ocular and corneal wavefront aberrations and computation of the accommodative response,
- Evaluation, for the first time, of the theoretical colour volumes for colour deficient observers and of the light spectra that maximize the Rösch–MacAdam color solid.

6.7.2. Updated composition of the group

Research Group Title	Optics and Vision Sciences
Principal investigator	Sérgio Miguel Cardoso Nascimento
Research area	Optics, Optometry and Vision Sciences
Group Members	<p><u>Effective members:</u></p> <p>Alberto Diaz Rey MD PhD, Assistant professor Ana Pinho MD, Research and Teaching Assistant António Baptista PhD, Assistant Professor António Queirós PhD, Assistant professor Filipe Costa PhD, Assistant professor Filipe Macedo PhD, Assistant professor Jorge Jorge PhD, Assistant professor José Mejorne PhD, Associated professor with Habilitation Madalena Lira PhD, Assistant professor Sandra Franco PhD, Assistant professor Sérgio Nascimento PhD, Associate professor with Habilitation João Linhares – PhD, Assistant Professor (since September 2013)</p> <p><u>Associate members:</u></p> <p>Borges de Almeida – Retired Full professor Vasco de Almeida – Assistant professor at UBI</p> <p><u>Post-Doctorate researcher</u></p> <p>Osamu Masuda – Post-Doc with FCT grant (Till August 2013)</p> <p><u>Ph.D and Other Research Students:</u></p> <p>Miguel Jimenes, Ph.D student Zita Esteves, PhD student</p>



	Miguel Ribeiro, PhD student Ana Pinho, PhD student Leticia Isla Paradelo, PhD student Alberto Silva, PhD student Kishor Sapkota, PhD student Helena Neves, PhD student Daniela Ferreira, research assistant (BI) (Till August 2013) Helder Tiago, research assistant (BI) Sofia Matos, research assistant (BI) Paulo Fernandes, Ph.D (BI)
--	--

6.7.3. Scientific Production

6.7.3.1. Regular Articles Published in ISI Journals

Adaptation to multifocal and monovision contact lens correction. Fernandes PR, Neves HI, Lopes-Ferreira DP, Jorge JM, González-Méijome JM. Optom Vis Sci. 2013 Mar;90(3):228-35. IF:1.895 OCV

An assessment of the optimal lens fit rate in keratoconus subjects using three-point-touch and apical touch fitting approaches with the Rose K2 lens. Romero-Jimenez M, Santodomingo-Rubido J, González-Méijome JM. Eye & Contact Lens 2013;34:269-272. NO IF OCV

Assessment of Tear Amount in Subjects Under the Effect of (Inhaled) Cocaine, da Silva, C. M. L. R; De Sousa, R. A. R. C; Baptista, António M. G. Journal of Psychoactive Drugs 45, 2: 195 - 198 (2013) doi: 10.1080/02791072.2013.785857 IF:1.176 OCV

Best lighting for naturalness and preference. Masuda, O., & Nascimento, S. M. C. (2013). Journal of Vision, 13(7):4, 1-14, IF: 2.479 OCV

Clinical performance and "ex vivo" dehydration of silicone hydrogel contact lenses with two new multipurpose solutions. González-Méijome JM, da Silva AC, Neves H, Lopes-Ferreira D, Queirós A, Jorge J. Cont Lens Anterior Eye. 2013 Apr;36(2):86-92. IF: 1.500 OCV

Comparison of IgA, TNF-<alpha> and surface tension of the tear film in two different times of the day. Ana Puinhas; Paula Sampaio; Elisabete M. S. Castanheira; M. Elisabete C. D. Real Oliveira, Madalena Lira. Contact Lens & Anterior Eye 36 (2013) 140– 145. IF: 1.500 FAMO, OCV

Comparison of visual and refractive results of toric implantable collamer lens with bioptics for myopic astigmatism. Alfonso JF, Lisa C, Fernández-Vega Cueto L, Fernandes P, González-Méijome JM, Montés Micó R. Graefes Arch Clin Exp Ophthalmol. 2013;251(3):967-75. IF: 1.932 OCV

Development of new high transparent hybrid organic-inorganic monoliths with surface engraved diffraction pattern Sandra D. F. C. Moreira , Carlos J. R. Silva, Luis A. S. A. Prado, Manuel F. M. Costa , Victor I. Boev, J. Martín-Sánchez, M. J. M. Gomes Journal of Polymer Science Part B: Polymer Physics 50, 492-499(2013)in press. (Ref.POLB-23028). http://apps.webofknowledge.com/full_record.do?product=WOS&search_mode=GeneralSearch&qid=6&SID=W1nYmACxBxobI3qNC09&page=1&doc=4 IF:2,221 OCV, FMNC



Effects of high-color-discrimination capability spectra on color-deficient vision, E. Perales, J. M. Maciel Linhares, O. Masuda, F. M. Martínez-Verdú, and S. M. Cardoso Nascimento (2013), 'Journal of the Optical Society of America a- Optics, Image Science, and Vision, vol. 30, no. 9, pp. 1780–1786. IF: 1.665 OCV

Functional impairment with minimal macular damage in femtosecond laser plasma injury: case report, Freitas, Cristina; Moreno-Perdomo, Natacha; Gentil, Rita; Baptista, António M. G; Macedo, António F. Arquivos Brasileiros de Oftalmologia 76, 5: 317 – 319 (2013)doi: 10.1590/S0004-27492013000500015 IF: 0.379 OCV

Intraocular pressure after implantation of the visian implantable collamer lens with CentraFlow without iridotomy Higueras-Esteban A, Ortiz-Gomariz A, Gutierrez-Ortega R, Villa-Collar C, Abad-Montes JP, Fernandes P, González-Méijome JM. Am J Ophthalmol. 2013; 156(4):800-805. IF: 3.631 OCV

Multi-site clinical assessment of complete revitalens mpds in 2981 contact lens wearers across Europe and USA. González-Méijome JM, da Silva AC, Neves H, Faria-Ribeiro M, Lopes-Ferreira D, Peixoto-de-Matos SC. Cont Lens Anterior Eye. 2013; 36(6):289-93. IF: 1.500 OCV

Ocular complications of soft contact lens wearers in a tertiary eye care center of Nepal. Sapkota K, Lira M, Martin R, Bhattarai S. Contact Lens & Anterior Eye 36 (2013) 113– 117 IF: 1.500 OCV

Ocular Dominance and Visual Function Testing, Lopes-Ferreira, Daniela; Neves, Helena; Queirós, António; Faria-Ribeiro, Miguel; S., Peixoto-de-Matos; JM, González-Méijome. 2013. BioMed Research International 2013, 238943: 1 - 7., doi: 10.1155/2013/238943 NO IF OCV

Peripheral refraction and retinal contour in stable and progressive myopia.Faria-Ribeiro M, Queirós A, Lopes-Ferreira D, Jorge J, González-Méijome JM. Optom Vis Sci. 2013 Jan;90(1):9-15 IF: 1.895OCV

Radiometric characterization of a novel led array system for visual assessment. Linhares JMM, Neves H, Lopes-Ferreira D, Faria-Ribeiro M, Peixoto-de-Matos SC, González-Méijome JM. Journal of Modern Optics. 60(14):1136-1144. IF: 1.163 OCV

Subjective satisfaction in long-term orthokeratology patients.Santolaria E, Cerviño A, Queiros A, Brautaset R, González-Méijome JM. Eye & Contact Lens 2013; 39(6):388-93 NO IF OCV

The TFOS International Workshop on contact lens discomfort: report of the contact lens materials, design & care subcommittee Jason J. Nichols, and the members of the TFOS International Workshop on Contact Lens Discomfort. Jones L, Brennan N, Gonzalez-Mejome JM, Lally J, Maldonado-Codina C, Schmidt T, Subbaraman L, Young Y. Invest Ophthalmol Vis Sci. 2013; 54(11):TFOS37-70 IF: 3.441 OCV

The thinnest, steepest, and maximum elevation corneal locations in noncontact and contact lens wearers in keratoconus.Romero-Jiménez M, Santodomingo-Rubido J, González-Méijome JM Cornea. 2013;32(3):332-7. IF: 1.746 OCV

Which soft contact lens power is better for piggyback fitting in keratoconus?. Romero-Jiménez M, Santodomingo-Rubido J, Flores-Rodríguez P, González-Méijome JM. Cont Lens Anterior Eye. 2013;36(1):45-8. IF: 1.500 OCV



6.7.3.2. ISI Conference Proceedings published in Conference books

Comparison between three methods to value lower tear meniscos measured by Image software. Carlos García-Resúa, Hugo Pena-Verdeal, Madalena Lira, M. Elisabete Real Oliveira, María Jesús Giráldez, Eva Yebra-Pimentel. 8th Iberoamerican Optics Meeting and 11th Latin American Meeting on Optics, Lasers, and Applications 2013. Proc. of SPIE Vol. 8785, 8785EV 2013 SPIE · CCC code: 0277-786X/13/\$18 doi: 10.1117/12.2030433. OCV, FAMO

The influence of humidity, temperature, and oral contraceptive in tear, Sousa, Raul A. R. C; Ribeiro, Tânia L. C; Moreira, Sandra M. B; Baptista, António M. G, Trabalho apresentado em 8th Ibero American Optics Meeting/11th Latin American Meeting on Optics, Lasers, and Applications, In 8th Iberoamerican Optics Meeting and 11th Latin American Meeting on Optics, Lasers, and Applications, Porto, Portugal. Julho 2013. doi: 10.1117/12.2026166 OCV

