

Activity report
Centre of Physics

December 2015



Centre of Physics
Activity report 2015

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1. Introduction

The Physics Centre of Minho University (CFUM) is a research unit with a multi-disciplinary scientific activity in the fields of Pure and Applied Physics and adjacent areas. It involves both theoretical and experimental research as well as development for applications, and concerns four major scientific areas: (1) Condensed Matter Physics, (2) Nanomaterials and Applications, (3) Molecular Physics and Biophysics, and (4) Optics and Vision Sciences. The CFUM is also committed to advanced training of students at the Graduation, Master, and Ph.D. levels (see "Scientific Training"). In addition, CFUM members conduct outreach activities (beyond the walls of the University) aimed at promoting the scientific knowledge acquired within the Centre. Finally, the members of the Centre are involved in a range of industrial collaborations, both at the national and international levels. In the Centre one can find 32 research laboratories (see "Facilities and Infrastructure"), located in both Gualtar and Azurém campi.

The CFUM is organized in several research groups (six in 2015), 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 "Investigador FCT" (FCT researcher) program, Post-Docs, PhD students enrolled at the School of Sciences, and research students with short-term grants (see "Summary characterization of the Centre" and group's sections for detailed information). Each group has a coordinator, who is responsible for certain research facilities and handles, when available, some part of the Centre's basic funding provided by the Portuguese Foundation for Science and Technology (FCT). The scientific activity is performed along a number of strategic research lines of the Centre, which are described below.

CFUM's managing bodies are: (i) Director, elected among the Full or Associate Professors of the Physics Department, every three years direct election, (ii) Deputy Director (appointed by the Director), (iii) Executive Committee, composed by the Director and the coordinators of the research groups, (iv) Scientific Council, composed by all effective members holding a PhD, and (v) Steering Committee, an advisory board constituted by internationally recognized scientists that help to evaluate and improve the Centre activities. Currently, the composition of the Steering Committee is: 1.) Prof. Sir Konstantin Novoselov, School of Physics & Astronomy, University of Manchester, Manchester, United Kingdom. 2.) Prof. David Foster, School of Electrical and Electronic Engineering, University of Manchester, Manchester, United Kingdom. 3.) Prof Antti-Pekka Jauho, Department of Micro- and Nanotechnology, Technical University of Denmark, Denmark. 4.) Prof Emeritus David Barber, Physics Centre, University of Essex, United Kingdom.

Technical support is provided by the personnel of the Department of Physics: one specialized engineer supporting film deposition facilities, one electronics technician, and three general technicians in Gualtar plus two general technicians in Azurém. Administrative support is provided by one experienced collaborator (personnel of the School of Sciences). In addition, the CFUM itself contracts an additional collaborator who provides administrative support to several projects in course and to activities aimed at attracting external funds.

The scientific production of the CFUM in 2015 showed a slight increase as compared to 2014 (12 more papers; see "Indicators of the Centre Performance"). This is in spite of having no strategic funding from FCT since the evaluation of the Centre is not yet concluded. The CFUM average impact factor (IF) of this year publications is slightly above 2.67, slightly larger than of 2014 (IF=2.5). During this year 22 scientific projects were associated with the Centre of Physics (17 FCT/FP7/ADI, 2 Bilateral e 3 collaborations). The number of Master Thesis ongoing at ECUM is 65 and those concluded during 2015 is 33; for Ph.D. thesis we find 26 ongoing theses and 2 concluded. We note that the total number of thesis (both Master and Ph.D.) is larger than those reported above, but the remaining ones are associated with other Schools, such as the School of Engineering.

Due to lack of funding from FCT, it was not possible to maintain the outreach activity termed "Physics Colloquium", as well as, it was not possible maintain the annual visit of the Steering Committee. Is seen with great concern the lack of strategic funding by FCT. In a Centre where the research activity is mainly experimental, the strategic funding allows to maintain the experimental infrastructure running and to support basic research activities. In a situation where the national rate of success of FCT projects is quite low, the strategic funding emerges as a fundamental resource to the Centre's research activities. Nevertheless, in the last FCT call the rate of success within the Centre was approximately equal to national average, which is considered a good result.



2. Summary characterization of the Centre

Unit designation: Physics Centre of the University of Minho

Period of activity: Year of 2015

Researchers of UM Centre of Physics

Members	Number
Effective Members with Ph.D	53
Associate Members (all with Ph.D)	4
Post-Docs and Research Fellows with PhD	21
Ph. D Students (enrolled at ECUM/ total)	28/52

3. Organization

3.1. Management Entities

Director: Nuno Peres

Deputy Director: Sergio Nascimento

Executive Committee Members:

1. Jorge Jorge
2. Luis Rebouta
3. Maria Elisabete C.D. Real Oliveira
4. Bernardo Gonçalves Almeida
5. Ricardo Ribeiro
6. 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. Diego Martinez
10. Eduardo Jorge Nunes Pereira
11. Elisabete Maria Santos Castanheira Coutinho
12. Etelvina de Matos Gomes
13. Filipe Macedo
14. Francisco José Machado Macedo
15. Gueorgui Smirnov
16. João Linhares



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

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. Li-Jian Meng (Polytecnic Institute, Porto)
4. Vasco Almeida (UBI)



Post-Doctorate Researchers and Research Fellows

1. Antonio Francesko
2. Armando Ferreira
3. Bachu Rama Raju
4. Carlos Costa
5. Catarina Lopes (until May)
6. Clarisse Ribeiro
7. Fabricio Faita
8. Isabel Carvalho
9. João Pereira
10. João Viana Lopes (until June)
11. José Pedro Basto da Silva
12. Joel Borges
13. Kamakshi Koppole (until October)
14. Koppole Sekhar (until October)
15. Paulo Rodrigues
16. Pedro Costa
17. Pedro Martins
18. Rosa Batista
19. Vanessa Cardoso
20. Vitor Correia
21. Yuliy Bludov

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)	Maria Elisabete C.D. Real Oliveira
Group of Cooperative Phenomena in Dielectrics (FCD)	Bernardo Gonçalves Almeida
Group of Physics of Nano Crystalline Materials (FMNC)	Mário António C. de Castro Pereira
Functional Coatings Group (GRF)	Luis Rebouta
Complexity and Electronic Properties Group (GCEP)	Ricardo Ribeiro
Group of Optometry and Vision Science (OCV)	Jorge Jorge

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



Fluorescence Lifetime - 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/G RF	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	Martin Andritschky
Functional Coatings II – Azurém	GRF	Luis Rebouta
Functional Coatings III – Azurém	GRF	Luis Cunha
Electromechanical properties of materials – Azurém	GRF	Senen Lanceros-Mendez
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

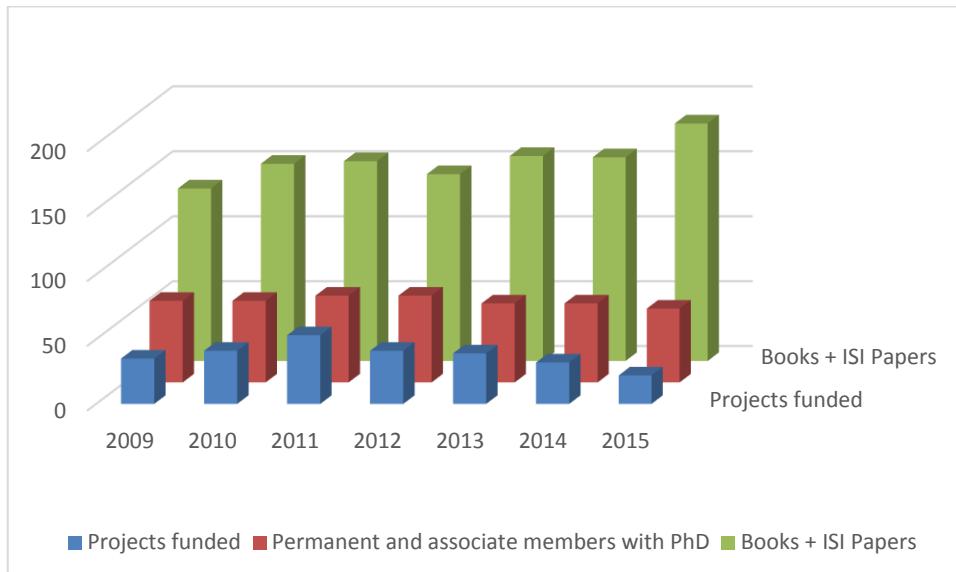
5.1. Publications

The following table presents data on the scientific production of the Center of Physics in 2015:

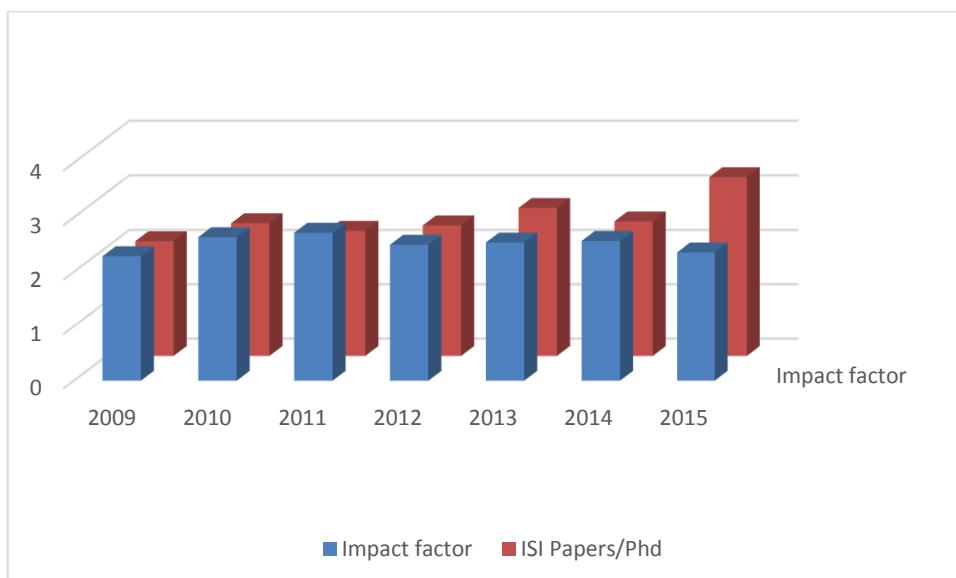
Publications	Number
ISI papers (regular journal articles/conference journal articles)	174/26
Book/chapters	5/4
Patents (national /international)	6/1



The following figures show comparative data on the number of researchers (PhD) and scientific production since 2009.



Graf. 1: Scientific production in 2016



Graf. 2: Relation between the impact factor and the number of Articles pruduced in 2016

CFUM H-Index - According to Web of Science (ISI)

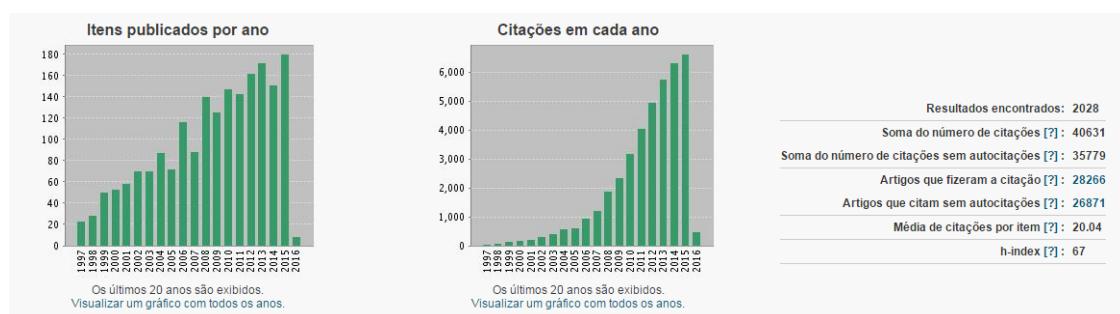


Image 1: CFUM H-Index in 2016

ISI Articles co-authored by CFUM member in 2015

Author	Nº Articles in 2015
49. Senen Lanceros-Méndez	59
23. José Manuel González-Mejome	16
21. José Filipe Vilela Vaz	15
31. Maria de Fátima Guimarães Cerqueira	12
48. Sandra Maria Fernandes Carvalho	12
43. Mikhail Vasilevskiy	10
44. Nuno Miguel Machado Reis Peres	10
5. António Queirós	8
11. Elisabete Maria Santos Castanheira Coutinho	6
17. João Pedro dos Santos Hall de Agorreta de Alpuim	7
26. Luís António Carvalho Gachineiro da Cunha	7
8. Carlos José de Macedo Tavares	7
32. Maria de Jesus Matos Gomes	6
15. Gueorgui Smirnov	4
33. Maria Elisabete da Cunha Dias Real Oliveira	4
51. Stanislav Ferdov	4
14. Francisco José Machado Macedo	3
35. Maria Madalena da Cunha Faria de Lira	3
6. Bernardo Gonçalves Almeida	3
13. Filipe Macedo	2
24. José Manuel Pereira Carmelo	2
27. Luís Manuel Fernandes Rebouta	2
29. Luís Silvino Alves Marques	2
41. Martin Andritschky	2
42. Michael Scott Belsley	2
47. Sandra Maria de Braga Franco	2
50. Sérgio Miguel Cardoso Nascimento	2
53. Vasco Manuel Pinto Teixeira	2
7. Cacilda Maria Lima de Moura	2
1. Anabela Gomes Rolo	1
18. Joaquim Alexandre Carneiro	1



19. Jorge Manuel Martins Jorge	1
25. Júlia Maria Simões Dias Barata Tovar Ayres Campos	1
36. Maria Teresa Pitta de Lacerda-Arôso	1
37. Mário António Caixeiro de Castro Pereira	1
38. Marlene Lucio	1
39. Mário Rui da Cunha Pereira	1
4. António Mário Lourenço da Fonseca Almeida	1
45. Paulo José Gomes Coutinho	1
46. Ricardo Mendes Ribeiro	1
52. Teresa Maria dos Santos Ribeiro Viseu	1
9. Diego Martinez	1
10. Eduardo Jorge Nunes Pereira	0
12. Etelvina de Matos Gomes	0
16. João Linhares	0
2. Ana Pinho	0
20. José Alberto Diaz Rey	0
22. José Luís Pires Ribeiro	0
28. Luís Manuel Gomes Vieira	0
3. António Manuel Gonçalves Baptista	0
30. Manuel Filipe Pereira Cunha Martins Costa	0
34. Maria José Sampaio	0
40. Marta Maria Duarte Ramos	0

Chart 1: ISI Articles co-authored by CFUM member in 2015

5.2. Seminars organized by the Centre

5.2.1. Colloquia

Organizing Committee in the 1st semester:
Bernardo Almeida
Paulo Coutinho
João Linhares

Titles and Speakers:

January 28th

UNRAVELING THE ROLE OF SURFACTANTS AS DISPERSANTS OF CARBON NANOTUBES
Eduardo Marques - Departamento de Química e Bioquímica, Universidade do Porto

February 25th

NANOTHERMOMETRY WITH OPTICALLY-ACTIVECENTERS
Luís Carlos - Departamento de Física, Universidade de Aveiro

March 25th

OPTOMETRIA E CIÊNCIAS DA VISÃO: PARA LÁ DO TRABALHO EM ÓPTICA.
Round table – Local optometrists



April 29th

NANOCOISAS - A MANIPULAÇÃO À ESCALA ATÓMICA.

João Pedro Araújo - Departamento De Física, Universidade Do Porto

May 27th

ELECTRÓNICA ORGÂNICA: CONCRETIZAÇÕES E PERSPECTIVAS NA VISÃO DE UM QUÍMICO-FÍSICO.

Jorge Morgado - Instituto De Telecomunicações, Instituto Superior Técnico

June 24th

SOLAR SELECTIVE ABSORBER COATINGS FOR HIGH TEMPERATURE APPLICATIONS

Luís Rebouta - Departamento De Física, Universidade Do Minho

5.2.2. Physics Seminars

Coordinator in 2015: Yuliy Bludov

Titles and speakers:

January 16th

From wrinkly elastomers to Janus particles to Janus fibres

P. I. C. Teixeira

February 13th

Dynamics of a quantum dot influenced by surface plasmons

Ivan Larkin

October 21st

Langmuir monolayers as interesting model systems to solve problems in biophysics and material sciences

Gerald Brezesinski

5.2.3. Annual Workshop “Jornadas” of the Centre of Physics

Developing Science and Shaping Technology: Young researchers at CFUM

Organization:

CFUM Ph-D students

Bruno Amorim

Rita Rodrigues

Hugo Gonçalves

Daniela Correia

Marco Silva

Sebastian Calderon Velasco

Miguel Ribeiro

César Rui Bernardo

Kishor Sapkota

Cláudia de Jesus Ribeiro



5.3. Scientific Training

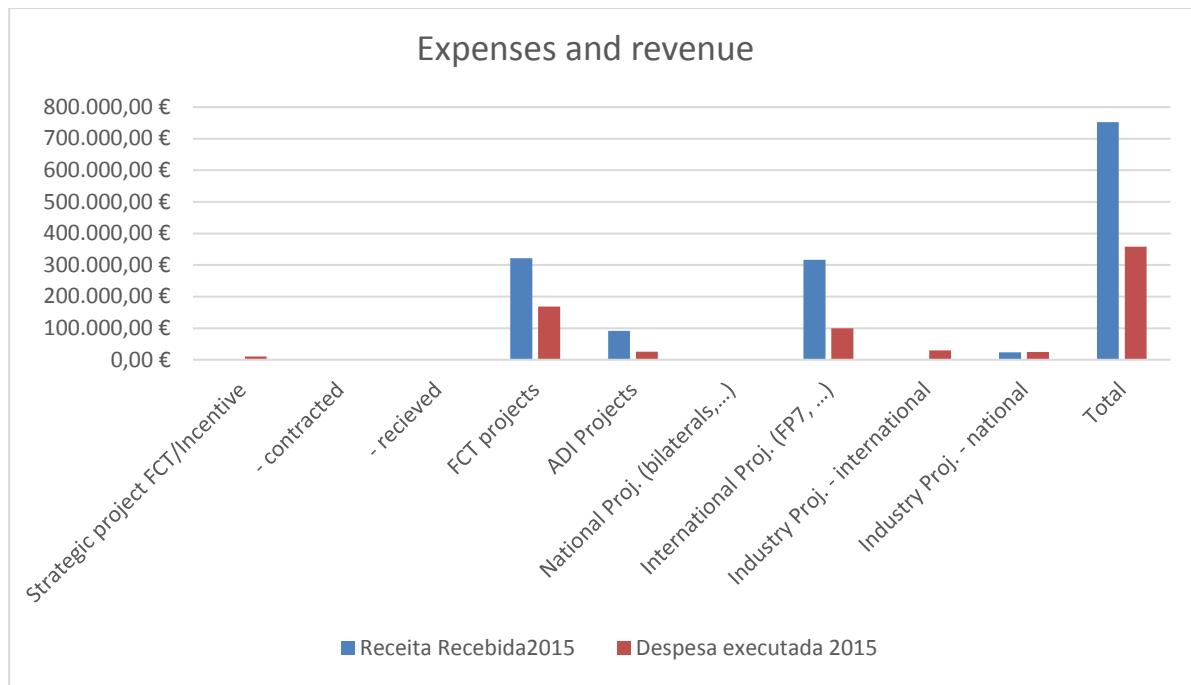
The following table presents the number of individual projects conducted at the Center of Physics, lead to the achievement of evidence the Masters and Ph.D.:

MASTERS THESES (ENROLLED ECUM/TOTAL)	AT	ONGOING (65/75) COMPLETED (33/46)
PH.D. THESES (ENROLLED ECUM/TOTAL)	AT	ONGOING (26/44) COMPLETED (2/8)

5.4. Funding

	Funding assigned in 2015	Funding received in 2015	Funding executed in 2015	Nº of ongoing projects
Strategic project FCT/Incentive	50.308,00€ / 0,00€	0,00€ / 0,00€	1.0629,09€	2
FCT projects	240.461,83 €	321.568,56 €	168.339,92 €	13
ADI Projects	93.504,00 €	91.800,20 €	25.073,34 €	2
National Proj. (bilaterals,...)	0,00 €	0,00 €	0,00 €	2
International Proj. (FP7, ...)	326.315,20 €	315.983,20 €	99.322,56 €	3
Industry Proj. - international	23.995,00 €	0,00 €	30.000,00 €	4
Industry Proj. - national	4.920,00 €	23.012,93 €	24.279,21 €	2
Total	739.504,03 €	752.364,89 €	357.644,12 €	28





Graf. 3: Expenses and revenues in 2016



5.5. Scientific Production Indicators by group in 2015

	FAMO	FCD	FMNC	GRF	GCEP	OCV	TOTAL
Nº Effective Members with Ph.D.	9	5	3	14	10	12	53
Nº Associate Members	0	1	0	1	0	2	4
Nº Post-Docs (total in 2015 / as on 31.12.2015)	2 2	9 8	4 1	3 3	2 1	1 1	21 16
Book/ Book Chapters	0/0	0/0	1/1	4/0	0/0	0/3	5/4
Regular articles published in ISI Journals	$10^{5/6}$	57	$6^{1/2}$	$42^{5/6}$	$34^{1/3}$	$22^{1/2}$	174
Average Impact factor	3.14	3,03	2,51	2,38	3,59	1,36	2,67
Conference Proceedings	2	3	2	$3^{1/2}$	$2^{1/2}$	12	25
Invited Talks in Scientific Conferences	1	0	0	9	8	31	49
PhD Theses terminated (enrolled at ECUM / total)	1 1	0 2	1 1	0 1	0 0	0 3	2 8
PhD Theses in progress (enrolled at ECUM / total)	5 6	2 8	2 2	6 14	3 5	8 9	26 44
Externally funded projects (FP7, FCT, ADI) *	2	1	0	7	6	2	18
Bilateral Cooperation Projects	1	0	0	1	0	0	2
Collaboration Projects with Industry	0	1	0	1	0	5	7
Patents (national/international)	4 0	2 0	0 0	0 1	0 0	0 0	6 1

Chart 2: Scientific Production Indicators by group in 2015

- PE and Incentiv not included



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 2015

During the year of 2015 the FAMO Group members were author/co-author of 15 ISI e/ou SCOPUS papers), 28 communications presented in International Congresses (15 orals, 9 Posters and 4 Proceedings), 11 in National Congresses (3 orals and 8 Posters), 4 Patents (submitted) and 2 scientific Prizes. Organized the 6th Iberic Congress in Colloids ans Interfaces (RICI6) with 120 participants in July 2015.

6.1.2. Updated composition of the group

Principal investigator	Maria Elisabete C.D. Real Oliveira
Research area	Photophysics, Photochemistry, Biophysics, Nanomaterials
Group Members	<p><u>Effective members:</u></p> <p>Eduardo J. Nunes Pereira - Assistant Professor Elisabete M. S. Castanheira Coutinho - Assistant Professor Mário Rui C. Pereira - Assistant Professor Paulo J. G. Coutinho - Assistant Professor Maria Teresa R. Viseu - Assistant Professor Julia B. Tovar Ayres de Campos - Assistant Professor Maria Elisabete CD Real Oliveira - Associate Professor with Habilitation Michael Scott Belsley - Associate Professor with Habilitation Marlene S. D. Lúcio – FCT Researcher and Invited Associate Professor</p> <p><u>Post Doctoral Researchers and Research Fellows with Ph.D.</u></p> <p>Bachu Rama Raju - post-doc FCT Rosa Maria Ferreira Batista - post-doc FCT</p> <p><u>PhD and other research students :</u></p> <p>-Ana Rita O. Rodrigues, MAP-Fis PhD student -Sara F. R. Pimenta, Biomedical Eng. PhD student (30% CFUM) -Hugo Gonçalves, PhD student -César Bernardo, PhD student</p>



6.1.3. Scientific Production

6.1.3.1. Regular articles published in ISI Journals

Dehydrodipeptide hydrogels containing Naproxen N-capped Tryptophan: self-assembly, hydrogel characterisation and evaluation as potential drug nanocarriers, H. Vilaça, A. Hortelão, E. M. S. Castanheira, M.-J. R. P. Queiroz, L. Hilliou, I. Hamley, J. A. Martins, P. M. T. Ferreira, Biomacromolecules 16 (2015) 3562-3573; <http://dx.doi.org/10.1021/acs.biomac.5b01006> (ISI/Scopus) Grupos envolvidos. (FAMO) (CFUM; CQUM; IPC).

Design and fabrication of SiO₂/TiO₂ and MgO/TiO₂ based high selective optical filters for diffuse reflectance and fluorescence signals extraction, S. Pimenta, S. Cardoso, A. Miranda, P. De Beule, E. M. S. Castanheira, G. Minas, Biomedical Optics Express 6 (2015) 3084-3098; <http://dx.doi.org/10.1364/BOE.6.003084> (ISI/Scopus) Grupos envolvidos. (FAMO) (CFUM; CMEMS-EEUM).

DODAB:monoolein liposomes containing Candida albicans cell wall surface proteins: A novel adjuvant and delivery system, Carneiro, C., Correia, A., Collins, T., Vilanova, M., Pais, C., Gomes, A.C., Real Oliveira, M.E.C.D., Sampaio, P., European Journal of Pharmaceutics and Biopharmaceutics, 89 (2015) 190-200 <http://dx.doi.org/10.1016/j.ejpb.2014.11.028> (ISI/Scopus) Grupos envolvidos. (FAMO) (CFUM, CBMA, FFUP, FMUP).

Low f-Number Microlenses for Integration on Optical Microsystems , Rocha, Rui Pedro, Belsley, Michael, Correia, Jose Higino e Carmo, Joao Paulo IEEE SENSORS JOURNAL 15(7) 4073-4075 (2015) DOI: 10.1109/JSEN.2014.2385476 listado em ISI e SCOPUS Grupos envolvidos FAMO (CFUM)

Monoolein-based nanovectores for enhanced folate-mediated RNA delivery into cancer cells, Ivo Lopes, Ana C.N. liveira, Marisa P. Sárria, João P. Neves Silva, Odete Gonçalves, Andreia C. Gomes and M. Elisabete C.D. Real Oliveira, Journal of Liposome Research (2015) 1-12; <http://dx.doi.org/10.3109/08982104.2015.1076463> (ISI/Scopus) Grupos envolvidos. (FAMO) (CFUM, CBMA).

New self-assembled supramolecular hydrogels based on dehydropeptides, H. Vilaça, G. Pereira, T. G. Castro, B. F. Hermenegildo, J. Shi, T. Q. Faria, N. Micaêlo, R. M. M. Brito, B. Xu, E. M. S. Castanheira, J. A. Martins, P. M. T. Ferreira, Journal of Materials Chemistry B 3 (2015) 6355-6367; <http://dx.doi.org/10.1039/C5TB00501A> (ISI/Scopus) Grupos envolvidos. (FAMO) (CFUM; CQUM).

Optical Microsystem for Analysis of Diffuse Reflectance and Fluorescence Signals Applied to Early Gastrointestinal Cancer Detection, Sara Pimenta, Elisabete M. S. Castanheira, Graça Minas, Sensors 15 (2015) 3138-3153; <http://dx.doi.org/10.3390/s150203138> (ISI) Grupos envolvidos. (FAMO) (CFUM; CMEMS-EEUM).

Stealth monoolein-based nanocarriers for delivery of siRNA to cancer cells, Ana C Oliveira; Koen Raemdonck; Thomas F Martens; Koen Rombouts; Rosana Simón-Vázquez; Cláudia Botelho; Ivo Lopes; Marlene Lúcio; África González-Fernández; Maria Elisabete CD Real Oliveira; Andreia C Gomes, Kevin Braeckmans, Acta Biomaterialia, 25 (2015) 216-229, <http://dx.doi.org/10.1016/j.actbio.2015.07.032> (ISI/Scopus) Grupos envolvidos. (FAMO) (CFUM, CBMA).

Yarn features extraction using image processing and computer vision - A study with cotton and polyester yarns, Goncalves, Nuno; Carvalho, Vitor; Belsley, Michael; Vasconcelos, Rosa M; Soares, Filomena O e Machado, Jose MEASUREMENT 68, 1-15 (2015) DOI: 10.1016/j.measurement.2015.02.010 listado em ISI e SCOPUS Grupos envolvidos (FAMO (CFUM)

Importance of contact lens power and thickness in oxygen transmissibility, Madalena Lira, Clara Pereira, M. Elisabete C. D. Real Oliveira, Elisabete M. S. Castanheira, Contact Lens & Anterior Eye 38 (2015) 120-126; <http://dx.doi.org/10.1016/j.clae.2014.12.002> (ISI/Scopus) Grupos envolvidos. (FAMO; OCV) (CFUM).

Effect of acid or alkaline catalyst and of different capping agents on the optical properties of CdS nanoparticles incorporated within a diureasil hybrid matrix, Luis F. F. F. Gonçalves · Carlos J.R. Silva · Fehmida K. Kanodarwala · John A. Stride · Mario R. Pereira, Optical Materials 11/2015; 49:171. DOI:10.1016/j.optmat.2015.09.007. Grupos envolvidos. FAMO, GRF (CFUM)

Magnetic liposomes based on nickel ferrite nanoparticles for biomedical applications", A.R.O. Rodrigues, I.T. Gomes, B.G. Almeida, J.P. Araújo, E.M.S. Castanheira, P.J.G. Coutinho, Phys.Chem.Chem.Phys., 17, 18011 (2015) , ISI/SCOPUS , FAMO, FCD, CFUM, IFIMUP-U. Porto



Raman study of insulating and conductive ZnO:(Al, Mn) thin films, Phys. M. F. Cerqueira, T. Viseu, J. Ayres de Campos, A. G. Rolo, T. de Lacerda-Aroso, F. Oliveira, I. Bogdanovic-Radovic, E. Alves, and M. I. Vasilevskiy, Physica Status Solidi A: Applications and Materials Science 212 (2015), p. 2345 – 2354, <http://hdl.handle.net/1822/37624.>, ISI, GCEP, FAMO, GRF

Regular articles not yet included at the ISI database

Easy process to obtain suspended graphene flakes on TEM grids,Hugo Gonçalves, Joel Fernandes, Cacilda Moura, Peter Schellenberg, Michael Belsley, Luís Alves, Materials Research Express 2(5), 055602 (2015) Revista recente será indexada no ISI a partir de 2016 Grupos envolvidos FAMO, GRF (CFUM)

Polymeric Versus Lipid Nanoparticles: Comparative Study of Nanoparticulate Systems as Indomethacin Carriers, Ana Carvalho, Ivo Lopes, Odete Gonçalves, Eduarda Bárbara, M. Elisabete C.D. Real Oliveira and Marlene Lúcio, Journal of Applied Solution Chemistry and Modeling 4 (2015) 95-109. <http://dx.doi.org/10.6000/1929-5030.2015.04.02.2> Grupos envolvidos. (FAMO) (CFUM, CBMA).

6.1.3.2. Conference Proceedings

Benzo[a]phenoxazinium chlorides functionalized with chloride atoms and/or ester groups, M. Inês P. S. Leitão, B. Rama Raju, Maria João Sousa, Paulo J. G. Coutinho, M. Sameiro T. Gonçalves, Proceedings of the 19th Int. Electron. Conf. Synth. Org. Chem., November 2015; In: Sciforum Electronic Conference Series, Vol. 19, 2015, a006; <http://dx.doi.org/10.3390/ecsoc-19-a006>

New benzo[a]phenoxazines bearing the (4,6-dichloro-1,3,5-triazin-2-yl)amino group: synthesis and photophysical properties, B. Rama Raju, Joana F. C. Parente, Maria Inês P. S. Leitão, Paulo J. G. Coutinho, M. Sameiro T. Gonçalves, Proceedings of the 19th Int. Electron. Conf. Synth. Org. Chem., November 2015; In: Sciforum Electronic Conference Series, Vol. 19, 2015, a012; <http://dx.doi.org/10.3390/ecsoc-19-a012>

6.1.3.3. National Patents

Patent pending: Maria Elisabete Cunha Dias Real Oliveira e Andreia Gomes- Título: Um medicamento inovador de origem Portuguesa- Responsável: M. E. C. D. Real Oliveira.

Patent pending: Maria Elisabete C. Dias Real Oliveira (DF), Hernani Gerós, Ana Margarida Carvalho, Diogo Barardo e Luis Castro Gomes: Titulo: Magnetic nanoparticles for the reduction of ethanol content from wine.

Patent pending: F.P.G.F. Ferreira, J.P.B. Bret, P.M.F. Forte, P.E.R. Felgueiras, E.J. Nunes-Pereira, M.S. Belsley, Apparatus and Method for Detection of Pixel and Sub-pixel Functional Defects on an Image Display, Applicants: Bosch Car Multimedia, Universidade do Minho, WO MISS/NG A2, 29/06/2015.