The macular photostress test in diabetes, glaucoma, and cataract, Baptista, António M. G; Sousa, Raul A. R. C; Rocha, Filomena A. S. Q; Fernandes, Paula S; Macedo, António F, Trabalho apresentado em 8th Ibero American Optics Meeting/11th Latin American Meeting on Optics, Lasers, and Applications, In 8th Iberoamerican Optics Meeting and 11th Latin American Meeting on Optics, Lasers, and Applications, Porto, Portugal. Julho 2013. doi: 10.1117/12.2026235 OCV

Gloss measurements and rugometric inspection in dental biomaterials, Alicia Fernández-Oliveras; Manuel F. M. Costa; Ana Yebra; Manuel Rubiño and María M. Pérez, in 8th Iberoamerican Optics Meeting and 11th Latin American Meeting on Optics, Lasers, and Applications, edited by Manuel Filipe P. C. Martins Costa, Proceedings of SPIE Vol. 8785 (SPIE, Bellingham, WA, 2013), 8785E0 (November 18, 2013); doi:10.1117/12.2025423; <http://dx.doi.org/10.1117/12.2025423> OCV

Influence of the thermo-oxidative degradation on the chemical structure of contact lenses. Madalena Lira, Carlos Alves, Gabriela Botelho. 8th Iberoamerican Optics Meeting and 11th Latin American Meeting on Optics, Lasers, and Applications 2013. Proc. of SPIE Vol. 8785, 8785ES code: 0277-786X/13/\$18 doi: 10.1117/12.2028261. OCV

Inter Observer and intraobserver repeatability of Lipid layer pattern evaluation by two experienced observers. Carlos García-Resúa, Hugo Pena-Verdeal, Madalena Lira, Manuel G Penedo, María Jesús Giráldez, Eva Yebra-Pimentel. 8th Iberoamerican Optics Meeting and 11th Latin American Meeting on Optics, Lasers, and Applications 2013. Proc. of SPIE Vol. 8785, 8785AE 2013 SPIE code: 0277-786X/13/\$18 doi: 10.1117/12.2030432. OCV

Non-invasive topographic inspection of wood artwork, in 8th Iberoamerican Optics Meeting and 11th Latin American Meeting on Optics, Lasers, and Applications, edited by Manuel Filipe P. C. Martins Costa, Proceedings of SPIE Vol. 8785 (SPIE, Bellingham, WA, 2013), 8785A5 (November 18, 2013); doi:10.1117/12.2028080;<http://dx.doi.org/10.1117/12.2028080>OCV

Rugometric and microtopographic inspection of teeth enamel, Manuel F. Costa, Pedro B. Pereira, Proc. SPIE. 8769, International Conference on Optics in Precision Engineering and Nanotechnology (icOPEN2013) 876900 (June 22, 2013) doi: 10.1117/12.2016662 OCV

Rugometric and microtopographic non-invasive inspection in dental-resin composites and zirconia ceramics, Alicia Fernández-Oliveras; Manuel F. M. Costa; Oscar E. Pecho; Manuel Rubiño and María M. Pérez, in 8th Iberoamerican Optics Meeting and 11th Latin American Meeting on Optics, Lasers, and Applications, edited by Manuel Filipe P. C. Martins Costa, Proceedings of SPIE Vol. 8785 (SPIE, Bellingham, WA, 2013), 8785EG (November 18, 2013); doi:10.1117/12.2021645;<http://dx.doi.org/10.1117/12.2021645>OCV



Assessing the optical properties of the healthy and emmetropic eye with accommodation, C. M. Oliveira and Sandra Franco. Proc. SPIE 8785, 8th Iberoamerican Optics Meeting and 11th Latin American Meeting on Optics, Lasers, and Applications, 8785ER2-11; doi:10.1117/12.2028240; OCV

6.7.3.3. Books and book chapters

Proceedings of the “10th International Conference on Hands-on Science. Educating for Science and through Science”, Manuel F. M. Costa – Costa MF, Dorrio BV, Kires M, (Eds.); 2013, 1st-5th July 2013; Pavol Jozef Šafárik University, Košice, Slovakia. ISBN 978-989-98032-2-0 OCV

Proceedings of the 8th Iberoamerican Optics Meeting and 11th Latin American Meeting on Optics, Lasers, and Applications, Manuel F. M. Costa – edited by Manuel Filipe P. C. Martins Costa, Proceedings of SPIE Vol. 8785 (SPIE, Bellingham, WA, 2013). ISSN: 0277-786X, ISBN: 9780819496010 OCV

6.7.3.4. International Patents

José Manuel González-Méijome Co-inventor in patent submitted by the Indiana University (USA) in collaboration with this institution and Universidad de Murcia (Spain) “Methods, systems and apparatuses for night and day corrective ophthalmic prescription” (Priority date: 20/2/2012). PCT requested. Not licensed. OCV

José Manuel González-Méijome, António Queiros, Jorge Jorge, Helena Neves, Sofia Matos, Ramón Gutierrez, Cesar Villa “Integral apparatus and method for testing visual function” (PPPNº 107211; Patent submitted by the Instituto Nacional da Propriedade Industrial (INPI) Priority date: 8 /10/2013). Provisional Application. Not licensed. OCV

Lopez-Gil Norberto; Zapata Diaz Juan Francisco; Gonzalez Mejome Jose Manuel; Peixoto De Matos Sofia; Fernandez Sanchez Vicente Antonio; Thibos Larry, “Optometer and method for determining the diopters necessary for enhancing night vision”. WO2013050638 A1, 2011. OCV

6.7.3.5. Master theses completed in 2013

Author: Vania Belo

Supervisor: Manuel Filipe Costa

Title: Ensino das Ciências no Ensino Básico, numa perspetiva IBSE – Água e Ambiente

Terminated at January 2013 at the School of Sciences

Author: Serafim Gil Gonçalves de Almeida Dantas

Supervisor: Manuel Filipe Costa

Title: A apresentação dos componentes e circuitos eletrónicos no terceiro ciclo numa perspetiva IBSE

Terminated at December 2013 at the School of Sciences

Author: Nelson Davide Lemos Dias

Supervisor: Jorge Jorge, António Queirós

Title: Alterações morfológicas da retina associadas ao estado refrativo analisadas através de tomografia de coerência óptica

Terminated at March 2013 at the School of Sciences



Author: Marta Marques
Supervisor: Manuel Filipe Costa
Title: Criatividade no ensino das ciências nos ensinos pré-escolar e básico
Terminated at December 2013 at the School of Sciences

Author: Marta Monteiro
Supervisor: Manuel Filipe Costa
Title: Ensino Não Formal. Educação em Ciências – Implementação de Atividades Experimentais no Pré-Escolar
Terminated at January 2013 at the School of Sciences

Author: Maria Adelaide A. Duarte Soares
Supervisor: António Baptista, António Macedo
Title: Estudo retrospectivo de resultados funcionais na DMRI
Terminated at December 2013 at the School of Sciences

Author: Luís Carlos Santos Rodrigues Vaz
Supervisor: Jorge Jorge, José Manuel Meijome
Title: Alterações papilares associadas ao estado refrativo analisado através de tomografia de coerência ótica
Terminated at March 2013 at the School of Sciences

Author: Luciana Maria Rei Silva
Supervisor: José Manuel Meijome, Norberto López-Gil
Title: Prevalência da miopia nocturna na população em geral
Terminated at April 2013 at the School of Sciences

Author: José Luís Rebelo Faria
Supervisor: José Meijome, José Alberto Rey
Title: Efeito ciclopégico e midriático de diferentes fármacos diagnósticos de uso comum na prática clínica e na investigação
Terminated at December 2013 at the School of Sciences

Author: João Rafael de Sousa Esteves
Supervisor: Jorge Jorge
Title: Afetação do cansaço nas capacidades visuais dos atletas
Terminated at December 2013 at the School of Sciences

Author: Isabel Maria Vicente Braga Ferraz
Supervisor: Sandra Franco
Title: Variações de parâmetros acomodativos em usuários de computadores
Terminated at May 2013 at the School of Sciences

Author: Jaime Almeida Oliveira
Supervisor: Jorge Jorge, José Meijome
Title: Alterações da função acomodativa e equilíbrio binocular na população Universitária durante o ano letivo
Terminated at October 2013 at the School of Sciences

Author: Helena Isabel Ferreira Neves
Supervisor: José Meijome, Paulo Fernandes, José Alberto Rey



Title: Defocus Curves with Different Multifocal Contact Lenses in Presbyopes
Terminated at December 2013 at the School of Sciences

Author: Filipa Alexandra Dias Oliveira
Supervisor: António Baptista
Title: Prevalência de ametropias numa população com atraso mental
Terminated at November 2013 at the School of Sciences

Author: Cristina Daniela Moreira Oliveira
Supervisor: José Meijome, José Alberto Rey
Title: Edema Corneal com Lentes Esclerais
Terminated at December 2013 at the School of Sciences

Author: Daniela Borlido Barros
Supervisor: António Baptista, António Macedo
Title: Estudo epidemiológico das ametropias em Portugal
Terminated at November 2013 at the School of Sciences

Author: Cidália de Jesus Barros Ferreira
Supervisor: Madalena Lira
Title: Deterioração de lentes descartáveis diárias Segundo o tempo de uso
Terminated at May 2013 at the School of Sciences

Author: Clarisse Susana Duarte Vieira (MC-FCP)
Supervisor: Manuel Filipe Costa
Title: Ensino das Ciências na Educação Pré-Escolar e no Ensino Básico, numa perspetiva IBSE - Energia
Terminated at January 2013 at the School of Sciences

Author: Carla Patrícia Lima da Silva
Supervisor: António Baptista, António Macedo
Title: Caracterização de um padrão de comportamento oculomotor em tarefas de olhar preferencial em crianças
Terminated at December 2013 at the School of Sciences