Patent pending: P.M.F. Forte, F.P.G.F. Ferreira, P.E.R. Felgueiras, M.A.N de Sousa, M.S. Belsley, E.J. Nunes-Pereira, Device and Method for Detecting Defects on Specular Surfaces with Structured Diffuse Light, Applicants: Bosch Car Multimedia, Universidade do Minho, WO MISS/NG A2, 30/06/2015.

6.1.3.4. Master theses completed in 2015

Author	Supervisor	Title	Situation
Ana Margarida de Moura Pereira e Ferreira Carvalho	Marlene Lúcio, M. Elisabete C.D. Real Oliveira, Andreia F. Gomes (DB).	Otimização do perfil farmacocinético e farmacodinâmico de fármacos anticancerígenos através da sua veiculação em nanossistemas lipídicos	Terminated in december/2015 at ECUM



Sara Emanuela Silva Nogueira	Ana Preto (DB), M. Elisabete Oliveira, Andreia Gomes (DB)	Development of new DODAX:MO:DC-chol nanoparticles containing BRAF-siRNAs for colorectal carcinoma therapy	Terminated in fevereiro/2015 at ECUM, UM and Universidade do Porto
Pedro Filipe Ferreira de Sousa Moreira	M. Elisabete C.D. Real Oliveira, Andreia F. Gomes (DB).	Zebrafish embryos as in vivo model of toxicity: in vivo screening of nanoparticles with formulations DODAB:MO and DODAC:MO	Terminated in december/2015 at ECUM
Justine Demaitre	Maria Elisabete C.D. Real Oliveira, Marlene Lúcio, Kevin Breakmans (UGhent)	Profiling pharmacokinetic parameters of liposomal formulations optimized for nanotherapy purposes First master of Pharmaceutical Care	Terminated in may/2015 at ECUM
Inês Soares Ferreira	Maria Elisabete C.D. Real Oliveira (DF) Hernâni Geros (DB), M. Manuela Corte Real (DB)	Biotechnological applications in the study of Chemopreventive phenolic compounds	Terminated in december/2015 at ECUM
Fernando Henrique Almeida	M. Elisabete Oliveira, Andreia Gomes (DB)	Complexação simultânea de siRNA e pDNA em DODAB:MO para aumentar o silenciamento de genes.	Terminated in january/2015 at ECUM
Catarina Dias da Costa	Eduardo Marques (UP), M. Elisabete Oliveira, Andreia Gomes (DB)	Development of lipofection vectors based in novel serine-based cationic gemini surfactants finely tuned by monolein for therapeutic siRNA delivery.	Terminated in january/2015 at ECUM, UM and Universidade do Porto
Bruno Filipe Pereira da Silva	Paulo Coutinho	Deposição não eletrolítica de filmes plasmónicos de ouro para biossensores	Terminated in december/2015 at ECUM

6.1.3.5. Master theses in progress in 2015

Author	Supervisor	Title	Situation
Ana Cláudia Rodrigues Candeias	Marlene Lúcio (DF), Alberto Dias (DB)	Desenvolvimento de extratos naturais nanoencapsulados como estratégias promissoras na neuroproteção	Develloping since september/2015 at ECUM
António Manuel Torres Gonçalves	Mário Rui da Cunha Pereira	A Astronomia no contexto das metas curriculares de Física e Química do 7º ano de escolaridade – uma abordagem das atividades práticas	Develloping since november/2015 at ECUM
Célia de Jesus Sousa Barbosa	Maria Elisabete C.D. Real Oliveira (DF), Hernani Gerós (DB)	Development of nanoformulations to treat retinopathies	Develloping since september/2015 at ECUM
Diogo Manuel Pacheco Teixeira	Paulo J. G. Coutinho	Células fotovoltaicas de Grätzel usando cossensibilização de pontos quânticos de CdSe/CdTe	Develloping since november/2015 at ECUM
Eduarda Barbosa Fernandes	Marlene Lúcio (DF) e Jana Nieder (INL)	ADMET profiling of pharmacokinetic parameters to support drug discovery	Develloping since september/2015 at ECUM
Fernando Miguel Gonçalves Costa	Elisabete M. S. Castanheira Coutinho; Paula M. T. Ferreira (CQ/UM)	Síntese de novos hidrogéis peptídicos e avaliação como nanossistemas de transporte de fármacos	Develloping since october/2015 at ECUM
Filipa Andreia Cadilhe Cardoso Rocha	Maria Elisabete C.D. Real Oliveira (DF) e	Desenvolvimento de lipoplexos contendo fármacos anticancerígenos	



	Andreia F. Gomes (DB)	para a obtenção de sistemas terapêuticos que conjuguem quimioterapia e terapia génica	Developing since september/2015 at ECUM
Francisca Carmo Torre Fernandes	Elisabete M. S. Castanheira Coutinho; Paulo J. G. Coutinho	Otimização de formulações magnetolipossómicas para terapia do cancro	Developing since october/2015 at ECUM
Jacinto João Lemos Freitas	Paulo J. G. Coutinho	Células fotovoltaicas de Grätzel usando cossensibilização com um filme de CTS ($\text{Cu}_2\text{Sn}(\text{S}_1\text{-x},\text{Se}_x)\text{x}$) e pontos quânticos de CdSe	Developing since november/2015 at ECUM
Joana Isabel Oliveira Gomes de Matos	Paulo J. G. Coutinho; Elisabete M. S. Castanheira Coutinho	Desenvolvimento de magnetolipossomas baseados em ferrites com coroa de ouro para terapêutica do cancro	Developing since october/2015 at ECUM
Juliana Filipa Gomes Silva	Marlene Lúcio (DF), Carla Martins Dias (UFP)	Desenvolvimento de uma formulação dermocosmética para o tratamento e prevenção de infecções herpéticas	Developing since september/2015 at ECUM
Nélson Emanuel Salgado Teixeira	Paulo J. G. Coutinho	Fotoconversão da água em hidrogénio usando filmes da perovskite BaSnO_3 , pontos quânticos de CdSe como sensibilizantes e poluentes modelo como doadores sacrificiais.	Developing since october/2014 at ECUM
Paula Alexandra Ribeiro Faria	Mário Rui da Cunha Pereira	Energia, Fenómenos Térmicos e Radiação no contexto das metas curriculares de Física do 10º ano de escolaridade – Os Coletores Solares	Developing since november/2015 at ECUM
Sara Daniela Pimentel Guimarães	Elisabete M. S. Castanheira Coutinho; Paulo J. G. Coutinho	Fotodegradação de efluentes usando perovskites mistas de $(\text{Zn},\text{Co})\text{TiO}_3$ dopadas com flúor	Developing since november/2015 at ECUM
Sílvia Rodrigues Gavinho	Paulo Coutinho, Elisabete Coutinho	Desenvolvimento de magnetolipossomas de nanopartículas de óxidos de ferro e cálcio para transporte e entrega de fármacos antitumorais	Developing since october/2013 at ECUM
Tânia Sofia Oliveira Ferreira	Elisabete Coutinho, Paulo Coutinho	Desenvolvimento de magnetolipossomas de nanopartículas de óxidos de ferro e magnésio para transporte e entrega de fármacos	Developing since october/2013 at ECUM
Telma Bezerra Soares	Maria Elisabete C.D. Real Oliveira (DF), Alberto Dias (DB)	Desenvolvimento de nanossistemas para a encapsulação de agentes neuroprotetores	Developing since september/2015 at ECUM
Rasa Ozolina	Jana Nieder (INL), Marlene Lúcio (DF), Jari Hyttinen (TU Tampere)	Smart delivery systems for cancer treatment using advanced liposome formulations: fabrication, spectroscopic characterization and cell internalization studies	Developing since november/2015 At Engineering School

6.1.3.6. Ph.D. theses in progress in 2015

Author	Supervisor	Title	Situation
Ana C. Oliveira	Elisabete Oliveira, Andreia Gomes (DB)	Development of Monoolein-based lipofection vectors for therapeutic siRNA delivery	Developing since 2011 at ECUM



Ana Rita Oliveira Rodrigues	Elisabete Coutinho, Paulo Coutinho	Magnetoliposomes of nickel-based nanoparticles for the delivery of potential antitumour drugs	Developing since march/2013 at ECUM
César Rui Bernardo	Michael Belsley, Mikhail Vasilevskiy	Energy transfer dynamics and light-harvesting in Quantum Dot structures	Developing since september/2014 at ECUM
Hugo Gonçalves	Michael Belsley, M. Manuela Raposo	Two-photon absorption of a promising set of dyes for microscopy, micro-fabrication, 3d data storage and biomedical applications	Developing since september/2014 at ECUM
Rosa Cristina Moutinho Ferreira	Maria Manuela Raposo (DQ), Michael Belsley	Innovative Two-Photon Absorbing (TPA) chromophores as sensors, photo-initiators or data storage elements: design, synthesis and development for applications	Developing since 2012 at ECUM
Sara Filomena Ribeiro Pimenta	Graça Minas (C. Algoritmi), Elisabete Coutinho	Espetroscopia integrada num microssistema para a deteção precoce de cancro	Developing since february/2013 At Engineering School

6.1.3.7. Ph.D. theses in completed in 2015

Author	Supervisor	Title	Situation
Catarina Carneiro	Elisabete Oliveira, Paula Sampaio (DB), Andreia Gomes (DB)	Cationic liposomes as antigenic delivery systems: development of an immunoprotective strategy against fungal infections	Terminated in june/2015 at ECUM

6.1.4. Other scientific activities

Conference organization

International

M. Elisabete C. D. Real Oliveira- Presidente da Conferência “RICI6: 6th Iberian Meeting on Colloids and Interfaces”, Guimarães (Portugal), 8 a 10 de July 2015.

M. Elisabete C. D. Real Oliveira- Membro da Comissão científica da Conferência “RICI6: 6th Iberian Meeting on Colloids and Interfaces”, Guimarães (Portugal), 8 a 10 de July 2015.

Elisabete M. S. Castanheira Coutinho, Júlia Tovar, Paulo J. G. Coutinho, Teresa Viseu, Marlene Lúcio, Michael Belsley, Mário Rui Pereira – Membros da Comissão Organizadora da Conferência “RICI6: 6th Iberian Meeting on Colloids and Interfaces”, Guimarães (Portugal), 8 a 10 de July 2015.

Júlia Tovar, Marlene Lúcio, M. Elisabete C. D. Real Oliveira, Michael Belsley, Editores do livro de resumos da Conferência “RICI6: 6th Iberian Meeting on Colloids and Interfaces”, Guimarães (Portugal), 8 a 10 de July 2015..

Paulo J. G. Coutinho – Membro da Comissão Científica da Conferência “Photocatalytic and Superhydrophilic Surfaces Workshop (PSS2015)”, Guimarães (Portugal), 10-11 de setembro de 2015.



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

International

Development of novel monoolein-based nanosystems for gene and drug delivery”, Maria Elisabete C.D. Real Oliveira, 5th Annual Symposium of Drug Delivery System-2015, Beijing, October 20-22.

6.1.5. Funded projects ongoing

Title: Bionanoparticles as drug delivery systems

Reference: IF/00498/2012/CP0177/CT0005

Coordinator:Marlene Lucio

Fundins awarded: 50000.00€

Start date: 01-01-2014

Duration: 2 years

Title: Hybrid nanocarriers for combined gene and chemotherapy– Acordo de mobilidade bilateral.

Entidade Financiadora FCT/DAAD

IR: M. Elisabete C. D. Real Oliveira (CFUM); Participante: Marlene Lúcio (CFUM),

Funding awarded: 5000 €

Start date: Dezembro de 2014

Duration: 2 anos

6.1.6. Projects without funding to the Center of Physics

Title “HMIEXCEL - I&D crítica em torno do ciclo de desenvolvimento e produção de soluções multimédia avançadas para automóvel”,

Bosch Car Multimedia,

Universidade do Minho – FEDER, Programa Operacional Fatores de Competitividade, Sistema de Incentivos à Investigação e Desenvolvimento Tecnológico (SII&DT).

Coordenação linhas de I&D de Inspeção Ótica Automática, em controle de qualidade.

Coordinator:Eduardo J. Nunes-Pereira, Michael Scott Belsley.

Duration: 2 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

Design of multifunctional liposomal drug formulations for cancer therapy, Marlene Lúcio, Eduarda Bárbara, Ana Oliveira, Odete Gonçalves, Andreia C. Gomes and M.E.C.D. Real Oliveira, ImagineNano Nanospain BioMed, Bilbao (Spain), 10-13 March 2015

DODAB:monoolein liposomes as a novel delivery system with adjuvant capacity, C. Carneiro, A. Correia, T. Lima, T.Collins, M. Vilanova, C. Pais, A.C. Gomes, M. Elisabete C. D. Real Oliveira and P. Sampaio, RIC16 - 6th Iberian Meeting on Colloids and Interfaces, Guimarães (Portugal), 8-10 July 2015

DODAB: monoolein liposomes containing Candida albicans cell wall surface proteins: a novel adjuvant and delivery system, Catarina Carneiro, Alexandra Correia, Tânia Lima, Manuel Vilanova, Célia Pais, Andreia C, Gomes, M. Elisabete C.D. Real Oliveira, Paula Sampaio, UMIB2 Sumit, 2015

Fully filled membranar nanoparticles: a new approach for paclitaxel entrapment and biophysical properties improvement, Ana M Carvalho, Andreia C. Gomes, M. Elisabete C. D. Real Oliveira and Marlene Lúcio, RIC16 - 6th Iberian Meeting on Colloids and Interfaces, Guimarães (Portugal), 8-10 July 2015

Let there be light..., Aida Alves, Celeste Magro, Conceição Marques, Dulce Geraldo, Fátima Bento, Isabel Mina, Jorge Pamplona, Luís Cunha, Luís Gonçalves, Paula Martins, Teresa Viseu, Alexandra Nobre, International Conference on Communication and Light, 2-4 Novembro, 2015, Universidade do Minho, Braga

Lipid based nanocarriers for delivery of the bioactive compound resveratrol,Inês Soares, Marlene Lúcio, Hernâni Gerós, M. Elisabete C. D. Real Oliveira RIC16 - 6th Iberian Meeting on Colloids and Interfaces, Guimarães (Portugal), 8-10 July 2015

Lipofection vectors based on serine-derived gemini surfactants and monoolein for therapeutic siRNA delivery, Catarina Costa, Sandra G. Silva, João P. N. Silva, M. Luisa C. do Vale, Andreia C. Gomes, M. Elisabete C. D. Real Oliveira, Eduardo F. Marques RIC16 - 6th Iberian Meeting on Colloids and Interfaces, Guimarães (Portugal), 8-10 July 2015

Magnetic liposomes based on nickel ferrite nanoparticles as nanocarriers for new potential antitumor compounds, Ana Rita O. Rodrigues, I. T. Gomes, Bernardo G. Almeida, J. P. Araújo, Maria João R.P. Queiroz, Elisabete M. S. Castanheira, Paulo J. G. Coutinho,NanoSpain Bio&Med2015 – ImagineNano Conference Series, Bilbao (Spain), 12-13 March 2015; <http://hdl.handle.net/1822/37792>.

Magnetoliposomes based on manganese ferrite nanoparticles for guided transport of antitumor drugs,Ana Rita O. Rodrigues, José M. F. Ramos, I. T. Gomes, Bernardo G. Almeida, J. P. Araújo, Ricardo C. Calhelha, Maria João R. P. Queiroz, Paulo J. G. Coutinho, Elisabete M. S. Castanheira, RIC16 - 6th Iberian Meeting on Colloids and Interfaces, Guimarães (Portugal), 8-10 July 2015; <http://hdl.handle.net/1822/37796>.

MO filled core liposomes as a strategy to enhance anticancer drugs encapsulation, Eduarda Bárbara, Ana Oliveira, Odete Gonçalves, Andreia C. Gomes, M. Elisabete C. D. Real Oliveira and Marlene Lúcio, RIC16 - 6th Iberian Meeting on Colloids and Interfaces, Guimarães (Portugal), 8-10 July 2015



Molecular Dynamics Simulation of Peptides interaction with Lipid Membranes, A. Castro, L. Marques, M. M. D. Ramos, P. Sampaio, M. Elisabete C.D. Real Oliveira and N. Micaelo, RICI6 - 6th Iberian Meeting on Colloids and Interfaces, Guimarães (Portugal), 8-10 July 2015

Monoolein-based liposomes for siRNA delivery – optimization and validation, Ana C. N. Oliveira, Thomas Martens, Koen Raemdonck, Ivo Lopes, Odete Gonçalves, Renata D. Adati, Eloi Feitosa, Marlène Lúcio, Kevin Braeckmans, Andreia C. Gomes, Maria Elisabete C.D. Real Oliveira, RICI6 - 6th Iberian Meeting on Colloids and Interfaces, Guimarães (Portugal), 8-10 July 2015.