Author: Ana Rita Ferreira da Silva
Supervisor: José Meijome, Vicente Moreno (Univ. Politécnica de Valência)
Title: Ionic Permeability of Soft Contact Lens
Terminated at December 2013 at the School of Sciences

Author: Ana Sofia Barbosa de Carvalho
Supervisor: António Baptista, António Macedo
Title: Estudo epidemiológico das ametropias em Portugal
Terminated at May 2013 at the School of Sciences

Author: Ana Maria Veloso Cardoso
Supervisor: António Baptista, António Macedo
Title: Caracterização do comportamento oculomotor em tarefas de olhar preferencial em adultos
Terminated at December 2013 at the School of Sciences



Author: Ana Isabel de Oliveira Pouzada
Supervisor: Jorge Jorge
Title: Relatório de atividade profissional
Terminated at December 2013 at the School of Sciences

Author: Ana Carla Martins da Silva
Supervisor: José Meijome, David Piñero Lloréns (Universidad de Alicante)
Title: Accommodative and Binocular Changes after Refractive Surgery
Terminated at December 2013 at the School of Sciences

6.7.3.6. Master theses in progress in 2013

Author: Alexandra Marina Silva Moreira
Supervisor: Sandra Franco
Title: A acomodação nas diferentes ametropias
Developing since January 2013 at the School of Sciences

Author: Ana Catarina Costa Esteves
Supervisor: António Macedo, António Baptista
Title: Adaptação oculomotora em escotoma central simulado
Developing since January 2013 at the School of Sciences

Author: Ana Isabel Perestrelo Fernandes
Supervisor: José Meijome, José Alberto Rey
Title: Efeito da Instilação Tópica de Fenilefrina nas Aberrações Oculares e Refração Objectiva e Subjectiva
Developing since 2013 at the School of Sciences

Author: Ana Lúcia Ribeiro Braga
Supervisor: Jorge Jorge, António Queirós
Title: Análise da variação da prevalência da miopia em estudantes universitários
Developing since 2013 at the School of Sciences

Author: Ana Meira
Supervisor: António Macedo, António Baptista
Title: Fatores atencionais na adaptação a escotoma central simulado
Developing since 2013 at the School of Sciences

Author: Ana Paula Duarte Pinto Azevedo
Supervisor: Madalena Lira
Title: Relatório de atividade profissional
Developing since 2013 at the School of Sciences

Author: Ana Rita Araújo da Silva
Supervisor: Madalena Lira
Title: Lentes de contacto e soluções de manutenção: alterações na humectabilidade
Developing since 2012 at the School of Sciences

Author: Ana Sofia Costa Macedo



Author: Annie Teixeira
Supervisor: António Macedo, António Baptista
Title: História da Optometria em Portugal
Developing since 2013 at the School of Sciences

Author: Bárbara da Silva Borges
Supervisor: António Queirós, José Meijome
Title: Alterações na biometria e na refração durante o ano letivo II, em crianças
Developing since 2013 at the School of Sciences

Author: Carla Patrícia Correia Fernandes
Supervisor: Jorge Jorge, Paulo Fernandes
Title: Avaliação da influência da capacidade de concentração na velocidade de leitura
Developing since 2013 at the School of Sciences

Author: Catarina da Conceição Freitas Vieira
Supervisor: Jorge Jorge, Paulo Fernandes
Title: Avaliação do tempo de reação em atletas e não - atletas
Developing since 2013 at the School of Sciences

Author: Cádia Isabel Pereira Sousa
Supervisor: Madalena Lira, Sandra Franco
Title: Caracterização dos parâmetros da película lacrimal e da topografia na população adulta portuguesa
Developing since 2013 at the School of Sciences

Author: Conceição do Céu Cardoso da Silva
Supervisor: António Queirós, José Meijome
Title: Alterações Sazonais no Crescimento do Globo Ocular em Escolares do Ensino Primário
Developing since 2013 at the School of Sciences

Author: Eduarda Cistina da Cruz Guimarães Duque
Supervisor: Madalena Lira, Elisabete Coutinho, Sandra Franco
Title: Avaliação da transmitância e sensibilidade visual ao contraste em lentes de proteção solar
Developing since 2013 at the School of Sciences

Author: Elsa Alves
Supervisor: Manuel Filipe Costa
Title: Atividades IBSE elementares de aprendizagem das ciências nos ensinos pré-primário e básico.
Developing since 2013 at the School of Sciences

Author: Filipa Manuela Silva Correia
Supervisor: José Meijome, António Queirós
Title: Alterações sazonais no crescimento do globo ocular em escolares de educação secundária



Developing since 2013 at the School of Sciences

Author: Gilberto Joaquim Peixoto Ferreira

Supervisor: Sandra Franco

Title: Estágio para integração multidisciplinar no âmbito do Mestrado em Optometria Avançada

Developing since 2012 at the School of Sciences

Author: Helena Manuel Ferreira Montenegro de Andrade

Supervisor: António Baptista, António Macedo

Title: Avaliação de parâmetros oculares em pacientes diabéticos

Developing since 2012 at the School of Sciences

Author: João Pedro Marques Aniceto Santos

Supervisor: Madalena Lira, Sandra Franco

Title: Variação dos parâmetros acomodativos com a realização de tarefas em visão de perto

Developing since 2013 at the School of Sciences

Author: João Rui Loureiro Ferreira

Supervisor: António Macedo, António Baptista

Title: Padrões oculomotores durante a leitura e a sua relação com os testes usados na prática clínica

Developing since 2011 at the School of Sciences

Author: José Carlos Ribeiro Silva

Supervisor: António Macedo, António Baptista

Title: Efeito da insuficiência de convergência sintomática (ICS) na velocidade de leitura/movimentos oculares numa população universitária jovem

Developing since 2013 at the School of Sciences

Author: José Duarte Cunha Gomes

Supervisor: José Meijome, Paulo Fernandes

Title: Profundidade de Foco Monocular e Binocular com Lentes de Contacto Multifocais de Adição Média e Alta

Developing since 2013 at the School of Sciences

Author: Luís Carlos Rodrigues Couto

Supervisor: Jorge Jorge, Paulo Fernandes

Title: Estudo do efeito dos prismas de base gêmea na localização espacial

Developing since 2013 at the School of Sciences

Author: Luís Miguel Castro Felgueiras Alves

Supervisor: António Macedo, António Baptista

Title: The natural history of PAL adaptation in naive users

Developing since 2013 at the School of Sciences

Author: Maria Helena A. Brito Lopez

Supervisor: António Queirós, José Meijome

Title: Alterações na biometria e na refração durante o ano letivo II, em jovens

Developing since 2013 at the School of Sciences



Author: Maria de Fátima Teixeira Sampaio

Supervisor: José Meijome, Jorge Jorge

Title: Relação entre Sinais e Sintomas em Pacientes com Disfunções da Visão Binocular, Acomodativas e Oculomotoras

Developing since 2013 at the School of Sciences

Author: Maria Francisca Pinto Peixoto

Supervisor: Madalena Lira, Sandra Franco

Title: Promover o uso saudável de lentes de contacto

Developing since 2013 at the School of Sciences

Author: Nádia Lurdes Machado Silva

Supervisor: António Macedo, António Baptista

Title: Efeito de combinações de cor de ecrãs na performance visual dos observadores

Developing since 2013 at the School of Sciences

Author: Paula Portela

Supervisor: Manuel Filipe Costa

Title: Experiencias de física para alunos dos ensinos básico e secundário

Developing since 2013 at the School of Sciences

Author: Ricardo Jorge F. Jesus Luís

Supervisor: António Baptista, António Macedo

Title: Psicofísica da Diabetes

Developing since 2010 at the School of Sciences

Author: Rute Juliana F. Macedo Araújo

Supervisor: José Meijome

Title: Avaliação In vitro e In vivo da desidratação de lentes de contacto, estabilidade lacrimal e qualidade óptica

Developing since 2013 at the School of Sciences

Author: Tito Encarnação

Supervisor: António Baptista, António Macedo

Title: Psicofísica da Retina Periférica/não axial

Developing since 2010 at the School of Sciences

6.7.3.7. Ph.D. theses in progress in 2013

Author: Alberto Manuel S. Augusto Alves Silva

Supervisor: Jorge Jorge, José Meijome

Title: Avaliação da adaptação a sistemas oftálmicos de adição progressiva para compensação da presbiopia

Developing since 2011 at the School of Sciences

Author: Ana Maria Pinho

Supervisor: Jorge Jorge, José Meijome

Title: Estudo da variação longitudinal da refração central e periférica e dos componentes ópticos oculares em miopes adolescentes e jovens adultos

Developing since 2010 at the School of Sciences



Author: Helena Isabel Ferreira Neves

Supervisor: José Meijome, António Queirós

Title: Analysis of light visual distortion and quality of vision with different multifocal lens designs for the compensation of presbyopia

Developing since 2012 at the School of Sciences

Author: Kishor Sapkota

Supervisor: Madalena Lira, Sandra Franco

Title: Clinical experimental trials on changes in ocular surface induced by contact lenses wear

Developing since 2012 at the School of Sciences

Author: Letícia Isla Paradelo

Supervisor: José Meijome, Jorge Jorge, David Madrid-Costa (Univ. Valencia – Espanha)

Title: Influência do Diâmetro Pupilar no Rendimento Visual e Óptico das Lentes de Contacto Multifocais

Developing since 2011 at the School of Sciences

Author: Miguel António Faria Ribeiro

Supervisor: José Meijome, Jorge Jorge, Norberto López-Gil (Univ. Murcia)