Monoolein-based nanocarriers for therapeutic siRNA delivery in colorectal carcinoma treatment, Sara S. Nogueira, Gerald Brezesinski, Marlène Lúcio, Andreia C. Gomes, Ana Preto, M. Elisabete C. D. Real Oliveira, RICI6 - 6th Iberian Meeting on Colloids and Interfaces, Guimarães (Portugal), 8-10 July 2015

The effect of DC-Cholesterol and MO on DODAX lipid systems for DNA delivery, Odete Gonçalves, Ana C. N. Oliveira, Hugo Carvalho, Ivo lopes, Renata D. Adati, Eloi Feitosa, Marlène Lúcio, M. Elisabete C. D. Real Oliveira, Andreia C. Gomes, RICI6 - 6th Iberian Meeting on Colloids and Interfaces, Guimarães (Portugal), 8-10 July 2015

Zebrafish embryogenesis: a swift and reliable tool for in vivo toxicity assessment of non-metallic (lipid-based) nanoparticles, M.P. Sarria, P. Moreira, J. Fernandes, A.C.N. Oliveira, I. Lopes, A. Cavaco-Paulo, M.E.C.D. Real Oliveira and A.C. Gomes, RICI6 - 6th Iberian Meeting on Colloids and Interfaces, Guimarães (Portugal), 8-10 July 2015

Poster

Biophysical screening of safety and efficiency of Paclitaxel encapsulated in fully filled membranar nanoparticles, Ana M Carvalho, Justine Demaitre, Jana Nieder, Andreia C. Gomes, M. Elisabete C. D. Real Oliveira and Marlène Lúcio, RICI6 - 6th Iberian Meeting on Colloids and Interfaces, Guimarães (Portugal), 8-10 July 2015.

Co-encapsulation of siRNA with non-coding pDNA or Poly-L-glutamic acid in DODAB:MO (2:1) liposomes for enhanced gene silencing", Fernando Almeida, Ana CN Oliveira, JP Neves Silva, Ivo Lopes, MP Sáaria, Andreia C Gomes, MECD Real Oliveira, RICI6 - 6th Iberian Meeting on Colloids and Interfaces, Guimarães (Portugal), 8-10 July 2015.

Design, fabrication and characterization of SiO₂/TiO₂ and MgO/TiO₂ based high selective optical filters for spectroscopic signals extraction", S. Pimenta, S. Cardoso, E. M. S. Castanheira, G. Minas, BITE 2015: 4th International Conference on Bio-Sensing Technology, Lisbon (Portugal), 10-13 May 2015; <http://hdl.handle.net/1822/37846>

Development and characterization of DODAB:MO (1:2) liposomes encapsulating Bovine Serum Albumine (BSA) for targeted drug delivery, Odete Gonçalves, Ann Van Dijck, Fernando Almeida, Renata D. Adati, Eloi Feitosa, M. Elisabete C. D. Real Oliveira and Marlène Lúcio, RICI6 - 6th Iberian Meeting on Colloids and Interfaces, Guimarães (Portugal), 8-10 July 2015.

Fluorescence studies of new potential antitumoral N-(2, or 3-methoxyphenyl)-thieno[3,2-b]pyridin-7-amines encapsulated in nanoliposomes, Maria-João R. P. Queiroz, Cátia N. C. Costa, Juliana M. Rodrigues, Elisabete M. S. Castanheira, 3rd International Conference on Integrative Biology, Valencia (Spain), 4-6 August 2015.

New biocompatible peptide-based hydrogels as drug nanocarriers", Ana C. L. Hortelão, Helena Vilaça, Bruno F. C. Hermenegildo, Goreti Pereira, Bing Xu, Maria-João R. P. Queiroz, José A. Martins, Paula M. T. Ferreira, Elisabete



M. S. Castanheira, RICI6 - 6th Iberian Meeting on Colloids and Interfaces, Guimarães, 8-10 July 2015; <http://hdl.handle.net/1822/37836>

Peptide-induced permeation of model membranes by antimicrobial peptidomimetics, Carina M. Carvalho, Vânia I. B. Castro, Sílvia M. M. A. Pereira Lima, Susana P. G. Costa, Elisabete M. S. Castanheira, RICI6 - 6th Iberian Meeting on Colloids and Interfaces, Guimarães, 8-10 July 2015; <http://hdl.handle.net/1822/37844>

Photocatalytic properties of BaSnO₃ perovskite nanoparticles conjugated with CdTe@CdS quantum dots in water-splitting, Nelson E. S. Teixeira, Arlindo M. Fontes Garcia, Paulo J. G. Coutinho, 2015 Photocatalytic and Superhydrophilic Surfaces Workshop (PSS2015), Guimarães (Portugal), 10-11 September 2015; <http://hdl.handle.net/1822/38015>

Profiling pharmacokinetic parameters of resveratrol-liposomal formulations for nanotherapy purposes, Inês Soares, Justine Demaitre, Marlene Lúcio, Hernâni Gerós, M. Elisabete C. D. Real Oliveira, RICI6 - 6th Iberian Meeting on Colloids and Interfaces, Guimarães (Portugal), 8-10 July 2015.

- National

Oral

Energy Transfer between QDs: The decay distribution analysis, César Rui Bernardo, M. Belsley, H. Gonçalves, E.J. Nunes-Pereira, M. Vasilevskiy, Jornadas do Centro de Física 2015 sob o tema "Developing Science and Shaping Technology: Young Researchers at CFUM", Universidade do Minho, Braga, 20/11/2015.

Exploring magnetoliposomes based on MFe2O4 as nanocarriers for antitumor drugs, Ana Rita O. Rodrigues, Jornadas do Centro de Física 2015 sob o tema "Developing Science and Shaping Technology: Young Researchers at CFUM", Universidade do Minho, Braga, 20 november 2015.

In vivo toxicity screening of gemini surfactant/monoolein nanoparticles using zebrafish embryos, Joana Fernandes, Pedro Moreira, Maria Elisabete C. D. Real Oliveira, Eduardo F. Marques, Marisa Sárria (1, 4), Andreia C. Gomes, Symposium Programa Doutoral CBMA, Dez 2015, Braga, Portugal.

Influence of contact lens care solutions on the water content of hydrogel and silicone-hydrogel contact lenses Congresso Internacional de Optometria e Ciências da Visão, Universidade de Minho, 25-26 abril 2015 Rita Silva, M. Elisabete C.D. Real Oliveira, Madalena Lira.

My school of Sciences», a project from the University of Minho involving 5000 high school students and a network of 19 Schools from the Minho region", Ana Isabel Pinheiro, Alice Dias, Ana Carvalho, Ana Cunha, Arminda Manuela Gonçalves, Carlos Silva, Elisabete Coutinho, João Paulo André, Luís Cunha, Luís Gonçalves, Maria Cláudia Araújo, Maria Teresa Almeida, Pedro Pimenta Simões, Estelita Vaz, Rui Baptista, Sandra Paiva, SciCom Pt 2015 – 3º Congresso de Comunicação de Ciência, Lagos (Portugal), 28-30 May 2015.

Poster

Characterization of silicon photodiodes for diffuse reflectance signal extraction; S. Pimenta, J. P. Carmo, R. G. Correia, E.M.S. Castanheira, G. Minas, 2015 IEEE 4th Portuguese Meeting on Bioengineering (ENBENG), Porto (Portugal), 26-28 February 2015.

In vivo toxicity screening of gemini surfactant/monoolein nanoparticles using zebrafish embryos, Joana Fernandes, Pedro Moreira, Maria Elisabete C. D. Real Oliveira, Eduardo F. Marques, Marisa Sárria, Andreia C. Gomes, Symposium Programa Doutoral CBMA, Dez 2015, Braga, Portugal



Influence of contact lens care solutions on the water content of hydrogel and silicone-hydrogel contact lenses, Rita Silva, M. Elisabete C.D. Real Oliveira, Madalena Lira, 12º Congresso International de Optometria e Ciências da Visão, Abril 2015 (FAMO/OCV)

Membrane active peptides with unnatural amino acids: permeation studies in model membranes, Carina M. Carvalho, V. I. B. Castro, S. M. M. A. Pereira Lima, E. M. S. Castanheira, S. P. G. Costa, 2nd Symposium of Medicinal Chemistry, University of Minho, Braga (Portugal), 8th May 2015.

Photocatalytic properties of BaSnO₃ perovskite nanoparticles conjugated with CdTe@CdS quantum dots in water-splitting, Nelson E. S. Teixeira, Arlindo M. Fontes Garcia, Paulo J. G. Coutinho, Jornadas do Centro de Física 2015, Universidade do Minho, Braga, 20 november 2015.

PK/PD Profiling of Paclitaxel: a Biophysical Approach, Ana M. Carvalho, Justine Demaitre, César Bernardo, Jana Nieder, Andreia C. Gomes, M. Elisabete C. D. Real Oliveira and Marlene Lúcio, Jornadas do Centro de Física 2015 sob o tema “Developing Science and Shaping Technology: Young Researchers at CFUM”, Universidade do Minho, Braga, 20 november 2015.

Validation of monoolein-based nanocarriers for siRNA cancer therapy, Ana CN Oliveira, Fernando Almeida, Ivo Lopes, Odete Gonçalves, Thomas Martens, Koen Raemdonck, Marlene Lúcio, Kevin Braeckmans, Andreia C Gomes, MECD Real Oliveira, XXXIX Portuguese Genetics Conference, Braga, Portugal, 25-27 May 2015.

Zebrafish embryos as in vivo model for toxicity evaluation: screening of Lipid-based nanoparticles DODAB/C:Monoolein, P. Moreira, J. Fernandes, Maria Elisabete C. D. Real Oliveira, Marisa P. Sárria, Andreia C. Gomes, Symposium Programa Doutoral CBMA, Dez 2015, Braga, Portugal

6.1.8. Future research

The synthesis of semiconductor, magnetic and metallic nanoparticles will be continued. Surface functionalization towards the production of bionanosensors will be developed.

The development of magnetoliposomes for dual cancer therapy will be continued, both as hyperthermia agents and antitumor drug nanocarriers.

The investigation of the photophysical behavior of new fluorescent antitumor compounds, benzophenoxazine derivatives and peptide-based hydrogelators (all synthesized at CQUM) will be continued. The interaction of these new compounds/materials with models of biological membranes will be investigated.

The application of new biocompatible peptide-based hydrogels as drug nanocarriers will be developed.

The development of environmental applications of nanoparticles (quantum dots, perovskites), namely photodegradation and solar energy conversion (Grätzel cells, water splitting), will be continued.

The expertise in several nanocarriers such as liposomes, solid lipid nanoparticles, nanostructured lipid carriers and lipoplexes will be used to further improve the development of hybrid tunable nanocarriers in an “one for all” perspective, being used to carry therapeutic, nutritional or cosmetic actives with high impact in many application fields.

The biophysical expertise in several membrane model systems will be used in the pharmaceutical profiling of newly synthesized drugs to help medicinal chemists in their synthesis. The same type of approaches will be used for an ADMET profiling of the nanotherapeutics providing a safe-by-design process of the formulations developed.

The full possibilities of a new material exhibiting in a controlled way a transition between canonical and anomalous diffusion will be explored. The predicted slow convergence to canonical diffusion of a truncated Lévy flight will be subject to an experimental test, for the first time.



6.2. Group of Cooperative Phenomena in Dielectrics (FCD)

6.2.1. Summary description of the scientific work carried out by the group in 2015

The group consists of five effective members and one associate member. The number of graduate students is 23, corresponding to 9 post-doctoral students and 14 PhD students. Also included are 9 master students whose thesis is taking place in the group. The performed research led to the publishing of 64 articles peer-review journals, to 27 oral and 20 communications at conferences and 2 patents.

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: - 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 with Habilitation -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>-Pedro Libanio Martins - FCT Post-Doc grant -Vanessa Cardoso - FCT Post-Doc grant -Vitor Correia - FCT Post-Doc grant -Clarisse Ribeiro - FCT Post-Doc grant -Catarina Lopes- Post-Doc grant (until May) -João Pereira - Post-Doc Grant -Pedro Costa - Post-Doc grant -Carlos Costa - FCT Post-Doc grant -António Francesko - FCT Post-Doc grant</p> <p><u>PhD and other Research Students:</u></p> <p>-Atilla Goren, Ph-D student, FCT grant - Jivago Nunes, Ph-D student, FCT grant -Gabriel Mendes, Ph-D student, FCT grant -Paulo Sousa, Ph-D student, FCT grant</p>



-Silvia Reis, Ph-D student, FCT grant
-Daniel Miranda, Ph-D student, FCT grant
-Daniela Correia, Ph-D student, FCT grant
-Vania Pinto, Ph-D student, FCT grant
-Ricardo Sousa - Ph-D student, FCT grant
-Juliana Dias, Ph-D student, FCT grant
-Juliana Oliveira, Ph-D student, FCT grant
-Marco Silva, Ph-D student, FCT grant
-Renato Gonçalves, Ph-D student, FCT grant

6.2.3. Scientific Production

6.2.3.1. Regular articles published in ISI Journals

Advances and Future Challenges in Printed Batteries (2015) Sousa, R.E., Costa, C.M., Lanceros-Méndez, S. *ChemSusChem*, 8 (21), pp. 3539-3555. DOI: 10.1002/cssc.201500657, ISI, FCD, CFUM

Antibacterial performance of bovine lactoferrin-fish gelatine electrospun membranes (2015) Padrão, J., Machado, R., Casal, M., Lanceros-Méndez, S., Rodrigues, L.R., Dourado, F., Sencadas, V. *International Journal of Biological Macromolecules*, 81, art. no. 5315, pp. 608-614. DOI: 10.1016/j.ijbiomac.2015.08.047, ISI, FCD, CFUM, CBMA

Bacterial Cellulose As a Support for the Growth of Retinal Pigment Epithelium (2015) Gonçalves, S., Padrão, J., Rodrigues, I.P., Silva, J.P., Sencadas, V., Lanceros-Mendez, S., Girão, H., Dourado, F., Rodrigues, L.R. *Biomacromolecules*, 16 (4), pp. 1341-1351. DOI: 10.1021/acs.biomac.5b00129, ISI,FCD, CFUM

Connecting free volume with shape memory properties in noncytotoxic gamma-irradiated polycyclooctene (2015) Axpe, E., García-Huete, N., Cuevas, J.M., Ribeiro, C., Mérida, D., Laza, J.M., García, J.Á., Vilas, J.L., Lanceros-Méndez, S., Plazaola, F., León, L.M. *Journal of Polymer Science, Part B: Polymer Physics*, 53 (15), pp. 1080-1088. DOI: 10.1002/polb.23750, ISI, FCD, CFUM

Determination of the magnetostrictive response of nanoparticles via magnetoelectric measurements (2015) Martins, P., Silva, M., Lanceros-Mendez, S. *Nanoscale*, 7 (21), pp. 9457-9461. DOI: 10.1039/c5nr01397f, ISI,FCD, CFUM

Development of magnetoelectric CoFe₂O₄ /poly(vinylidene fluoride) microspheres (2015) Gonçalves, R., Martins, P., Correia, D.M., Sencadas, V., Vilas, J.L., León, L.M., Botelho, G., Lanceros-Méndez, S. *RSC Advances*, 5 (45), pp. 35852-35857. DOI: 10.1039/c5ra04409j, ISI,FCD, CFUM, CQUIM

Dielectric relaxation and ferromagnetic resonance in magnetoelectric (Polyvinylidene-fluoride)/ferrite composites (2015) Svirskas, S., Simenas, M., Banys, J., Martins, P., Lanceros-Mendez, S. *Journal of Polymer Research*, 22 (7), art. no. 141, 10 p. DOI: 10.1007/s10965-015-0780-9, ISI,FCD, CFUM



Dynamic piezoelectric stimulation enhances osteogenic differentiation of human adipose stem cells (2015) Ribeiro, C., Pärssinen, J., Sencadas, V., Correia, V., Miettinen, S., Hytönen, V.P., Lanceros-Méndez, S. Journal of Biomedical Materials Research - Part A, 103 (6), pp. 2172-2175. DOI: 10.1002/jbm.a.35368, ISI, FCD, CFUM

Effect of butadiene/styrene ratio, block structure and carbon nanotube content on the mechanical and electrical properties of thermoplastic elastomers after UV ageing (2015) Costa, P., Ribeiro, S., Botelho, G., Machado, A.V., Lanceros Mendez, S. Polymer Testing, 42, pp. 225-233. DOI: 10.1016/j.polymertesting.2015.02.002, ISI,FCD, CFUM

Effect of ionic liquid anion and cation on the physico-chemical properties of poly(vinylidene fluoride)/ionic liquid blends (2015) Mejri, R., Dias, J.C., Lopes, A.C., Bebes Bentati, S., Silva, M.M., Botelho, G., Mão De Ferro, A., Esperança, J.M.S.S., Maceiras, A., Laza, J.M., Vilas, J.L., León, L.M., Lanceros-Mendez, S. European Polymer Journal, 71, pp. 304-313. DOI: 10.1016/j.eurpolymj.2015.07.058, ISI,FCD, CFUM

Effect of Ionic Liquid Anion Type in the Performance of Solid Polymer Electrolytes Based on Poly(Vinylidene fluoride-trifluoroethylene) (2015) Leones, R., Costa, C.M., Machado, A.V., Esperança, J.M.S.S., Silva, M.M., Lanceros-Méndez, S. Electroanalysis, 27 (2), pp. 457-464. DOI: 10.1002/elan.201400530, ISI,FCD, CFUM

Effect of the acoustic impedance in ultrasonic emitter transducers using digital modulations (2015) Martins, M.S., Cabral, J., Lanceros-Mendez, S., Rocha, G. Ocean Engineering, 100, pp. 107-116. DOI: 10.1016/j.oceaneng.2015.04.001, ISI,FCD, CFUM

Effect of the degree of porosity on the performance of poly(vinylidene fluoride-trifluoroethylene)/poly(ethylene oxide) blend membranes for lithium-ion battery separators (2015) Gören, A., Costa, C.M., Tamaño Machiavello, M.N., Cíntora-Juárez, D., Nunes-Pereira, J., Tirado, J.L., Silva, M.M., Gomez Ribelles, J.L., Lanceros-Méndez, S. Solid State Ionics, 280, pp. 1-9. DOI: 10.1016/j.ssi.2015.08.003, ISI,FCD, CFUM

Energy harvesting device based on a metallic glass/PVDF magnetoelectric laminated composite (2015)Lasheras, A., Gutiérrez, J., Reis, S., Sousa, D., Silva, M., Martins, P., Lanceros-Mendez, S., Barandiarán, J.M., Shishkin, D.A., Potapov, A.P. Smart Materials and Structures, 24 (6), art. no. 065024, DOI: 10.1088/0964-1726/24/6/065024, ISI,FCD, CFUM

Energy harvesting performance of BaTiO₃/poly(vinylidene fluoride-trifluoroethylene) spin coated nanocomposites (2015) Nunes-Pereira, J., Sencadas, V., Correia, V., Cardoso, V.F., Han, W., Rocha, J.G., Lanceros-Méndez, S. Composites Part B: Engineering, 72, pp. 130-136. DOI: 10.1016/j.compositesb.2014.12.001, ISI,FCD, CFUM

Enhancement of adhesion and promotion of osteogenic differentiation of human adipose stem cells by poled electroactive poly(vinylidene fluoride) (2015)Parssinen, J., Hammarén, H., Rahikainen, R., Sencadas, V., Ribeiro, C., Vanhatupa, S., Miettinen, S., Lanceros-Méndez, S., Hytönen, V.P. Journal of Biomedical Materials Research - Part A, 103 (3), pp. 919-928. DOI: 10.1002/jbm.a.35234, ISI,FCD, CFUM

Gd2O₃:Eu Nanoparticle-Based Poly(vinylidene fluoride) Composites for Indirect X-ray Detection (2015) Martins, P.M., Martins, P., Correia, V., Rocha, J.G., Lanceros-Mendez, S. Journal of Electronic Materials, 44 (1), pp. 129-135. DOI: 10.1007/s11664-014-3407-8, ISI,FCD, CFUM



Gd³⁺:Eu³⁺/PPO/POPOP/PS composites for digital imaging radiation detectors (2015) Oliveira, J., Martins, P.M., Martins, P., Correia, V., Rocha, J.G., Lanceros-Mendez, S. *Applied Physics A: Materials Science and Processing*, 7 p. Article in Press. DOI: 10.1007/s00339-015-9435-2, ISI,FCD, CFUM

High performance electromechanical actuators based on ionic liquid/poly(vinylidene fluoride) (2015) Dias, J.C., Lopes, A.C., Magalhães, B., Botelho, G., Silva, M.M., Esperança, J.M.S.S., Lanceros-Mendez, S. *Polymer Testing*, 48, pp. 199-205. DOI: 10.1016/j.polymertesting.2015.10.012, ISI,FCD, CFUM, CQUIM

High-temperature polymer based magnetoelectric nanocomposites (2015) Maceiras, A., Martins, P., Gonçalves, R., Botelho, G., Venkata Ramana, E., Mendiratta, S.K., San Sebastián, M., Vilas, J.L., Lanceros-Mendez, S., León, L.M. *European Polymer Journal*, 64, pp. 224-228. DOI: 10.1016/j.eurpolymj.2015.01.020, ISI,FCD, CFUM, CQUIM

In vitro mechanical fatigue behavior of poly-ε-caprolactone macroporous scaffolds for cartilage tissue engineering: Influence of pore filling by a poly(vinyl alcohol) gel (2015) Panadero, J.A., Vikingsson, L., Gomez Ribelles, J.L., Lanceros-Mendez, S., Sencadas, V. *Journal of Biomedical Materials Research - Part B Applied Biomaterials*, 103 (5), pp. 1037-1043. DOI: 10.1002/jbm.b.33276, ISI,FCD, CFUM

Induced magnetoelectric effect driven by magnetization in BaFe₁₂O₁₉- P(VDF-TrFE) Composites Gutierrez, J., Lasheras, A., Barandiaran, J.M., (...), Martins, P., Lanceros-Mendez, S. *IEEE Transactions on Magnetics*, 51 (11), 7126994, 2015, ISI, FCD, CFUM

Influence of oxygen plasma treatment parameters on poly(vinylidene fluoride) electrospun fiber mats wettability (2015) Correia, D.M., Ribeiro, C., Sencadas, V., Botelho, G., Carabineiro, S.A.C., Ribelles, J.L.G., Lanceros-Méndez, S. *Progress in Organic Coatings*, 85, pp. 151-158. DOI: 10.1016/j.porgcoat.2015.03.019, ISI,FCD, CFUM, CQUIM

Ion exchange dependent electroactive phase content and electrical properties of poly(vinylidene fluoride)/Na(M)Y composites (2015) Lopes, A.C., Neves, I.C., Lanceros Mendez, S. *Journal of Physical Chemistry C*, 119 (9), pp. 5211-5217. DOI: 10.1021/acs.jpcc.5b00271, ISI, FCD, CFUM

Lithium ion rechargeable batteries: State of the art and future needs of microscopic theoretical models and simulations (2015) Miranda, D., Costa, C.M., Lanceros-Mendez, S. *Journal of Electroanalytical Chemistry*, 739, pp. 97-110. DOI: 10.1016/j.jelechem.2014.12.010, ISI,FCD, CFUM

Magnetoelectric CoFe₂O₄/polyvinylidene fluoride electrospun nanofibres (2015) Gonçalves, R., Martins, P., Moya, X., Ghidini, M., Sencadas, V., Botelho, G., Mathur, N.D., Lanceros-Mendez, S. *Nanoscale*, 7 (17), pp. 8058-8061. DOI: 10.1039/c5nr00453e, ISI,FCD, CFUM, CQUIM

Mechanical vs. electrical hysteresis of carbon nanotube/styrene-butadiene-styrene composites and their influence in the electromechanical response (2015) Costa, P., Ribeiro, S., Lanceros-Mendez, S. *Composites Science and Technology*, 109, pp. 1-5. DOI: 10.1016/j.compscitech.2015.01.006, ISI,FCD, CFUM

Modelling separator membranes physical characteristics for optimized lithium ion battery performance, D. Miranda, C. M. Costa, A. M. Almeida and S. Lanceros-Méndez, *Journal of Solid State Ionics* Vol. 278, 78–84 (2015). DOI: 10.1016/j.ssi.2015.05.022, SCOPUS sim, CFUM, Física de Materiais Nano-Cristalinos (FMNC), Fenómeno Cooperativo em Dieléctricos (FCD)

Nonsolvent induced phase separation preparation of poly(vinylidene fluoride-co-chlorotrifluoroethylene) membranes with tailored morphology, piezoelectric phase content and mechanical properties (2015)



Cardoso, V.F., Botelho, G., Lanceros-Méndez, S. Materials and Design, 88, pp. 390-397. DOI: 10.1016/j.matdes.2015.09.018, ISI,FCD, CFUM, CQUM

Novel anisotropic magnetoelectric effect on δ -FeO(OH)/P(VDF-TrFE) multiferroic composites (2015) Martins, P., Larrea, A., Gonçalves, R., Botelho, G., Ramana, E.V., Mendiratta, S.K., Sebastian, V., Lanceros-Mendez, S. ACS Applied Materials and Interfaces, 7 (21), pp. 11224-11229. DOI: 10.1021/acsami.5b01196, ISI,FCD, CFUM

Novel hybrid multifunctional magnetoelectric porous composite films (2015) Martins, P., Gonçalves, R., Lopes, A.C., Venkata Ramana, E., Mendiratta, S.K., Lanceros-Mendez, S. Journal of Magnetism and Magnetic Materials, 396, pp. 237-241. DOI: 10.1016/j.jmmm.2015.08.041, ISI, FCD, CFUM

Phase morphology and crystallinity of poly(vinylidene fluoride)/poly(ethylene oxide) piezoelectric blend membranes (2015) Tamaño-Machiavello, M.N., Costa, C.M., Molina-Mateo, J., Torregrosa-Cabanilles, C., Meseguer-Dueñas, J.M., Kalkura, S.N., Lanceros-Méndez, S., Sabater i Serra, R., Gómez Ribelles, J.L. Materials Today Communications, 4, art. no. 59, pp. 214-221. DOI: 10.1016/j.mtcomm.2015.08.003, ISI, FCD, CFUM

Piezoelectric poly(vinylidene fluoride) microstructure and poling state in active tissue engineering (2015) Ribeiro, C., Correia, D.M., Ribeiro, S., Sencadas, V., Botelho, G., Lanceros-Méndez, S. Engineering in Life Sciences, 15 (4), pp. 351-356. DOI: 10.1002/elsc.201400144, ISI,FCD, CFUM

Piezoelectric polymers as biomaterials for tissue engineering applications, (2015) Ribeiro, C., Sencadas, V., Correia, D.M., Lanceros-Méndez, S. Colloids and Surfaces B: Biointerfaces, 136, art. no. 7330, pp. 46-55. DOI: 10.1016/j.colsurfb.2015.08.043, ISI,FCD, CFUM

Poly(vinylidene fluoride) and copolymers as porous membranes for tissue engineering applications (2015) Nunes-Pereira, J., Ribeiro, S., Ribeiro, C., Gombek, C.J., Gama, F.M., Gomes, A.C., Patterson, D.A., Lanceros-Méndez, S. Polymer Testing, 44, art. no. 4432, pp. 234-241. DOI: 10.1016/j.polymertesting.2015.05.001, ISI,FCD, CFUM

Poly(vinylidene fluoride-co-chlorotrifluoroethylene) (PVDF-CTFE) lithium-ion battery separator membranes prepared by phase inversion (2015) Sousa, R.E., Kundu, M., Gören, A., Silva, M.M., Liu, L., Costa, C.M., Lanceros-Mendez, S. RSC Advances, 5 (110), pp. 90428-90436. DOI: 10.1039/c5ra19335d, ISI, FCD, CFUM

Poly(vinylidene fluoride-trifluoroethylene) porous films: Tailoring microstructure and physical properties by solvent casting strategies (2015) Cardoso, V.F., Lopes, A.C., Botelho, G., Lanceros-Méndez, S. Soft Materials, 13 (4), pp. 243-253. DOI: 10.1080/1539445X.2015.1083444, ISI,FCD, CFUM

Poly(vinylidene fluoride-trifluoroethylene)/NAY zeolite hybrid membranes as a drug release platform applied to ibuprofen release (2015) Salazar, H., Lima, A.C., Lopes, A.C., Botelho, G., Lanceros-Mendez, S. Colloids and Surfaces A: Physicochemical and Engineering Aspects, 469, pp. 93-99. DOI: 10.1016/j.colsurfa.2014.12.064, ISI,FCD, CFUM

Polymer composites and blends for battery separators: State of the art, challenges and future trends (2015) Nunes-Pereira, J., Costa, C.M., Lanceros-Méndez, S. Journal of Power Sources, 281, pp. 378-398. DOI: 10.1016/j.jpowsour.2015.02.010 DOCUMENT TYPE: Review, ISI,FCD, CFUM

Size effects on the magnetoelectric response on PVDF/Vitrovac 4040 laminate composites (2015) Silva, M.P., Martins, P., Lasheras, A., Gutiérrez, J., Barandiarán, J.M., Lanceros-Mendez, S. Journal of



Magnetism and Magnetic Materials, 377, pp. 29-33. DOI: 10.1016/j.jmmm.2014.10.040, ISI,FCD, CFUM

State of the art and open questions on cathode preparation based on carbon coated lithium iron phosphate (2015) Gören, A., Costa, C.M., Silva, M.M., Lanceros-Méndez, S. Composites Part B: Engineering, 83, pp. 333-345. DOI: 10.1016/j.compositesb.2015.08.064, ISI, FCD, CFUM

Surface roughness dependent osteoblast and fibroblast response on poly(L-lactide) films and electrospun membranes (2015) Ribeiro, C., Sencadas, V., Areias, A.C., Gama, F.M., Lanceros-Méndez, S. Journal of Biomedical Materials Research - Part A, 103 (7), pp. 2260-2268. DOI: 10.1002/jbm.a.35367, ISI, FCD, CFUM

Synthesis, physical and magnetic properties of BaFe₁₂O₁₉/P(VDF-TrFE) multifunctional composites (2015) Gutiérrez, J., Martins, P., Gonçalves, R., Sencadas, V., Lasheras, A., Lanceros-Mendez, S., Barandiarán, J.M. European Polymer Journal, 69, art. no. 6945, pp. 224-231. DOI: 10.1016/j.eurpolymj.2015.06.012, ISI,FCD, CFUM

Synthesis, structural and magnetic characterization of lead-metaniobate/cobalt-ferrite nanocomposite films deposited by pulsed laser ablation", P. Sá, J. Barbosa, I.T. Gomes, J.A. Mendes, J. Ventura, J.P. Araújo, B.G. Almeida, Appl. Phys. A, 118, 275-281 (2015), ISI, FCD, CFUM, ESEIG-IPP, IFIMUP-U. Porto

Tailored Magnetic and Magnetoelectric Responses of Polymer-Based Composites (2015) Martins, P., Kolen'Ko, Y.V., Rivas, J., Lanceros-Mendez, S. ACS Applied Materials and Interfaces, 7 (27), pp. 15017-15022. DOI: 10.1021/acsami.5b04102, ISI,FCD, CFUM

Tailoring microstructure and physical properties of poly(vinylidene fluoride–hexafluoropropylene) porous films (2015) Ferreira, C.G., Cardoso, V.F., Lopes, A.C., Botelho, G., Lanceros-Méndez, S. Journal of Materials Science, 50 (14), pp. 5047-5058. Cited 2 times. DOI: 10.1007/s10853-015-9054-5, ISI, FCD, CFUM, CQUIM

Tailoring poly(vinylidene fluoride-co-chlorotrifluoroethylene) microstructure and physicochemical properties by exploring its binary phase diagram with dimethylformamide (2015) Sousa, R.E., Ferreira, J.C.C., Costa, C.M., Machado, A.V., Silva, M.M., Lanceros-Mendez, S. Journal of Polymer Science, Part B: Polymer Physics, 53 (11), pp. 761-773. DOI: 10.1002/polb.23692, ISI,FCD, CFUM