Title: Alteração da refração periférica para retenção da progressão da miopia

Developing since 2012 at the School of Sciences

Author: Miguel Pablo R. Jiménez

Supervisor: José Meijome, Jacinto S. Rubido

Title: Comparison of Two Contact Lens Fitting Strategies for Keratoconus

Developing since 2010 at the School of Sciences

Author: Ram Kishor Sah

Supervisor: José Meijome, Eef van der Worp (Pacific Univ. USA), Jeewang Singh Titiyal (Centre for Ophtalmic Sciences-India)

Title: Clinical Performance and Ocular Surface Homeostasis with Gas Permeable Scleral Contact Lens for Severe Ocular Surface Disease

Developing since 2012 at the School of Sciences

Author: Zita Quesado Esteves

Supervisor: M. Filipe Costa

Title: Atividades informais no ensino das Ciências nas Escolas

Developing since 2009 at the School of Sciences

Author: Ana Patrícia Marques

Supervisor: António Filipe Macedo Rui Santana (UNL),

Title: Os custos da deficiência visual em Portugal

Developing since 2013 at the Escola Nacional de Saúde Pública – Universidade Nova de Lisboa

Author: Marta Cristina de Pinho Teixeira

Supervisor: Sérgio Nascimento, Miguel Castelo Branco (IBILI, Faculdade de Medicina, Universidade de Coimbra)

Title: Colour Constancy Neural Correlates – A Multimodal Approach

Developing since 2010



6.7.4. Other scientific activities

6.7.4.1. Invited Lectures/seminars delivered by members of the group, in national or international

International

Adaptación de lentes de contacto multifocales. González-Méijome JM. III Congreso Internacional de Óptica, Contactología y Optometría. Rosario, Argentina. October 12-13, 2013. OCV

Casos clínicos de adaptación de lentes de contacto en condiciones especiales. IACLE Training "Train-the-Trainers". González-Méijome JM. III Congreso Internacional de Óptica, Contactología y Optometría. Rosario, Argentina. October 12-13, 2013. OCV

Changes in Total and Corneal Wavefront Aberrations During Orthokeratology, JM, González-Méijome; Queirós, António; Faria-Ribeiro, Miguel; Lopes-Ferreira, Daniela; Paulo, Fernandes; S., Peixoto-de-Matos. EurOK Meeting 2013 - BrusselsOK, Brussels, 2013 Congresso . OCV

Como vêm os daltónicos – mitos, factos e teorias. Nascimento, SMC 2013 . 10º Congresso Internacional de Optometria e Ciências da Visão CIOCV'2013 , Abril 2013. OCV

Control de la miopía con lentes de contacto. González-Méijome JM. III Congreso Internacional de Óptica, Contactología y Optometría. Rosario, Argentina. October 12-13, 2013. OCV

Control de la progresión de la miopía con lentes de contacto hidrofílicas. González-Méijome JM. Jornadas de la Universidad Europea de Madrid. Madrid, Spain, January 23, 2013. OCV

Corneal approaches to the treatment of refractive error. LASIK vs orthokeratology – similarities and differences. González-Méijome JM. International Society for Contact Lens Research ISCLR conference. Kyoto, Japan. August 25-30, 2013. OCV

Determinación de la presión intra-ocular: Tonometría y paquimetría. González-Méijome JM. OPTOM Meeting 2013, Málaga, Spain. April 18-20, 2013. OCV

Development of Tantalum oxynitride thin films produced by PVD: Study of structural stability, L. Cunha, M. F. Costa, C. Moura, F. Vaz, D. Cristea, A. Crisan, N. Barradas, E. Alves, International Conference on materials Science and Engineering BRAMAT 2013 , in Brasov, Romania 27 February-2 March 2013 OCV, GRF

Digitalização cromática e espectral de pinturas artísticas: métodos e aplicações. Nascimento, SMC 2013 . I Encontro Internacional de Reintegração Cromática de Bens Culturais, Igreja das Taipas, Porto. OCV

Digitalização Hiperespectral e a Quantificação da Cor dos Mosaicos Romanos numa Linguagem Objectiva e Universal. Nascimento, SMC & Linhares, J.M.M 2013 . ENCONTRO PORTUGAL-GALIZA MOSAICOS ROMANOSFRAGMENTOS DE CULTURA NAS PROXIMIDADES DO ATLÂNTICO, Museu D. Diogo de Sousa, Braga. OCV

Dry eye and contact lenses. Gonzalez-Meijome JM. CONTACTO Conference. Paris, France. November 15, 2013. OCV



Eyelid - contact lenses Interaction: LWE Lid Wiper Epitheliopathy syndrome. Gonzalez-Mejome JM. Contacto Conference. Paris, France. November 15, 2013. OCV

Inspection optique des surfaces. Microtopographie non invasive, Manuel F. M. Costa – “Deuxièmes Journées de formation sur les Radiations Electromagnétiques et leur Impact sur l’Environnement les Radiations Electromagnétiques et le Contrôle des Transformations”, Université Abdelmalek Essaadi, Tétouan, Marrocos, October 28, 2013 OCV

Lo que se sabe sobre la Miopia, Jorge Jorge . SIYO 2013: Congreso Internacional Online de Jóvenes Optometristas,2013 OCV

One Decade of Hands-on Science Conferences, Manuel F. M. Costa – 10th International Conference on Hands-on Science, HSCI2014, 1 a 5 de Julho de 2013, Kosice, Eslovaquia. OCV

Optical non invasive microtopographic inspection of surfaces, Manuel F. M. Costa – “First African Summer School on Optics and Applications to Sustainable Development”, Carthage Hannibal, Tunis, August 31 to September 8, 2013 OCV

Peripheral Refraction and Myopia Control. Gonzalez-Mejome JM. Global Special Lens Symposium GSLS . Las Vegas, USA. January 23-27, 2014. OCV

Que hago ante un paciente con cornea irregular?, JM, González-Méjome. Jornadas Clínicas CNOO Zaragoza2013 - Zaragoza, Spain November 23-24, 2013. OCV

Seeing colors in real scenes - applications of spectral imaging in color vision research. Nascimento, SMC 2013 . “Color and Physiological Optics” Mini Symposium, Tokyo Institute of Technology, Japan. OCV

TFOS International Workshop on Contact Lens Discomfort. Gonzalez-Mejome JM. Global Special Lens Symposium GSLS . Las Vegas, USA. January 23-27, 2014. OCV

Vision Therapy: recent advances. Franco, Sandra. In: CIOCV13 - CONGRESSO INTERNACIONAL DE OPTOMETRIA E CIÊNCIAS DA VISÃO, 2013. Braga. Proceedings of the CIOCV13. 2013. OCV

National

A importância da refração periférica na miopia, Queirós, António. 5º Congresso Nacional da Óptica Ocular,Estoril,2013 Congresso . OCV

Avaliação do estado do sistema visual de crianças por fotorefracção digital, Manuel F. M. Costa , 5º Congresso Nacional da Óptica Ocular, Estoril, 22 a 24 de Fevereiro de 2013 OCV

O Papel da Investigação na Melhoria das Políticas e Metodologias de Reabilitação, Macedo, A.F. Seminários de Surocgueira da Casa Pia de Lisboa, Belver Beta Porto Hotel, 20 Junho 2013 OCV

SportVision, Jorge, Jorge. 5º Congresso Nacional da Óptica Ocular,Estoril,2013 Congresso . OCV



6.7.5. Funded Projects Ongoing

Title: Quantificação computacional e psicofísica dos efeitos visuais de fontes de luz modernas em cenas complexas

Reference: PTDC/EEA-EEL/098 572/2008

Project Coordinator: Sérgio Miguel Cardoso Nascimento

Funding awarded: 138 732,00 Euros

Start Date: May 2010

Duration: 3 years

Title: Analizador de distorção luminosa: desenvolvimento e aplicações

Reference: PTDC/SAU-BEB/098 391/2008

Project Coordinator: José Manuel González Méijome

Funding awarded: 110 000,00 Euros

Start Date: March 2010

Duration: 3 years

Title: Soluções ópticas para a compensação da presbiopia

Reference: PTDC/SAU-BEB/098 392/2008

Project Coordinator: José Manuel González Méijome

Funding awarded: 135 000,00 Euros

Start Date: April 2010

Duration: 3 years

Title: Imageologia hiperespectral das cores estruturais

Reference: PTDC/CTM-MET/113352/2009

Project Coordinator: José Medina

Funding awarded: 100.204.00 Euros

Start Date: March 2011

Duration: 3 years

Title: Prevalence and costs of visual impairment in Portugal: a hospital based studt

Reference: PTDC/DTP-EPI/0412/2012

Project Coordinator: Filipe Macedo

Funding awarded: 96533.00 Euros

Start Date: June de 2013

Duration: 2 years

Title: Modelização da percepção cromática de tricromatas anómalos e optimização da sua discriminação de objetos naturais com lentes coloridas

Reference: PTDC/mhc-pcn/4731/2012

Project Coordinator: Sérgio Nascimento

Funding awarded: 33745.00 Euros

Start Date: June de 2013

Duration: 2 years



6.7.6. Other information

6.7.6.1. Other Conference Presentations given by members of the group in national or international conferences

International

Oral Corneal thickness with CorVis ST and Pentacam in normal and keratoconic eyes. Gonzalez-Mejome JM, Lopes-Ferreira D, Rico-del-Viejo L, Jorge J, Neves P, Ferreira H, Salgado-Borges J. ESCRS Meeting. Amsterdam-The Netherlands, 5-9 October 2013. OCV

oral Electronic devices in low vision, Macedo, AF, EAEO 2013 (special interest group talk) Malaga, Spain OCV

Oral Astigmatic Peripheral Refraction Patterns in Orthokeratology for Different Degrees of Myopia. González-Méijome JM. International Society for Contact Lens Research ISCLR conference. Kyoto, Japan. August 25-30, 2013. OCV