Thermal-mechanical behaviour of chitosan-cellulose derivative thermoreversible hydrogel films (2015) Barros, S.C., da Silva, A.A., Costa, D.B., Costa, C.M., Lanceros-Méndez, S., Maciavello, M.N.T., Ribelles, J.L.G., Sentanin, F., Pawlicka, A., Silva, M.M. Cellulose, 22 (3), pp. 1911-1929. DOI: 10.1007/s10570-015-0603-5, ISI,FCD, CFUM

Transformation of Escherichia coli JM109 using pUC19 by the Yoshida effect (2015) Mendes, G.P., Vieira, P.S., Lanceros-Méndez, S., Kluskens, L.D., Mota, M. Journal of Microbiological Methods, 115, pp. 1-5. DOI: 10.1016/j.mimet.2015.05.012, ISI,FCD, CFUM

Variation of the physicochemical and morphological characteristics of solvent casted poly(vinylidene fluoride) along its binary phase diagram with dimethylformamide (2015) Ferreira, J.C.C., Monteiro, T.S., Lopes, A.C., Costa, C.M., Silva, M.M., Machado, A.V., Lanceros-Mendez, S. Journal of Non-Crystalline Solids, 412, pp. 16-23. DOI: 10.1016/j.jnoncrysol.2015.01.003, ISI,FCD, CFUM



Ag-TiNx electrodes deposited on piezoelectric poly(vinylidene fluoride) for biomedical sensor applications, S.M. Marques, N.K. Manninen, S. Lanceros-Mendez, S. Carvalho, Sensors Actuators A Phys. 234 (2015) 1–8. URL: doi:10.1016/j.sna.2015.08.016, GRF e FCD

Mechanical and piezoelectric properties of polycrystalline AlN films sputtered on titanium bottom electrodes (2015) Pătru, M., Isac, L., Cunha, L., Martins, P., Lanceros-Mendez, S., Oncioiu, G., Cristea, D., Munteanu, D. Structural, Applied Surface Science, 354, pp. 267-278. DOI: 10.1016/j.apsusc.2015.07.022, ISI, FCD, GRF, CFUM

One-step preparation of optically transparent Ni-Fe oxide film electrocatalyst for oxygen evolution reaction, Doudou Zhang, Lijian Meng, Jingying Shi, Nan Wang, Shengzhong Liu, Can Li, Electrochimica Acta, ISSN: 0013-4686, 169, 402-408, doi:10.1016/j.electacta.2015.04.101, 2015. IF:4.086; FCD GRF Inst Super Engn Porto, Dept Fis, Portugal; Ctr Fis, Univ Minho, Portugal; Key Lab Opt Syst Adv Mfg Technol, Changchun, China; Dalian Inst Chem Phys, China; CEFITEC, Univ Nova Lisboa; Dept Fis, Univ Evora.

Development of electrospun photocatalytic TiO₂-Polyamide-12 nanocomposites, E. Cossich, R. Bergamasco, M.T. Pessoa de Amorim, P. M. Martins, J. Marques, C. J. Tavares, S. Lanceros-Méndez, V. Sencadas, Materials Chemistry and Physics 164 (2015) 91-97. IF 2.259 , GRF e FCD, ISI

Effect of Electrospun Alumina Nanofibers Incorporation in Ceramic Glaze, E. Carneiro, P. Sá, B. Almeida, C. A. Pinto, J. T. Fernandes, J. P. Mendonça, S. Carvalho, Journal of Ceramic Science and Technology, 6 (2015) 69-74, DOI: 10.4416/JCST2014-00042, GRF, FCD

Structural, mechanical and piezoelectric properties of polycrystalline AlN films sputtered on titanium bottom electrodes, M. Pătru, L. Isac; L. Cunha, P. Martins; S. Lanceros-Mendez; D. Cristea; D. Munteanu, Applied Surface Science 354B (2015) 267-278 doi:10.1016/j.apsusc.2015.07.022, GRF e FCD Department of Materials Science, Transilvania University, Brasov, Romania Institute for Nuclear Research Pitesti, Mioveni, Romania;

Magnetic liposomes based on nickel ferrite nanoparticles for biomedical applications", A.R.O. Rodrigues, I.T. Gomes, B.G. Almeida, J.P. Araújo, E.M.S. Castanheira, P.J.G. Coutinho, Phys.Chem.Chem.Phys., 17, 18011 (2015) , ISI/SCOPUS , FAMO, FCD, CFUM, IFIMUP-U. Porto

Degradation of all-inkjet-printed organic thin-film transistors with TIPS-pentacene under processes applied in textile manufacturing, H.F. Castro, E. Sowade, J.G. Rocha, P. Alpuim, A.V. Machado, R.R. Baumann, S. Lanceros-Méndez, Organic Electronics 22 (2015) 12–19. ISI, GCEP, FCD, CPD

Connecting free volume with shape memory properties in noncytotoxic gamma-irradiated polycyclooctene. Axpe, E., Garcia-Huete, N., Maria Cuevas, J., Ribeiro, C., Merida, D., Manuel Laza, J., . . . Manuel Leon, L. LANCEROS(2015). Journal of Polymer Science Part B-Polymer Physics, 53(15), 1080-1088. doi: 10.1002/polb.23750 | RepositóriUM: http://hdl.handle.net/1822/38883

Development of electrospun photocatalytic TiO₂-polyamide-12 nanocomposites. Cossich, E., Bergamasco, R., Pessoa De Amorim, M. T., Martins, P. M., Marques, J., Tavares, C. J., . . . Sencadas, V. (2015). Materials Chemistry and Physics, 164, 91-97. doi: 10.1016/j.matchemphys.2015.08.029 | RepositóriUM: http://hdl.handle.net/1822/36972

Erratum: Bacterial Cellulose As a Support for the Growth of Retinal Pigment Epithelium (Biomacromolecules (2015) Gonçalves, S., Padrão, J., Rodrigues, I. P., Silva, J. P., Sencadas, V., Lanceros-Mendez, S., . . . Rodrigues, L. R. (2015). 16:4 (1341-1351) DOI: 10.1021/acs.biomac.5b00129). Biomacromolecules, 16(12), 4032. doi: 10.1021/acs.biomac.5b01556



Dielectric relaxation dynamics of high-temperature piezoelectric polyimide copolymers. Maceiras, A., Costa, C. M., Lopes, A. C., San Sebastián, M., Laza, J. M., Vilas, J. L., . . . León, L. M. (2015). Applied Physics A: Materials Science and Processing. doi: 10.1007/s00339-015-9251-8 | Repositórium: <http://hdl.handle.net/1822/38881>

Regular articles not yet included at the ISI database

Design and validation of a biomechanical bioreactor for cartilage tissue culture (2015) Correia, V., Panadero, J.A., Ribeiro, C., Sencadas, V., Rocha, J.G., Gomez Ribelles, J.L., Lanceros-Méndez, S. Biomechanics and Modeling in Mechanobiology, 8 p. Article in Press. DOI: 10.1007/s10237-015-0698-5, ISI,FCD, CFUM

Erratum to: Thermal-mechanical behaviour of chitosan-cellulose derivative thermoreversible hydrogel films[Cellulose(2015), 10.1007/s10570-015-0603-5] (2015) Barros, S.C., da Silva, A.A., Costa, D.B., Costa, C.M., Lanceros-Méndez, S., Maciavello, M.N.T., Ribelles, J.L.G., Sentanin, F., Pawlicka, A., Silva, M.M. Cellulose, 22 (3), p. 1931. DOI: 10.1007/s10570-015-0616-0, ISI, FCD, CFUM

Erratum: Influence of oxygen plasma treatment parameters on poly(vinylidene fluoride) electrospun fiber mats wettability (Prog. Org. Coat. (2015) 85 (151-158)) (2015) Correia, D.M., Ribeiro, C., Sencadas, V., Botelho, G., Carabineiro, S.A.C., Gomes Ribelles, J.L., Lanceros-Méndez, S. Progress in Organic Coatings, 86, art. no. 3666, p. 208. DOI: 10.1016/j.porgcoat.2015.05.011, ISI,FCD, CFUM, CQUIM

Hydrophobic/hydrophilic P(VDF-TrFE)/PHEA polymer blend membranes (2015) Tamaño-Machiavello, M.N., Bracke, B., Costa, C.M., Lanceros-Mendez, S., Sabater i Serra, R., Gómez Ribelles, J.L. Journal of Polymer Science, Part B: Polymer Physics, . Article in Press. DOI: 10.1002/polb.23959, ISI, FCD, CFUM

PMechanical fatigue performance of PCL-chondroprogenitor constructs after cell culture under bioreactor mechanical stimulus(2015) anadero, J.A., Sencadas, V., Silva, S.C.M., Ribeiro, C., Correia, V., Gama, F.M., Gomez Ribelles, J.L., Lanceros-Mendez, S.Journal of Biomedical Materials Research - Part B Applied Biomaterials, . Article in Press. DOI: 10.1002/jbm.b.33386, ISI,FCD, CFUM

6.2.3.2. Conferences Proceedings published in ISI Journals

Green" smart materials for force and strain sensors: The case of polyaniline (2015) Pina, C.D., Zappa, E., Busca, G., Costa, P., Lanceros-Mendéz, S., Sironi, A., Falletta, E. Towards Key Engineering Materials, 644, pp. 157-162. DOI: 10.4028/www.scientific.net/KEM.644.157

Induced magnetoelectric effect driven by magnetization in BaFe₁₂O₁₉/P(VDF-TrFE) composites (2015) Guttierrez, J., Lasheras, A., Barandiaran, J.M., Goncalves, R., Martins, P., Lanceros-Mendez, S. 2015 IEEE International Magnetics Conference, INTERMAG 2015, art. no. 7157266. DOI: 10.1109/INTMAG.2015.7157266

Metallic glass/PVDF magnetoelectric energy harvester working up to the radiofrequency range (2015) Lasheras, A., Gutierrez, J., Reis, S., Sousa, D., Silva, M., Martins, P., Lanceros-Mendez, S., Barandiaran,



6.2.3.3. National Patents

Patente: Piezoresistive composition ink; S. Lanceros-Mendez, J. Oliveira, P. Costa, B. Gonçalves, submitted Dec 2015

Patente: Biorreator magnético e magnetoelétrico para cultivo celular e aplicações biomédicas; S. Lanceros-Mendez, V. Correia, C. Ribeiro

6.2.3.4. Master Theses completed in 2015

Author	Supervisor	Title	Situation
Ana Catarina Lima	Leonel Ferreira Lourenço, S. Lanceros-Mendez	Comparação dosimétrica de dois Sistemas de Planeamento de Tratamento em Radioterapia Conformacional 3D	Terminated in november/2015 at ECUM
Ana Rita Sobreiro Almeida	JL Gomez Ribelles, S. Lanceros-Mendez	Mesenchymal stem cells culture on poly(vinylidene fluoride) piezoelectric microspheres	Terminated in november/2015 at ECUM
Hugo Higino de Barros Machado Martins Salazar	G. Botelho, S. Lanceros-Mendez	Desenvolvimento e caracterização de membranas de remoção de compostos de arsénio em água	Terminated in november/2015 at ECUM
João Alberto Cunha Barbosa	C. Ribeiro, S. Lanceros-Mendez	Development of a magnetically triggered poly(L-Lactic acid) based drug release system	Terminated in september/2015 at ECUM
Ana Rita Silva	Klaus Kuehn, Luciana Pereira, S. Lanceros-Mendez	Photocatalytic treatment of antibiotics and toxicity assays with Vibrio fischeri degradation by-products	Terminated in 2015 na Universidade de Aveiro
Andreia Bastos Pires de Lima	Carlos Tavares, José Augusto Afonso Lagido (Vishay)	Improving the tightness of the metallization used on top of the cell and its electrical connection with the wire	Terminated in july/2015 At Engineering School
Júlio Alves	G. Rocha, S. Lanceros-Mendez	Sistema de leitura de uma matriz piezoresistiva para próteses inteligentes	Terminated in november/2015 At Engineering School
Luísa Filipa Mota Lima	Etelvina Gomes,	Nanofibras biológicas funcionais	Terminated at 2015 At Engineering School
Mário Jorge Gonçalves Pereira da Lama	G. Rocha, S. Lanceros-Mendez	Desenvolvimento de circuitos baseados em eletrónica impressa	Terminated in december/2015 At Engineering School
Pedro José da Silva Pires	G. Rocha, S. Lanceros-Mendez	Sistema de leitura sensores de temperatura obtidos através de tecnologias de impressão	Terminated in november/2015 At Engineering School
Pedro Tiago Gonçalves Ribeiro	G. Rocha, S. Lanceros-Mendez	Desenvolvimento de um sensor de arsénio baseado em eletrónica impressa	Terminated in december/2015 At Engineering School

6.2.3.5. Ph.D. Theses completed in 2015

Author	Supervisor	Title	Situation
Cláudia Sofia Lehman Fernández	Senen L. Mendez, Luís Rebouta	Optimization of laminated magnetoelectric structures based on electroactive polymers	Terminated in april/2015 Doutoramento Erasmus-Mundus Vecceu, Chile
Marco Aurélio Pinto da Silva	Senentxu Lanceros-Mendez, Gerardo Rocha (DEI)	Application of Magnetoelectric Nanocomposites Based on Electroactive Polymers in Energy Harvesting Microsystems, Sensors and Actuators	Terminated in december/2015 At Engineering School

6.2.3.6. Ph.D Theses in progress in 2015

Author	Supervisor	Title	Situation
Attila Gören	Manuela Silva (DQ), Senen L. Mendez	Development of new organic electrodes for Lithium-ion rechargeable batteries	Developing since september/2013 at ECUM
Ricardo Jorge E. M. Gonçalves Sousa	Senen L. Mendez, Maria Manuela Silva (DQ)	Polymer based batteries fabricated by printing technologies	Developing since 2012 at ECUM
Daniela Maria Silva Correia	Gabriela Botelho (DQ), Senentxu Lanceros-Mendez, José Luis Gomez Ribelles	Scaffolds tridimensionais baseados em nanofibras eletroativas biodegradáveis para aplicação em engenharia de tecidos	Developing since 2014 At Engineering School
Juliana Oliveira	Gerardo Rocha (DEI), Senentxu Lanceros-Mendez,	Radiation detectors based in inkjet printing technologies	Developing since 2014 At Engineering School
Paulo Jorge Teixeira de Sousa	Graça Minas (DEB), Senentxu Lanceros-Mendez	Sensores piezoresistivos miniaturizados para aplicações biomédicas	Developing since 2014 At Engineering School
Renato Gonçalves (Prog. Dout. Engº Mat)	Gabriela Botelho (DQ), Senentxu Lanceros-Mendez	High performance low dimensionality magnetoelectric nanocomposites for advanced applications	Developing since 2014 At Engineering School
Sílvia Clara Mesquita da Silva Reis	Gerardo Rocha (DEI), Senen Lanceros-Mendez	Desenvolvimento e Caracterização de Sensores Magnetoelétricos Baseados em Polímeros Eletroativos	Developing since 2014 At Engineering School
Vânia Cristina Gonçalves Pinto	Graça Minas (DEB), Senentxu Lanceros-Mendez	Desenvolvimento de dispositivo microfluidico para deteção de cortisol salivar	Developing since 2014 At Engineering School

6.2.3.7. Master Theses in progress in 2015

Author	Supervisor	Title	Situation
Inês Saavedra	Michael Belsley, Etelvina de Matos Gomes	Geração de Segunda Harmónica Ótica em Nanofibras poliméricas dopadas com cristais orgânicas	Develloping since september/2015 at ECUM
João Oliveira	Bernardo Almeida	Modelização de espectros de raios-X em filmes finos	Develloping since october/2014 at ECUM
João Rodolfo Alves	Bernardo Almeida	Filmes compósitos para junções de efeito túnel	Develloping since october/2013 at ECUM
Vasco Maria Gomes	Bernardo Almeida	Filmes compósitos para junções de efeito túnel	Develloping since october/2015 At Engineering School
Vitor H. M. Fernandes	Bernardo Almeida, Etelvina Gomes	Nanofibras de metais por electrospinning	Develloping since october/2014 At Engineering School

6.2.4. Other scientific activities

Conference organization **Intenational**

José Luis Ribeiro - – Membro da Comissão Organizadora do “European Meeting on Ferroelectricity-EMF2015”, Porto, 28 Junho-3 Julho, 2015

Bernardo Almeida – Membro da Comissão do “European Meeting on Ferroelectricity-EMF2015”, Porto, 28 Junho-3 Julho, 2015

National

Bernardo Almeida, Membro da Comissão Científica do Simpósio Doutoral em Eng Física, Porto, 11-13 Junho, 2015

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**

Low dimensional magnetoelectric CFO/PVDF microparticles, VII International Materials symposium, R. Gonçalves, P. Martins, D. M. Correia, V. Sencadas, G. Botelho and S. Lanceros-Méndez, XVII conference of sociedade Portuguesa dos materiais, Faculdade de Engenharia da Universidade do Porto, Portugal, 21-23 June, 2015.



All inkjet printed adjustable low-pass filter for printed strain sensors" V. Correia, H. Castro, G. Rocha, S. Lanceros-Mendez, Materiais 2015, Porto, Portugal

Comparative photocatalytic efficiency of TiO₂ Nanoparticles in suspension Vs. Immobilized into PVDF-TrFE; P.M. Martins, R. Miranda, C.J. Tavares, G. Botelho and S. Lanceros-Mendez; MATERIAIS 2015 (Porto), 21-23 June, 2015.

Dielectric properties of laser ablated BaTiO₃ films deposited over electrophoretically dispersed CoFe₂O₄ grains ", J.G. Barbosa, J. Oliveira, I.T. Gomes, M.R. Pereira, C. Moura, J.A. Mendes, B.G. Almeida, comunicação apresentada no "13th European Meeting on Ferroelectricity - EMF 2015", Porto, 28 Junho-3 Julho, 2015

Effect of drying temperature on poly(vinylidene fluoride) polymer binder for C-LiFePO₄ cathode slurry preparation, A. Gören, C. M. Costa, S. Ferdov, D. Cíntora-Juárez, J. L. Tirado, M. M. Silva and S. Lanceros-Méndez, MATERIAIS 2015, Porto, 21-23 June, 2015

Effect of ionic liquid type on the physicochemical properties of poly (vinylidene fluoride)/ionic liquid blends".J. C. Dias, R. Mejri, A. C. Lopes, G. Botelho, M. M. Silva, B. Hentati, J.M.S.S. Esperança, S. Lanceros-Méndez,Materiais 2015, realizada na Faculdade de Engenharia da Universidade do Porto, Portugal, de 21 a 23 de Junho de 2015.

Evaluation and Optimization of the Performance of Frame Geometries for Lithium-Ion Battery Application by Computer Simulation",D. Miranda, F. Miranda, C. M. Costa, A. M. Almeida and S. Lanceros-Méndez, 13th International Conference of Numerical Analysis and Applied Mathematics 2015 (ICNAAM 2015) no Symposium on Modelling and Simulation in Computer Sciences and Engineering (MSCSE 2015), Grécia, 23-29 de Setembro de 2015.

GD203:EU3+/PPO/POPOP/POLYSTYRENE COMPOSITES FOR INDIRECT X-RAY DETECTION, Materiais 2015 – J. Oliveira, P. M. Martins, P. Martins, V. Correia, J.G. Rocha, S. Lanceros-Méndez, VII International Materials Symposium, XVII Conference of Sociedade Portuguesa dos Materiais, Porto, Portugal, 21-23 de Junho, de 2015

Human mesenchymal stem cells growth and osteogenic differentiation on PVDF substrates. Effect of surface topography, Rita Sobreiro Almeida, María Noel Tamaño-Machiavello, Lourdes Cordón, Leonor Senent, Daniela Correia, Clarisse Ribeiro, Senentxu Lanceros-Méndez, Roser Sabater, José Luis Gómez-Ribelles, Amparo Sempere, ESCCA, European Society for Clinical Cell Analysis, 09-2015, Sicily, Italy

Induced magnetoelectric effect driven by magnetization in BaFe₁₂O₁₉- P(VDF-TrFE) Composites", Gutierrez, J., Lasheras, A., Barandiaran, J.M., (...), Martins, P., Lanceros-Mendez, S. Conference: INTERMAG 2015 (IEEE International Magnetics Conference), Beijing (China), 11-15 May, 2015

Low dimensional magnetoelectric CFO/PVDF microparticles, R. Gonçalves, P. Martins, D. M. Correia, V. Sencadas, G. Botelho, S. Lanceros-Méndez, Materiais 2015, Porto, 21-23 June, 2015.



Magnetic liposomes based on nickel ferrite nanoparticles as nanocarriers for new potential antitumor compounds", A.R.O. Rodrigues, I.T. Gomes, B.G. Almeida, J.P. Araújo, M.J.R.P. Queiroz, E.M.S. Castanheira, P.J.G. Coutinho, NanoSpain Bio & Med Conference, 10-13 March, 2015

Magnetoelectric sensors and energy harvesting devices based on polymer composites". 13th European Meeting on Ferroelectricity (EMF 2015), S. Reis, M. Silva, P. Martins, G. Rocha, A. Lasheras, J. Gutiérrez, J. M. Barandiaran, S. Lanceros-Mendez. Porto, Portugal, 28 de Junho a 3 de Julho de 2015

Magnetoliposomes based on manganese ferrite nanoparticles for guided transport of antitumor drugs", A.R.O. Rodrigues, J.F. Ramos, I.T. Gomes, B.G. Almeida, J.P. Araújo, R.C. Calhelha, M.J.R.P. Queiroz, P.J.G. Coutinho, E.M.S. Castanheira, 6th Iberian Meeting on Colloids and Interfaces – RICI6, 8-10 July, 2015

Metallic glass/PVDF magnetoelectric energy harvester working up to the radio frequency range", Andoni Lasheras, Jon Gutiérrez, Silvia Reis, Diogo Sousa, Marco Silva, Pedro Martins, Senen Lanceros-Mendez and Jose Manuel Barandiaran Conference: INTERMAG 2015 (IEEE International Magnetics Conference), Beijing (China), 11-15 May, 2015

Optimization of poly(vinylidene fluoride) and co-polymers polymer membranes for lithium-ion battery applications, 2nd International Conference on Nanotechnology, Nanomaterials & Thin Films for Energy Applications.C. M. Costa, S. Lanceros-Méndez, NANOENERGY 2015 (1-3 June 2015), Manchester, England, United Kingdom

Optimization of two dimensional interdigitated lithium ion batteries by computer simulations", D. Miranda, C. M. Costa, A. M. Almeida, S. Lanceros-Méndez in 2nd International Conference on Energy and Environment: bringing together Engineering and Economics, ICEE 2015, Guimarães, Portugal, 18-19 Junho de 2015.

Processing and characterization of poly(lactic acid) microspheres by oil in water emulsion technique, D. M. Correia, R. Gonçalves, C. Ribeiro, V. Sencadas, G. Botelho, J. L. Gomez Ribelles, S. Lanceros Mendez, Materiais 2015, Porto, 21-23 June, 2015.

Sempere hMSC growth and osteogenic differentiation on PVDF substrates. Effect of surface topography. ESCCA - European society for clinical cell analysis Giardini R. Almeida, M. Tamaño-Machiavello, L. Cordón, L. Senent, D. M. Correia, C. Ribeiro, S. Lanceros-Méndez, R. Sabater, J. L. Gomez Ribelles, A. Naxos, Sicily, 30 September – 3 October 2015.

Synthesis parameters optimization of iron-oxide magnetic silica spheres for biomedical applications. V. F. Cardoso, S. Irusta, N. Navascues, G. Botelho, G. Minas, S. Lanceros-Méndez- Materiais 2015, Porto, 21-23 June 2015.

Tailoring Poly(vinylidene fluoride-co-chlorotrifluoroethylene) microstructure and physical properties by exploring its binary systems with N,N dimethylformamide, R. E. Sousa, J. C. C. Ferreira, C. M. Costa, A. V. Machado, M. M. Silva and S. Lanceros-Méndez, MATERIAIS 2015, Porto, 21-23 June, 2015



Tailoring wettability of TiO₂/P(VDF-TrFE) membranes for improved photocatalytic activity; P.M. Martins, R.Miranda, J. Marques, C.J. Tavares, G.Botelho and S. Lanceros-Mendez; PSS 2015 (Guimarães), 10-11th de September, 2015.

Poster

Multi-laminate magnetoelectric materials for wide range magnetic sensor applications". S. Reis, M. Silva, P. Martins, G. Rocha, A. Lasheras, J. Gutiérrez, J. M. Barandiaran, S. Lanceros-Mendez. 13th European Meeting on Ferroelectricity (EMF 2015), Porto, Portugal, 28 de Junho a 3 de Julho de 2015

Anisotropic magnetoelectric multiferroic composites, R. Gonçalves, P. Martins, A. Larrea, G. Botelho, E. V. Ramana, S. K.Mendiratta, V. Sebastian and S. Lanceros-Mendez, VII International Materials symposium, XVII conference of sociedade Portuguesa dos materiais, Faculdade de Engenharia da Universidade do Porto, Portugal, 21-23 June, 2015

Assessment of ciprofloxacin photocatalysis by-products toxicity with *Vibrio fischeri*; A.R.Silva, S. Teixeira, P.M. Martins, L.Periera, M. Alves, K.Keuhn, G. Cuniberti and S. Lanceros-Mendez; PSS 2015 (Guimarães), 10 – 11th de September, 2015.

Development of PVA and SEBS piezoresistive polymers based inks for printing technologies, J. Oliveira, B. F., Gonçalves, P. Martins, P. Costa, G. Botelho, G. Rocha, Senentxu Lanceros-Mendez, Materiais 2015, FEUP, Porto

DEVELOPMENT OF PVA AND SEBS PIEZORESISTIVE POLYMERS BASED INKS FOR PRINTING TECHNOLOGIES", J. Oliveira, B. F. Gonçalves, P. Martins, P. Costa, G. Botelho, G. Rocha, Senentxu Lanceros-Mendez, Materiais 2015 – VII International Materials Symposium, XVII Conference of Sociedade Portuguesa dos Materiais, Porto, Portugal, 21-23 de Junho, de 2015

Effect of the degree of porosity on poly(vinylidene fluoride-trifluoroethylene)/poly(ethylene oxide) blends for lithium-ion battery separator; A.Gören1,2, C. M. Costa1, M. N. Tamaño Machiavello, D. Cíntora-Juárez, J. Nunes-Pereira, J. L. Tirado, M. M. Silva, J. L. Gomez-Ribelles and S. Lanceros-Méndez: Materiais 2015, Porto, Portugal, 21 – 23 de Junho de 2015

Electrochemical properties of core-shell polypyrrole/poly (vinylidene fluoride) electrospun fibers". J. C. Dias, G. Botelho, T. Otero, V. Sencadas, S. Lanceros-Méndez,Materiais 2015, realizada na Faculdade de Engenharia da Universidade do Porto, Portugal, de 21 a 23 de Junho de 2015.

Fabrication and mechanical properties of poly(vinylidene fluoride) three dimensional porous scaffolds. D.M. Correia, C. Ribeiro, V. Sencadas, G. Botelho, J.L. Gomes Ribelles, S. Lanceros-Méndez, Materiais 2015, Porto, 21-23 June, 2015.

Improving lithium ion battery performance by computer simulations of their interdigitated structure", D. Miranda, R. E. Sousa, A. Gören, C. M. Costa, A. M. Almeida, M. M. Silva, S. Lanceros-Méndez 7th International Materials Symposium of 17th Conference of Sociedade Portuguesa dos Materiais, Porto, 21 a 23 de Junho de 2015.



Novel anisotropic magnetoelectric effect on δ -FeO(OH)/P(VDF-TrFE) multiferroic composites, R. Gonçalves , P. Martins, A. Larrea, G. Botelho, E. V. Ramana, S. K.Mendiratta, V. Sebastian and S. Lanceros-Mendez, 13th European Meeting on Ferroelectricity, Porto, Portugal, 28 Jun-3 Jul, 2015.

Optimization of poly(vinylidene fluoride) and co-polymers polymer membranes for lithium-ion battery applications, C. M. Costa, S. Lanceros-Méndez, 2nd International Conference on Nanotechnology, Nanomaterials & Thin Films for Energy Applications NANOENERGY 2015 (1-3 June 2015), Manchester, England, United Kingdom

Optimization of two dimensional interdigitated lithium ion batteries by computer simulations, D. Miranda, C. M. Costa, A. M. Almeida, S. Lanceros-Méndez, ICEE 2015

Processing and characterization of PVDF-based porous membranes via air drying and non-solvent induced phase separation. V. F. Cardoso, H. Salazar, C. Ferreira, A. C. Lopes, G. Botelho, S. Lanceros-Méndez , Materiais 2015, Porto, 21-23 June 2015.

Reusability and photocatalytic activity of PVDF-TrFE nanocomposites; Sara Teixeira, P. M. Martins, Klaus Kuehn, S. Lanceros-Méndez, Gianaurelio Cuniberti; MATERIAIS 2015 (Porto), 21-23 June, 2015.

Tailoring Poly(vinylidene fluoride-co-chlorotrifluoroethylene) microstructure and physical properties by exploring its binary systems with N,N dimethylformamide, R. E. Sousa, J. C. C. Ferreira, C. M. Costa, A. V. Machado, M. M. Silva and S. Lanceros-Méndez, MATERIAIS 2015, Porto, 21-23 June, 2015

National Oral

Materials Science and applications”, Workshop do Mestrado em Física, Braga, 3 de Junho de 2015
Optimization of Magnetoelectric Composites Based on Electroactive, Polymers for Energy Harvesting and Sensor Application, M. Silva, S Reis, A Lasheras, P. Martins, J Gutiérrez, S. Lanceros-Mendez, Jornadas do Centro de Física, Novembro, 215

Tailoring piezoelectric polymer structures for advanced tissue engineering strategies, Daniela M. Correia, C. Ribeiro, V. Sencadas, G. Botelho, J. L. Gomez Ribelles, S. Lanceros-Méndez, Jornadas do Centro de Física, Novembro, 215.

Poster

Cell adhesion and proliferation of skeletal muscle cells on piezoelectric poly(vinylidene fluoride) membranes. S. Ribeiro, P. M. Martins, C. Ribeiro, V. Sencadas, A. C. Gomes, F. M. Gama and S. Lanceros-Mendez. Jornadas Centro de Física Universidade do Minho. Braga-Portugal, 20 november 2015.

High performance electromechanical actuators based on poly (vinylidene fluoride)/ionic liquid blends”. R. Mejri, J. C. Dias, S. Besbes Bentati, C. M. Costa, G. Botelho, J.M.S.S. Esperança, S. Lanceros-Méndez, Jornadas CFUM 2015, realizada No Anfiteatro da Escola de Ciências da Universidade do Minho, Portugal, a 20 de Novembro de 2015.



"Improving lithium ion battery performance by computer simulations of their interdigitated structure", D. Miranda, R. E. Sousa, A. Gören, C. M. Costa, A. M. Almeida, M. M. Silva, S. Lanceros-Méndez Jornadas do Centro de Física da Universidade do Minho 2015, Braga, 20 de Novembro de 2015.

"New generation of polymer composites for arsenic filtration". H. Salazar, J. Nunes-Pereira, V. F. Cardoso, R. Gonçalves, S. Ferdov, G. Botelho and S. Lanceros-Méndez. Jornadas CFUM 2015, Braga 20 de Novembro de 2015.

Processing and characterization of PVDF-based porous membranes via air drying and non-solvent induced phase separation. V. F. Cardoso, C. G. Ferreira, H. Salazar, J.L. Teixeira, A. C. Lopes, G. Botelho, S. Lanceros-Méndez. Jornadas CFUM 2015, University of Minho, Braga, 20 November 2015.

6.2.6. Funded Projects Ongoing

Title: Simple

Reference: 23122

Project Coordinator: Senen Lanceros Mendez

Funding Awarded: 306353.13 Euros

Start date: January 2013

Duration: 2,5 years

6.2.7. Future Research

Research on the FCD group is directed to the production and characterization of new dielectric materials in the form of nanostructures (nanofibres, films, arrays, membranes) and in the form of ferroelectric ceramics and polymers. The effect of nanostructuring (nanofibres, polymer films and membranes, composites) in the dielectric, ferroelectric, piezoelectric and non-linear optical properties will be studied in detail, in light of potential applications, along with the coupling between the magnetic and polar orders (multiferroism). Their phase diagrams and cooperative phenomena will be characterized and explored.



6.3 Group of Physics of Nano Crystalline Materials (FMNC)

6.3.1 Summary description of the scientific work carried out by the group in 2015

Study of phase transitions in the system BZT-BCT.