Oral Asymmetric keratokonus compared with normal corneas using a high speed camera analyzer. Varela M, Catalán S, Esteves F, Cadarso L, Salgado-Borges J, Gonzalez-Mejome JM. EuCornea Meeting. Amsterdam-The Netherlands, 4-5 October 2013. OCV

ORAL Behind the surface - Hyperspectral image spectroscopy for artist authentication Cristina Montagner, Pedro Almeida, Rui Jesus, Nuno Correia, Maria J. Melo, Marcia Vilarigues, Rita Macedo, Helena de Freitas, Sergio Nascimento, In: L. MacDonald, S. Westland, & S. Wuerger Eds., AIC Colour 2013, 12th Congress of the International Colour Association, vol. 2 pp. 359-362 . Newcastle upon Tyne, UK, AIC International Colour Association. OCV

ORAL Best lighting for visual appreciation of artistic paintings: experiments with real paintings and real illumination, Nascimento, S. M. C. and Masuda, O., 22nd Symposium of the International Colour Vision Society, Winchester, UK, Abstract book, 41, 2013. OCV

Oral Breve reflexão sobre o ensino da Física em Portugal, Manuel F. M. Costa, XX Simposio Nacional de Ensino da Física, Instituto de Física da USP, S. Paulo, Brasil, 21 a 25 de Janeiro 2013. OCV

Oral Comfort and Dryness Symptoms with Silicone Hydrogel and Orthokeratology Lenses: Pilot Cross-over Study, García-Porta, Nery; Rico-del-Viejo, Laura; Gonzalez-Perez, Javier; Queirós, António; JM, González-Méijome. EurOK Meeting 2013 - BrusselsOK,Brussels,2013 Congresso . OCV

Oral Correlation between ocular scattering index OSI and light distortion index measured with an experimental device. Peixoto-de-Matos SC, Salgado-Borges J, Dias L, Costa J, Neves H, Queiros A, Gonzalez-Mejome JM. ESCRS Meeting. Amsterdam-The Netherlands, 5-9 October 2013. OCV

Oral Development of Tantalum oxynitride thin films produced by PVD, Luis CUNHA, Manuel Filipe COSTA, Daniel CRISTEA, Aurel CRIŞAN, 8th International Conference on Materials Science and Engineering – BRAMAT 2013, Braşov – Romania, 28 February – 2 March, 2013. OCV, GRF

Oral Diurnal variation in biomechanical corneal properties and IOP with CorVis ST and ORA. Gonzalez-Mejome JM, Lopes-Ferreira D, Rico-del-Viejo L, Jorge J, Neves P, Ferreira H, Salgado-Borges J. ESCRS Meeting. Amsterdam-The Netherlands, 5-9 October 2013. OCV



oral Eye Movements with Central Scotoma during RSVP Reading. Macedo, AF. et al, ESLRR 2013. Oxford, UK
OCV

Oral Gloss measurements and rugometric inspection in dental biomaterials, Alicia Fernández-Oliveras; Manuel F. M. Costa; Ana Yebra; Manuel Rubiño and María M. Pérez, in 8th Iberoamerican Optics Meeting and 11th Latin American Meeting on Optics, Lasers, and Applications, edited by Manuel Filipe P. C. Martins Costa, Proceedings of SPIE Vol. 8785 SPIE, Bellingham, WA, 2013, 8785E0 November 18, 2013; doi:10.1117/12.2025423; <http://dx.doi.org/10.1117/12.2025423> OCV

Oral Intraocular light dispersion in pseudophakic patients with different IOL. Salgado-Borges J, Dias L, Costa J, Peixoto-de-Matos SC, Monteiro M, Gonzalez-Mejome JM. ESCRS Meeting. Amsterdam-The Netherlands, 5-9 October 2013. OCV

Oral Intraocular pressure and biomechanical corneal properties in normal and keratoconic eyes with CorVis ST and ORA. Salgado-Borges J, Dias L, Costa J, Queiros A, Peixoto-de-Matos SC, Gonzalez-Mejome JM. ESCRS Meeting. Amsterdam-The Netherlands, 5-9 October 2013. OCV

Oral Intraocular pressure measurement with Ocular Response Analyzer over soft contact lens Kishor Sapkota, Madalena Lira, Sandra Franco.. Congresso Internacional de Optometria e Ciências da Visão, 13 -14 abril 2013. OCV

Oral Modification of asphalt mixtures through the use of TiO₂ nanoparticles, S. Azevedo, J.O. Carneiro, E. Freitas, C. Nunes, Manuel F. M. Costa, F. Fernandes, H. Silva, J. Oliveira, V. Teixeira, Materiais 2013, Coimbra Portugal , 25-27 March, 2013. OCV, GRF

Oral Normative values of light distortion in successful pseudophakic patients implanted with monofocal IOLs. Peixoto-de-Matos SC, Salgado-Borges J, Dias L, Costa J, Ribeiro M, Fernandes P, Gonzalez-Mejome JM. ESCRS Meeting. Amsterdam-The Netherlands, 5-9 October 2013. OCV

Oral Oxygen diffusion study behind modern Scleral Rigid Gas Permeable Gonzalez-Mejome JM, Compañ-Moreno V. Contact Lenses Contacto Conference. 25th European Conference on Biomaterials ESB2013 . Madrid, Spain. June 8-12, 2013. OCV

Oral Photostress test, Silva, Ana; Sousa, Raul A. R. C; Fernandes, Vânia; Arroyo, Juan; Macedo, António F; Baptista, António M. G, Trabalho apresentado em 8th Ibero American Optics Meeting/11th Latin American Meeting on Optics, Lasers, and Applications, In 8th Iberoamerican Optics Meeting and 11th Latin American Meeting on Optics, Lasers, and Applications, Porto, Portugal. Julho 2013. OCV

ORAL Psychophysical assessment of best lighting for naturalness and preference by monitor viewing of commercial food counters, Masuda, O. and Nascimento, S. M. C., In: L. MacDonald, S. Westland, & S. Wuerger Eds. , AIC Colour 2013, 12th Congress of the International Colour Association, vol. 1 pp. 69-72 . Newcastle upon Tyne, UK, AIC International Colour Association. OCV

Oral Rugometric and microtopographic inspection of teeth enamel, Manuel F. Costa, Pedro B. Pereira, Proc. SPIE. 8769, International Conference on Optics in Precision Engineering and Nanotechnology icOPEN2013 876900 June 22, 2013 doi: 10.1117/12.2016662 OCV

Oral Rugometric and microtopographic non-invasive inspection in dental-resin composites and zirconia ceramics, Alicia Fernández-Oliveras; Manuel F. M. Costa; Oscar E. Pecho; Manuel Rubiño and María M. Pérez, in 8th Iberoamerican



Optics Meeting and 11th Latin American Meetingon Optics, Lasers, and Applications, edited by Manuel Filipe P. C. Martins Costa, Proceedings of SPIE Vol. 8785 SPIE, Bellingham, WA, 2013 , 8785EG November 18, 2013 ; doi:10.1117/12.2021645;http://dx.doi.org/10.1117/12.2021645OCV

Oral Síntomas de sequedad y disconfort en usuarios de lentes de contacto de Silicona Hidrogel Y ortoqueratología, García-Porta, Nery; Rico-del-Viejo, Laura; Queirós, António; Gonzalez-Perez, Javier; JM, González-Méijome. II Reunión de la Sociedad Gallega de Optometría Clínica, Santiago de Compostela, Espanha, 2013. OCV

Oral The influence of humidity, temperature, and oral contraceptive in tear, Sousa, Raul A. R. C; Ribeiro, Tânia L. C; Moreira, Sandra M. B; Baptista, António M. G, Trabalho apresentado em 8th Ibero American Optics Meeting/11th Latin American Meeting on Optics, Lasers, and Applications, In 8th Iberoamerican Optics Meeting and 11th Latin American Meeting on Optics, Lasers, and Applications, Porto, Portugal. Julho 2013. doi: 10.1117/12.2026166 OCV

Oral The macular photostress test in diabetes, glaucoma, and cataract, Baptista, António M. G; Sousa, Raul A. R. C; Rocha, Filomena A. S. Q; Fernandes, Paula S; Macedo, António F, Trabalho apresentado em 8th Ibero American Optics Meeting/11th Latin American Meeting on Optics, Lasers, and Applications, In 8th Iberoamerican Optics Meeting and 11th Latin American Meeting on Optics, Lasers, and Applications, Porto, Portugal. Julho 2013. doi: 10.1117/12.2026235 OCV

ORAL Visual effects of real light sources of arbitrary spectra on real objects and scenes S. M. C. Nascimento and O. Masuda, In: L. MacDonald, S. Westland, & S. Wuerger Eds. , AIC Colour 2013, 12th Congress of the International Colour Association, vol. 1 pp. 287-290 . Newcastle upon Tyne, UK, AIC International Colour Association. OCV

Poster An experiment based learning approach with primary school children; Cátia Abreu; Silvana Noversa; Paulo Varela; Manuel F. M. Costa; Light. Proceedings of the 12th International Conference on Education and Training in Optics and Photonics, Faculty of Sciences of the University of Porto, Portugal, July 23 to 26, 2013. OCV

Poster Effect of environmental conditions in contact lens dehydration and symptoms of cl wearers. Gonzalez-Garcia MJ, Martin-Montañez V, Lopez-Miguel A, Calonge M, Gonzalez-Mejome JM . 37th British Contact Lens Association BCLA Clinical Conference 2013. Manchester, UK. June 6-9, 2013. OCV

poster Reading speed, Macedo, AF. et al. EAQO 2013 in the International Reading Speed Texts by native Portuguese readers. Malaga, Spain. OCV

Poster A Science Activity Guided by Children at Pre-School Level: From a String to a Pendulum, Maria de Fátima Sá Machado, Marta Marques, Paulo Machado, Manuel F. M. Costa, Mário Almeida, Proceedings of the "10th International Conference on Hands-on Science. Educating for Science and through Science", Costa MF, Dorrão BV, Kires M, Eds. , ISBN 978-989-98032-2-0; 2013, 1st-5th July 2013; Pavol Jozef Šafárik University, Košice, Slovakia, pp 149-153 2013 OCV

Poster Alterações morfológicas maculares associadas ao estado refrativo analisadas através de tomografia de coerência ótica, N, Dias; JM, González-Méijome; Paulo, Fernandes; Queirós, António; Jorge, Jorge. CIOCV 2013 - Congresso Internacional Optometria e Ciências da Visão,Braga, 13-14 de Abril,2013 OCV

Poster Alterações papilares associadas ao erro refrativo analisado através de tomografia de coerência ótica, Santos, Luis; Queirós, António; JM, González-Méijome; Jorge, Jorge. CIOCV 2013 - Congresso Internacional Optometria e Ciências da Visão,Braga, 13-14 de Abril,2013. OCV



Poster An Example of Interdisciplinarity: Physics, Chemistry and Mathematics Merge with Biology and Geology in an Urban Field Trip, Lídia Guimarães, A. Mário Almeida, Ricardo Rodrigues dos Santos, Manuel F.M. Costa, Proceedings of the “10th International Conference on Hands-on Science. Educating for Science and through Science”, Costa MF, Dorrió BV, Kires M, Eds. , ISBN 978-989-98032-2-0; 2013, 1st-5th July 2013; Pavol Jozef Šafárik University, Košice, Slovakia, pp 319-320 2013 OCV, FMNC

Poster Analysis of the Process of Exploring a Physics Activity with Pre-School Children: The Balloon Rocket, Paulo Varela, Rita Pereira, Cristina Silva, Marta Fernandes, Manuel F.M. Costa, Proceedings of the “10th International Conference on Hands-on Science. Educating for Science and through Science”, Costa MF, Dorrió BV, Kires M, Eds. , ISBN 978-989-98032-2-0; 2013, 1st-5th July 2013; Pavol Jozef Šafárik University, Košice, Slovakia, pp 121-126 2013 . OCV

Poster Assessing the optical properties of the healthy and emmetropic eye with accommodation. Oliveira, Cristina M; Franco, Sandra. . In: VIII IBEROAMERICAN OPTICS MEETING & XI LATINAMERICAN MEETING ON OPTICS, LASERS, AND APPLICATIONS. , 2013. Porto. VIII Iberoamerican Optics Meeting & XI Latinamerican Meeting on Optics, Lasers, and Applications. Conference booklet2. 2013. OCV

POSTER Assessing the power of color in Amadeo's paintings AIC Colour 2013, Cristina Montagner, Sérgio M.C. Nascimento, João M.M. Linhares, Maria J. Melo, Marcia Vilarigues, Rita Macedo, 12th Congress of the International Colour Association. Newcastle upon Tyne, UK, AIC International Colour Association. OCV

Poster Assessment of lateral lower Tear meniscus height by image analysis software. Carlos Garcia-Resua, Hugo Pena-Verdeal, Madalena Lira,M. Elisabete Real Oliveira,Maria Jesus Giraldez, EvaYebra-Pimentel. Congresso Internacional de Optometria e Ciências da Visão, 13 -14 abril 2013. OCV

Poster Astigmatic peripheral defocus with different contact lenses. Queirós A, Jorge J, Lopes-Ferreira D, Faria-Ribeiro M, Peixoto-de-Matos SC, González-Méijome JM. 14th International Myopia Conference, Asilomar, CA, USA. August 20-21, 2013. OCV

Poster Astigmatic peripheral refraction patterns in orthokeratology for different myopic treatments. Queirós A, Faria-Ribeiro M, Lopes-Ferreira D, Fernandes P, González-Méijome JM. 37th British Contact Lens Association BCLA Clinical Conference 2013. Manchester, UK. June 6-9, 2013. OCV

Poster Biomechanical Changes Measured with Corvis ST and ORA Before and After Intra-corneal Ring Segment Implantation for Keratoconus: Case Reports. Salgado-Borges J, Peixoto-de-Matos SC, Dias L, Costa J, Neves H, Queiros A, Gonzalez-Mejome JM. EuCornea Meeting. Amsterdam-The Netherlands, 4-5 October 2013. OCV

Poster cientific Research Projects in Vocational Training Schools, Zita Esteves, Manuel F.M. Costa, S Proceedings of the “10th International Conference on Hands-on Science. Educating for Science and through Science”, Costa MF, Dorrió BV, Kires M, Eds. , ISBN 978-989-98032-2-0; 2013, 1st-5th July 2013; Pavol Jozef Šafárik University, Košice, Slovakia, pp 145-145 2013 OCV

Poster Clinical Performance of Three Different Multipurpose Solutions with a Silicone Hydrogel Contact Lens. González-Méijome JM, García-Porta N, Rico-del-Viejo L, González-Pérez J, Queirós A. American Academy of Optometry Meeting 2013. Seattle, USA, October 23-26, 2013. OCV



Poster Color vision assessment with different sunglasses Adriana Ribeiro, Ana Meira, Clara Cunha, Sabrina Oliveira, Madalena Lira, Eduarda Duque, Sergio Nascimento. Congresso Internacional de Optometria e Ciências da Visão, 13 -14 abril 2013 OCV

Poster Colour Rendering of images of Ishihara plates on uncalibrated colour screens, Joao Linhares, and Sérgio Nascimento 2013 , in Valérie Bonnardel, John Barbur, Marisa Rodríguez-Carmonaeds. , Proceedings of the 22nd Symposium of the International Colour Vision Society Winchester, UK OCV

POSTER Comparing the visual effects of real light sources on real complex scenes with their simulations on computer screens, Masuda, O. and Nascimento, S. M. C., 22nd Symposium of the International Colour Vision Society, Winchester, UK, Abstract book of ICVS 2013, 129, 2013. OCV

Poster Comparison between three methods to value lower tear meniscus measured by Image software, Carlos García-Resúa, Hugo Pena-Verdeal1, Madalena Lira, M. Elisabete C.D. Real Oliveira, María Jesús Giráldez, Eva Yebra-Pimentel, ETOP, 2013. OCV,FAMO

Poster Comparison between three methods to value lower tear meniscus measured by Image software. Carlos García-Resúa, Hugo Pena-Verdeal, Madalena Lira, M. Elisabete Real Oliveira, María Jesús Giráldez, Eva Yebra-Pimentel. RIAO/OPTILAS 2013, VIII Iberoamerican Conference on Optics, XI Latinamerican meeting on Optics, Lasers and Applications. Faculdade de Ciências da Uinversidade do Porto, Portugal, 22- 26 julho. OCV, FAMO

Poster Condições refrativas e parâmetros biométricos em crianças do ensino básico. Filipa, Correia; Conceição, Silva; Jorge, Jorge; JM, González-Méijome; Queirós, António. CIOCV 2013 - Congresso Internacional Optometria e Ciências da Visão, Braga, 13-14 de Abril,2013. OCV

Poster Correlation Between Objective and Subjective Measurements of Light Scattering and Light Distortion in Pseudophakic Eyes. Salgado-Borges J, Neves-Ferreira H, Dias L, Peixoto-de-Matos SC, Queiros A, González-Méijome JM. Meeting of the American Academy of Ophthalmology. New Orleans, USA. November 16-19, 2013. OCV

Poster Differences in on-axis and off-axis al/cr ratio in children and young adults. Jorge J, Queirós A, Pinho A, Lopes-Ferreira D, González-Méijome JM. 14th International Myopia Conference, Asilomar, CA, USA. August 20-21, 2013. OCV

Poster Effect of spherical aberration and luminance configuration in accommodative response in night myopia. Peixoto-de-Matos SC, Thibos LN, González-Méijome JM, López-Gil N. 14th International Myopia Conference, Asilomar, CA, USA. August 20-21, 2013. OCV

Poster Evaluation of optical properties of different types of contact lenses, Clara Pereira, Elisabete M. S. Castanheira, M. Elisabete C. D. Real Oliveira, Madalena Lira, International Conference of Optometry and Vision Science 2013 CIOCV'2013 , Braga Portugal , 13-14 April 2013; <http://hdl.handle.net/1822/24477> FAMO+OCV OCV, FAMO

Poster Hábitos de estudo e atividades ao ar livre numa população do ensino básico dos 6 aos 16 anos, Conceição, Silva; Filipa, Correia; Jorge, Jorge; Queirós, António; JM, González-Méijome. CIOCV 2013 - Congresso Internacional Optometria e Ciências da Visão, Braga, 13-14 de Abril,2013. OCV

Poster Influence of ambient smoke on tear parameters. Araújo, Rute; Miranda, António; Costa, Ricardo; Franco, Sandra; Lira, Madalena; Nascimento, Sergio M. C. In: CIOCV13 – CONGRESSO INTERNACIONAL DE OPTOMETRIA E CIÉNCIAS DA VISÃO, 2013. Braga. Proceedings of the CIOCV13. 2013. OCV



Poster Influence of power on central thickness and oxygen transmissibility of different contact lenses. Madalena Lira, Clara Pereira, M Elisabete C.D. Real Oliveira, Elisabete M. S. Castanheira. British Contact lens association. British Contact Lens Association BCLA , Manchester, 6-9 junho 2013. OCV, FAMO

Poster Influence of the thermo-oxidative degradation on the chemical structure of contact lenses. Madalena Lira, Carlos Alves, Gabriela Botelho. RIAO/OPTILAS 2013, VIII Iberoamerican Conference on Optics, XI Latinamerican meeting on Optics, Lasers and Applications. Faculdade de Ciências da Uninversidade do Porto, Portugal, 22- 26 julho. OCV

Poster Influence of thermo-oxidative degradation in the properties of contact lenses Carlos Alves, Madalena Lira, Gabriela Botelho.. Congresso Internacional de Optometria e Ciências da Visão, 13 -14 abril 2013. OCV

Poster Inter Observer and intraobserver repeatability of Lipid layer pattern evaluation by two experienced observers. Carlos García-Resúa, Hugo Pena-Verdeal, Madalena Lira, Manuel G Penedo, María Jesús Giráldez, Eva Yebra-Pimentel. RIAO/OPTILAS 2013, VIII Iberoamerican Conference on Optics, XI Latinamerican meeting on Optics, Lasers and Applications. Faculdade de Ciências da Uninversidade do Porto, Portugal, 22- 26 julho. OCV

Poster Interface-mediated order-parameter coupling in La_{0.7}Sr_{0.3}MnO₃ films on SrTiO₃, D.A. Mota, Y. Romaguera Barcelay, P. Mirzadeh Vaghafi, A. Almeida, J. Oliveira, A. M. R. Senos, P. de Sousa, C. M. Fernandes, P. B. Tavares, O. Santo, I. T. Gomes, P. Sá, L. Fernandes, J. Barbosa, B.G. Almeida, F. Figueiras, J. Pérez de la Cruz, J. R. A. Fernandes, J. Agostinho Moreira, NanoPT International Conference, Porto, 13-15 February, 2013 <http://hdl.handle.net/> OCV

Poster Intra-ocular pressure and biomechanical properties after different corneal surgical procedures with corvis ST and ORA. Almeida I, Ferreira C, Neves P, Gonzalez-Mejome JM, Salgado-Borges J. EuCornea Meeting. Amsterdam-The Netherlands, 4-5 October 2013. OCV

Poster Intraocular pressure measurement with Ocular Response Analyzer over soft contact lens . Sapkota, Kishor; Franco, Sandra; Lira, Madalena. In: CIOCV13 - CONGRESSO INTERNACIONAL DE OPTOMETRIA E CIÊNCIAS DA VISÃO, 2013. Braga. Proceedings of the CIOCV13. 2013. OCV

Poster Investigate the Shadows of Objects: A Pedagogical Intervention Project with Primary School Children, Silvana Noversa, Cádia Abreu, Paulo Varela, Manuel F.M. Costa, Proceedings of the "10th International Conference on Hands-on Science. Educating for Science and through Science", Costa MF, Dorrió BV, Kires M, Eds. , ISBN 978-989-98032-2-0; 2013, 1st-5th July 2013; Pavol Jozef Šafárik University, Košice, Slovakia, pp 115-120 2013 OCV

Poster Investigating shadows. A pedagogical intervention project with primary school children; Silvana Noversa; Cádia Abreu; Paulo Varela; Manuel F. M. Costa; Proceedings of the 12th International Conference on Education and Training in Optics and Photonics, Faculty of Sciences of the University of Porto, Portugal, July 23 to 26, 2013. OCV

Poster Is it Necessary a Force for an Object to Move?, Alcina Rito, Rui Vila-Chã, A. Mário Almeida, Manuel F.M. Costa, Proceedings of the "10th International Conference on Hands-on Science. Educating for Science and through Science", Costa MF, Dorrió BV, Kires M, Eds. , ISBN 978-989-98032-2-0; 2013, 1st-5th July 2013; Pavol Jozef Šafárik University, Košice, Slovakia, pp 320 2013 OCV, FMNC

Poster Light. An experiment based learning approach with primary school children; Cádia Abreu; Silvana Noversa; Paulo Varela; Manuel F. M. Costa; Proceedings of the 12th International Conference on Education and Training in Optics and Photonics, Faculty of Sciences of the University of Porto, Portugal, July 23 to 26, 2013. OCV



Poster Longitudinal variation in central and peripheral refractive error in children and young adults. Jorge J, Queirós A, Pinho A, Lopes-Ferreira D; González-Méijome JM. 14th International Myopia Conference, Asilomar, CA, USA. August 20-21, 2013. OCV

Poster Night myopia as a function of stimulus contrast. Peixoto-de-Matos SC, Thibos LN, Gonzalez-Mejome JM, Lopez-Gil N. European Academy of Optometry and Optics Meeting. Malaga-Spain. April 18-21, 2013. OCV

Poster Non-invasive topographic inspection of wood artwork, Manuel F. M. Costa, in 8th Iberoamerican Optics Meeting and 11th Latin American Meeting on Optics, Lasers, and Applications, edited by Manuel Filipe P. C. Martins Costa, Proceedings of SPIE Vol. 8785 SPIE, Bellingham, WA, 2013 , 8785A5 November 18, 2013 ; doi:10.1117/12.2028080;http://dx.doi.org/10.1117/12.2028080OCV

Poster Optometry in Portugal: in the route of success, Baptista, António M. G; Barros, Daniela B; Carvalho, Ana S; Sousa, Raul A. R. C; Macedo, António F. Malaga 2013,Malaga,2013 OCV

Poster Peripheral optical quality with two different multifocal contact lenses in myopic eyes. Lopes-Ferreira D, Jorge, Jorge; S., Peixoto-de-Matos; Faria-Ribeiro, Miguel; Queirós, António; JM, González-Méijome. Annual Meeting of the American Academy of Optometry. Seattle, EUA. October 24-27, 2013. OCV

Poster Peripheral refraction with eye and head rotation with multifocal contact lenses. Lopes-Ferreira D, Neves, Helena; Faria-Ribeiro, Miguel; Queirós, António; Paulo, Fernandes; JM, González-Méijome. Annual Meeting of the American Academy of Optometry. Seattle, EUA. October 24-27, 2013. OCV

Poster Pilot study on the clinical performance of three different multipurpose solutions with a silicone hydrogel contact lens. García-Porta N. Rico-del-Viejo L, Lopes-Ferreira D, Neves H, González-Méijome JM. 37th British Contact Lens Association BCLA Clinical Conference 2013. Manchester, UK. June 6-9, 2013. OCV

Poster Refração periférica através de rotação do olho e da cabeça com lentes de contacto, Lopes-Ferreira, Daniela; Neves, Helena; Faria-Ribeiro, Miguel; Queirós, António; Paulo, Fernandes; JM, González-Méijome. CIOCV 2013 - Congresso Internacional Optometria e Ciências da Visão,Braga, 13-14 de Abril,2013. OCV

Poster Relationship Between Interferencial Lipid Layer Patterns AndTear Break-Up Time. Carlos Garcia-Resua, Hugo Pena-Verdeal, Madalena Lira,Beatrix Remeseiro, MariaJesus Giraldez, Eva Yebra-Pimentel. Congresso Internacional de Optometria e Ciências da Visão, 13 -14 abril 2013 OCV

Poster Rendering Ishihara color plates on a computer screen using hyperspectral images: will the scores be the same as the traditional paper test?, Joao Linhares and Sergio Nascimento 2013 , Journal of Vision 139 : 1024, Vision Sciences Society - Florida, USA . OCV

Poster Scientific Research Projects in Vocational Training Schools, Zita Esteves, Manuel F.M. Costa, Proceedings of the "10th International Conference on Hands-on Science. Educating for Science and through Science", Costa MF, Dorrió BV, Kires M, (Eds.), ISBN 978-989-98032-2-0; 2013, 1st-5th July 2013; Pavol Jozef Šafárik University, Košice, Slovakia, pp 145-145 (2013) OCV

Poster Short-term corneal changes with gas-permeable contact lens wear in keratoconus subjects: a comparison of two fitting approaches. Romero-Jiménez M, Santodomingo-Rubido J, González-Mejome JM. 37th British Contact Lens Association BCLA Clinical Conference 2013. Manchester, UK. June 6-9, 2013. OCV



Poster Statistical Analysis on three Hands-on Science National Science Fairs in Portugal, Zita Esteves, Manuel F.M. Costa, Proceedings of the “10th International Conference on Hands-on Science. Educating for Science and through Science”, Costa MF, Dorrio BV, Kires M, Eds. , ISBN 978-989-98032-2-0; 2013, 1st-5th July 2013; Pavol Jozef Šafárik University, Košice, Slovakia, pp 196-201 2013 OCV

Poster Supplementary reading spectacles during adaptation period to multifocal contact lenses in presbyopes Neves H, Lopes-Ferreira D, Isla-Paradelo L, Jorge J, González-Méijome JM. 37th British Contact Lens Association BCLA Clinical Conference 2013. Manchester, UK. June 6-9, 2013. OCV

Poster Teaching Optical Dimensional Metrology of Surfaces and International Standards;Manuel F. M. Costa; 12th International Conference on Education and Training in Optics and Photonics, Faculty of Sciences of the University of Porto, Portugal, July 23 to 26, 2013. OCV

Poster Total and corneal wavefront aberrations during orthokeratology. Queirós A, Jorge J, Fernandes P, Neves H, González-Méijome JM. 14th International Myopia Conference, Asilomar, CA, USA. August 20-21, 2013. OCV

Poster Use of ORA to assess mechanical properties of soft contact lenses: a pilot study. Sapkota, Kishor; Lira, Madalena; Franco, Sandra. In: CIOCV13 - CONGRESSO INTERNACIONAL DE OPTOMETRIA E CIÊNCIAS DA VISÃO, 2013. Braga. Proceedings of the CIOCV13. 2013. OCV

Poster Use of ORA to assess mechanical properties of soft contact lenses: a pilot study.Kishor Sapkota, Madalena Lira, Sandra Franco. Congresso Internacional de Optometria e Ciências da Visão, 13 -14 abril 2013. OCV

National

Oral Caracterização de parâmetros optométricos em indivíduos portadores de deficiência/atraso mental, Oliveira, Filipa A. D; Baptista, António M. G.,IX Conferências Abertas de Optometria,Coimbra,2013 OCV

oral Percepção de condutas aceitáveis na Universidade. Marques,D.N.; Macedo, A.F. IX conferências abertas de Optometria, Coimbra, 17 Nov 13 OCV

6.7.7. Future Research

To develop biomarkers to quantify the effects of optical devices in vision

To develop systems for automatic assessment in real time of relevant eye parameters

To develop methodologies to improve visual skills in elite athletes

To develop of techniques to enhancing color discrimination of color deficient observers

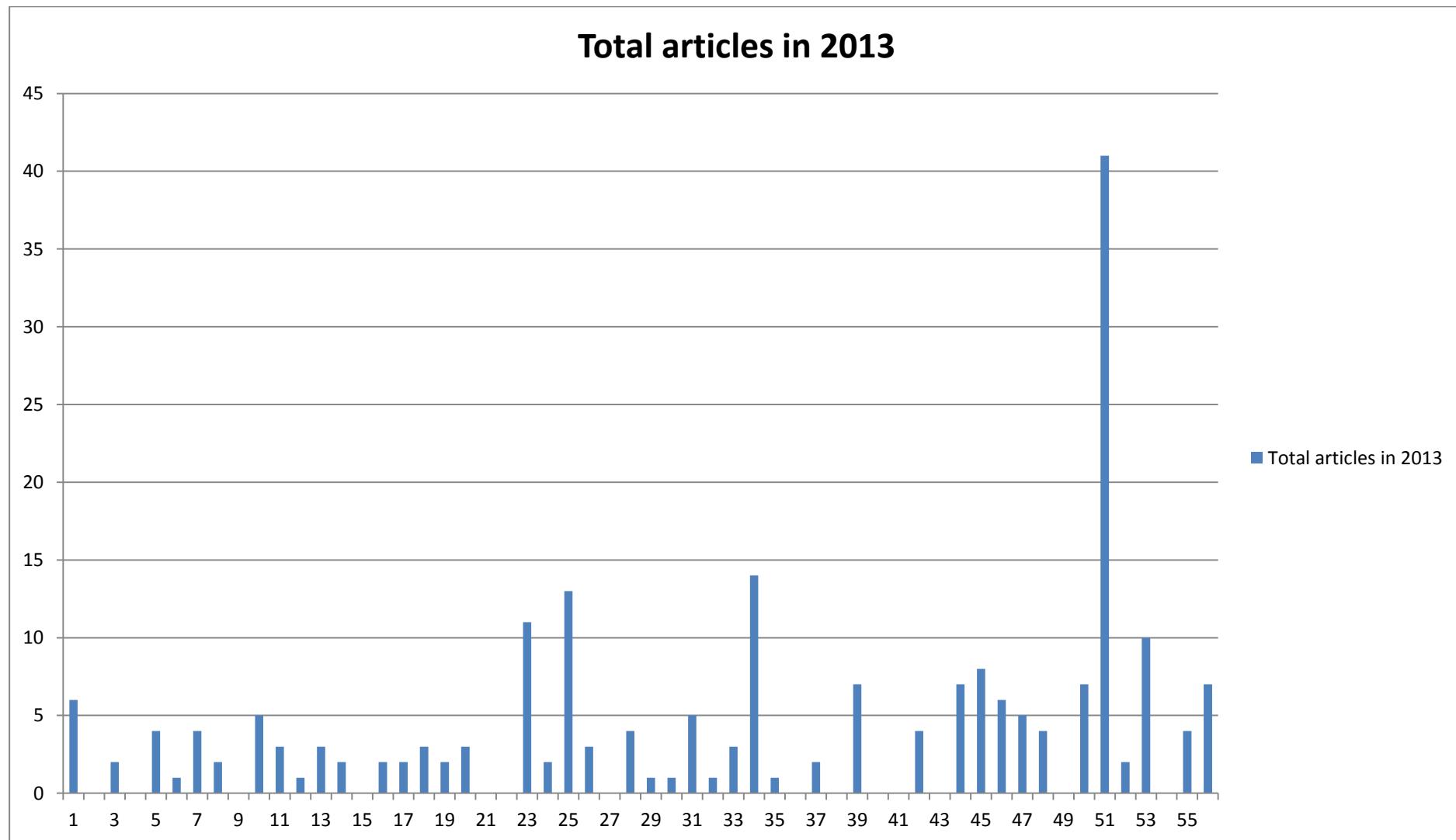


7. Financial Report

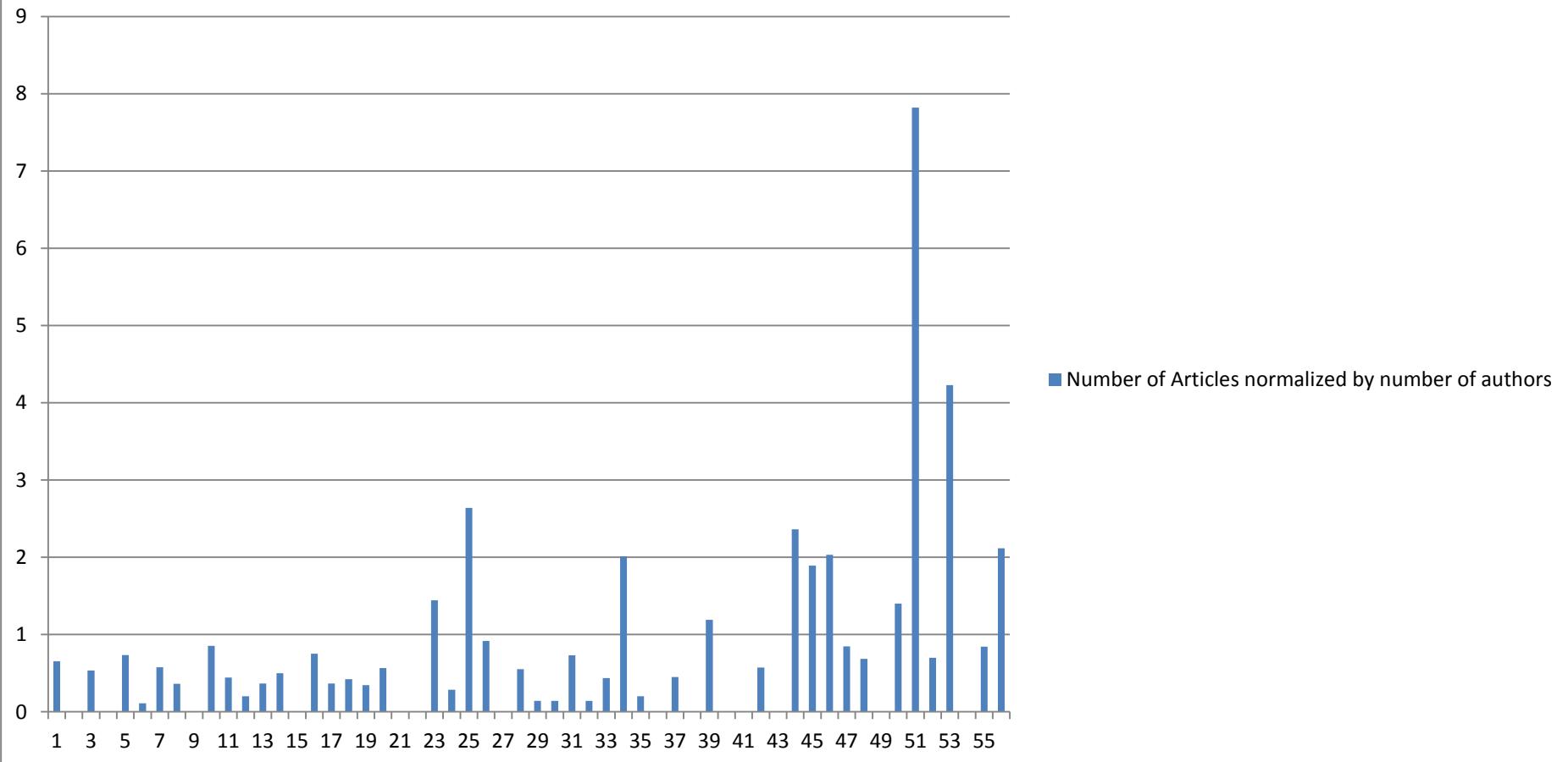
Categories	Groups									
	CD	FAMO	FCD	FCT	FMNC	GCEP	GRF	OCV	Total	
Endowment										
Human resources	16383,16€	1186,73€	4517,33€	_____	1645€	3127,33€	_____	_____	26859,55€	
Acquisition and Maintenance Services	12000,73€	10584,27€	5098,20€	_____	8795,78€	177,12€	5789,87€	1059,19€	43505,76€	
Missions	248,64€	1801,02€	_____	_____	733,79€	4132,90€	5781,12€	5335,99€	18034,26€	
Consultants	232,50€	_____	_____	_____	_____	1723,53€	_____	_____	1956,03€	
General expenses	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Patents	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Buildings adaptation	14619€	_____	_____	_____	_____	_____	_____	_____	14618€	
Total - Current expenditures										
Equipment	5000€	865€	_____	6573,38€	_____	_____	6342,12€	_____	18780,50€	
Total	48483,63€	14437,02€	9615,53€	6573,38€	11174,57€	9160,88€	17913,91€	6395,18€	123754,10€	



8. Annex



Number of Articles normalized by number of authors





Centre of Physics
Activity report 2013