Study of the light-controlled resistive switching in BST thin films

6.3.2 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
	<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>-Koppople Sekhar – Pos-Doc (FCT) Until October -Kamakshi Koppole – Pós Doc (FCT) Until October -Fabricio Faita, Pos- Doc (FCT) Until November -José Pedro Basto da Silva, Pos-Doc (FCT)</p> <p><u>Ph. D and other Research Students:</u></p> <p>-Arup Kumar Kunti. (until Sept. 2015), Erasmus Mundus Areas + -Ouiame Karzazi – PhD student</p>
Group Members	

6.3.3 Scientific Production

6.3.3.1 Regular articles Published in ISI Journals

Enhanced resistive switching and multilevel behavior in bilayered HfAlO/HfAlOx structures for non-volatile memory applications”, F. L. Faita J. P. B. Silva · M. Pereira · M. J. M. Gomes, Applied Physics Letters 01/2015; 107:242105. DOI:10.1063/1.4937801 · Impact Factor 3.30

Ferroelectric phase transitions studies in 0.5Ba(Zr0.2Ti0.8)O3-0.5(Ba0.7Ca0.3)TiO3 ceramics”, J. P. B. Silva · E. C. Queirós · P. B. Tavares · K. C. Sekhar · K. Kamakshi · J. Agostinho Moreira · A. Almeida · M. Pereira · M. J. M. Gomes, Journal of Electroceramics 11/2015; DOI:10.1007/s10832-015-0005-y · 1.74 Impact Factor FMNC

Modelling separator membranes physical characteristics for optimized lithium ion battery performance, D. Miranda, C. M. Costa, A. M. Almeida and S. Lanceros-Méndez, Journal of Solid State Ionics Vol. 278,



78–84 (2015). DOI: 10.1016/j.ssi.2015.05.022, SCOPUS sim, CFUM, Física de Materiais Nano-Cristalinos (FMNC), Fenómeno Cooperativos em Dieléctricos (FCD)

Structural, optical and magnetic properties of pulsed laser deposited Co-doped ZnO films, Karzazi, O.; Sekhar, K. C.; El Amiri, A.; et al. JOURNAL OF MAGNETISM AND MAGNETIC MATERIALS Volume: 395 Pages: 28-33 Published: DEC 1 2015

Surface Plasmon Resonance-Coupled Photoluminescence and Resistive Switching Behavior of Pulsed Laser-Deposited Ag:SiC Nanocermet Thin Films, Kamakshi, Koppole; Sekhar, K. C.; Almeida, A.; et al. PLASMONICS Volume: 10 Issue: 5 Pages: 1211-1217 Published: OCT 2015

Controlled aggregation of gold nanoparticles in a di-ureasil matrix. Optical and micro indentation investigation, Slavova, M. P.; Zamfirova, G. I.; Boev, V. I.; et al. BULGARIAN CHEMICAL COMMUNICATIONS Volume: 47 Issue: 2 Pages: 699-705 Published: 2015

Effect of annealing temperature on photoluminescence and resistive switching characteristics of ZnO/Al₂O₃ multilayer nanostructures, Sekhar, Koppole C.; Kamakshi, Koppole; Bernstorff, Sigrid; et al. JOURNAL OF ALLOYS AND COMPOUNDS Volume: 619 Pages: 248-252 Published: JAN 15 2015

Regular articles not yet included at the ISI database

Light-controlled resistive switching in laser-assisted annealed Ba_{0.8}Sr_{0.2}TiO₃ thin films", J.P.B. Silva · Koppole Kamakshi · K. C. Sekhar · J. Agostinho Moreira · A. Almeida · M. Pereira · M. J. M. Gomes Physica Status Solidi (A) Applications and Materials 12/2015; DOI:10.1002/pssa.201532636 · 1.62 Impact Factor FMNC

Polymeric Versus Lipid Nanoparticles: Comparative Study of Nanoparticulate Systems as Indomethacin Carriers, Ana Carvalho, Ivo Lopes, Odete Gonçalves, Eduarda Bárbara, M. Elisabete C.D. Real Oliveira and Marlene Lúcio, Journal of Applied Solution Chemistry and Modeling 4 (2015) 95-109. <http://dx.doi.org/10.6000/1929-5030.2015.04.02.2> (ISI) Grupos envolvidos. (FAMO) (CFUM, CBMA).

6.3.3.2 Conferences Proceedings published in ISI Journals

Newtonize this! – Um Jogo de Computador para auxiliar o estudo da Mecânica, Sérgio Soeiro Miranda, António Mário Almeida – Proceedings of the IX International Conference on ICT in Education - Challenges 2015 Braga, Portugal, 14-15 May 2015, Edited by Universidade do Minho, Centro de Competência TIC do Instituto de Educação, Instituto de Educação, Campus de Gualtar, 4710-057 Braga, Portugal, Pages 187–194, ISBN: 978-989-97374-3-3

Controlled aggregation of gold nanoparticles in a di-ureasil matrix. Optical and micro indentation investigation. Slavova, M. P., Zamfirova, G. I., Boev, V. I., Gaydarov, V. T., Yotova, L. K., Gomes, M. J. M., & Silva, C. J. R. (2015). Bulgarian Chemical Communications, 47(2), 699-705.

6.3.3.3 Books and book chapters

Selected papers from the 3rd Edition of the International Conference on Wastes: Solution, Treatments and Opportunities, Viana do Castelo, Portugal, 14-16 September 2015, Edited by Candida Vilarinho, Fernando Castro, and Mario Russo, CRC Press 2015. Pages 85–90, Print ISBN: 978-1-138-02882-1, eBook ISBN: 978-1-315-64900-9, DOI: 10.1201/b18853-16

Chapter: Organic load of substrata for wastewater treatment constructed wetlands, A.B. Ferreira, L.M. Oliveira, I.A.-P. Mina & A.M. Almeida, in WASTES 2015 – Solutions, Treatments and Opportunities



6.3.3.4 Master theses completed in 2015

Author	Supervisor	Title	Situation
Bruno Danilson Lobo Marques	Mario Pereira	Optimização das condições de conformação no processamento de novos compósitos abrasivos de matriz vitrea	Terminated in december/2015 At Engineering School

6.3.3.5 Ph.D. theses in progress in 2015

Author	Supervisor	Title	Situation
Arup Kumar Kunti	Maria de Jesus Gomes	Development and optimization of optical properties of TiO ₂ based hybrid thin films for White LED application	Developing since september/2014 at ECUM
Daniel António da Silva Miranda	Mário Almeida, Senen L. Mendez, M. Manuela Silva (DQ)	Optimizing performance of rechargeable lithium, magnesium and sodium-ion batteries through computer simulations	Developing since january/2014 at ECUM

6.3.3.6 Ph.D. theses Completed in 2015

Author	Supervisor	Title	Situation
Ouiame Karzazi	Maria Jesus M. Gomes	Growth and characterization of structural, optical, and magnetic properties of doped ZnO nanocrystals embedded in high-k dielectrics	Terminated at november/2015 at ECUM

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

Conceitos elementares e interdisciplinaridade – um contributo da Biologia e da Física, I. Mina e A. M. Almeida - IV Congreso Internacional de Docencia Universitaria CINDU 2015, Vigo 25, 26 e 27 de junho 2015.

Optimization of two dimensional interdigitated lithium ion batteries by computer simulations, D. Miranda, C. M. Costa, A. M. Almeida, S. Lanceros-Méndez - 2nd International Conference on Energy and



Environment: bringing together Engineering and Economics, ICEE 2015, Guimarães, Portugal, 18-19 June 2015.

Organic load of substrata for wastewater treatment constructed wetlands, A.B. Ferreira, L.M. Oliveira, I.A.-P. Mina & A.M. Almeida – WASTES 2015 – 3rd Edition of the International Conference on Wastes: Solutions, Treatments and Opportunities, Viana Do Castelo, Portugal, 14-16 September 2015.

Special matrices for visco-elastic systems, Maria Antónia Forjaz, António Mário Almeida, T. de Lacerda-Arôso, Jorge Pamplona - ICNAAM 2015 – 13th International Conference of Numerical Analysis and Applied Mathematics, Symposium Numerical Optimization and Applications, Rhodes, Greece, 23-29 September 2015.

Poster

Improving lithium ion battery performance by computer simulations of their interdigitated structure, D. Miranda, R. E. Sousa, A. Gören, C. M. Costa, A. M. Almeida, M. M. Silva, S. Lanceros-Méndez - Materiais 2015 – VII International Materials Symposium / XVII Conference of Sociedade Portuguesa dos Materiais, Faculdade de Engenharia da Universidade do Porto, Portugal, 21-23 June 2015.

Newtonize this! – Um Jogo de Computador para auxiliar o estudo da Mecânica, Sérgio Soeiro Miranda, António Mário Almeida – Challenges 2015 – IX International Conference on ICT in Education, Braga, Portugal, 14-15 May 2015.

6.3.5 Future Research

Development of memories based on resistive switching



6.4 Functional Coatings Group (GRF)

6.4.1 Summary description of the scientific work carried out by the group in 2015

The research activities developed by the GRF members in 2015 yielded some 47 papers published in peer reviewed journals listed in the ISI Wok database, four book chapters, 3 articles published in peer-reviewed conference proceedings, and 31 presentations in international conference (9 by invitation).

6.4.2 Updated composition of the group

Research Group Title	Functional Coating Group (GRF)
Principal investigator	Luis Rebouta
Research area	Materials Physics of Thin Films
Group Members	<p><u>Effective Members:</u></p> <p>-Martin Andritschky, Full Professor -Luis Rebouta, Associate Professor with Habilitation -Filipe Vaz, Associate Professor with Habilitation -Marta Ramos, Associate Professor with Habilitation -Vasco Teixeira, Associate professor -Cacilda Moura, Assistant Professor -Carlos Tavares, Assistant Professor -Joaquim Carneiro, Assistant Professor -Luís Cunha, Assistant Professor -Luis Silvino, Assistant Professor -Sandra Carvalho, Assistant Professor -Teresa Aroso, Assistant Professor</p> <p><u>Researchers:</u></p> <p>-Stanislav Ferdov, Researcher - Diego Martinez, 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>-Joel Borges, Pos Doc - Armando Ferreira - Pos Doc FCT - Isabel Carvalho – Pos Doc FCT</p>



PhD Students:

- Paulo Eduardo Pedrosa Ph-D student, FCT grant
- Sebastian Calderon Velasco Ph-D student, FCT grant
- Mariana Marques Ph-D student, FCT grant
- Isabel Ferreri Ph-D student, FCT grant
- Noora Manninen Ph-D student, FCT grant
- Rita Rebelo Ph-D student, FCT grant
- Cristiana Alves Ph-D student, FCT grant
- Simone Rodrigues Ph-D student, FCT grant
- Edgar Carneiro Ph-D student, FCT grant
- Cláudia de Jesus Ribeiro Lopes Ph-D student, FCT grant

6.4.3 Scientific Production

6.4.3.1 Regular articles published in ISI Journals

A Review on the Green Synthesis of Silver Nanoparticles and Their Morphologies Studied via TEM, P. Rauwel, S. Kueuenal, S. Ferdov, E. Rauwel, ADVANCES IN MATERIALS SCIENCE AND ENGINEERING, (2015) 682749, DOI: 10.1155/2015/682749, GRF University of Minho, University of Tartu, Estonia, Tallinn University of Technology, Estonia

Ag(y):TiN(x) thin films for dry biopotential electrodes: the effect of composition and structural changes on the electrical and mechanical behaviours, P. Pedrosa, D. Machado, J. Borges, M.S. Rodrigues, E. Alves, N.P. Barradas, N. Martin, M. Evaristo, A. Cavaleiro, C. Fonseca, ...Mais APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING, 119 (2015) 169-178 DOI: 10.1007/s00339-014-8943-9, IF = 1.704, GRF

Biological behaviour of thin films consisting of Au nanoparticles dispersed in a TiO₂ dielectric matrix, J. Borges, D. Costa, E. Antunes, C. Lopes, M. S. Rodrigues, M. Apreutesei, E. Alves, N.P. Barradas, P. Pedrosa, C. Moura, L. Cunha, T. Polcar, F. Vaz, P. Sampaio, Vacuum 122B (2015) 360-368 <http://dx.doi.org/10.1016/j.vacuum.2015.03.036>, GRF SEG-CEMUC, Mechanical Engineering Department, University of Coimbra, Portugal Department of Control Engineering, Faculty of Electrical Engineering, Czech Technical University in Prague, Czech Republic Centro de Biologia Molecular e Ambiental (CBMA), Universidade do Minho Instituto Pedro Nunes, Laboratório de Ensaios, Desgaste e Materiais, Coimbra, Portugal Centro de Ciências e Tecnologias Nucleares, Instituto Superior Técnico, Universidade de Lisboa Instituto de Plasmas e Fusão Nuclear, Instituto Superior Técnico, Universidade de Lisboa MATEIS Laboratory-INSA de Lyon, France Universidade do Porto, Faculdade de Engenharia, Departamento de Engenharia Metalúrgica e de Materiais, Porto, Portugal

Biotribological behavior of Ag-ZrCxN1-x coatings against UHMWPE for joint prostheses devices, S. Calderon V, J. C. Sánchez-López, A. Cavaleiro, S. Carvalho, J. Mechanical Behavior of Biomedical Materials, 41 (2015) 83-91. IF: 3.048. doi:10.1016/j.jmbbm.2014.09.028, GRF

Chemical and structural characterization of ZrCN_x coatings: XPS, XRD and Raman spectroscopy, S. Calderon V, A. Cavaleiro, S. Carvalho, Applied Surface Science, 346 (2015) 240-247, doi:10.1016/j.apsusc.2015.03.161, GRF



Composition and structure variation for magnetron sputtered tantalum oxynitride thin films, as function of deposition parameters, D. Cristea, M. Pătru, A. Crisan, D. Munteanu, D. Crăciun, N. P. Barradas, E. Alves, M. Apreutesei, C. Moura, L. Cunha, Applied Surface Science, 358 (2015) 508-517 doi: 10.1016/j.apsusc.2015.09.022, GRF Department of Materials Science, Transilvania University, Brasov, Romania; Laser Department, National Institute for Laser, Plasma, and Radiation Physics, Magurele, Romania Centro de Ciências e Tecnologias Nucleares, Instituto Superior Técnico, Universidade de Lisboa Instituto de Plasmas e Fusão Nuclear, Instituto Superior Técnico, Universidade de Lisboa Université de Lyon, Institut des Nanotechnologies de Lyon INL-UMR, France MATEIS Laboratory-INSA de Lyon, France

Dependence of Ga-doped ZnO thin films properties on different sputtering process parameters substrate temperature, sputtering pressure and bias voltage, M.V. Castro, C.J. Tavares, Thin Solid Films 586 (2015) 13–21. IF: 1.867 , GRF

Deposition of Pd-Ag thin film membranes on ceramic supports for hydrogen purification/ separation, A.I. Pereira, P. Pérez, S.C. Rodrigues, A. Mendes, L.M. Madeira, C.J. Tavares, Materials Research Bulletin 61 (2015) 528–533. IF: 1.968, GRF

Development of polymer wicks for the fabrication of bio-medical sensors, A.C. Martins, A. Moreira, A.V. Machado, F. Vaz, C. Fonseca, J.M. Nobrega, MATERIALS SCIENCE & ENGINEERING C-MATERIALS FOR BIOLOGICAL APPLICATIONS, 49 (2015) 356-363 , DOI: 10.1016/j.msec.2015.01.044, IF = 3.088, GRF

Electrochemical and structural characterization of nanocomposite Ag_yTiNx thin films for dry bioelectrodes: the effect of the N/Ti ratio and Ag content, P. Pedrosa, D. Machado, P. Fiedler, E. Alves, N. P. Barradas, J. Haueisen, F. Vaz, C. Fonseca, Electrochimica Acta, 153 (2015) 602-611, DOI: 10.1016/j.electacta.2014.12.020, IF = 4.504, GRF

Electrochemical response of ZrCN-Ag-a(C,N) coatings in simulated body fluids, S. Calderon V, A. Cavaleiro, S. Carvalho, Electrochimica acta, 176 (2015) 898-906. doi:10.1016/j.electacta.2015.07.083, GRF

Electrochemical vs antibacterial characterization of ZrCN-Ag coatings, S. Calderon V, I. Ferreri, R.E. Galindo, M. Henriques, A. Cavaleiro, S. Carvalho, Surface and Coatings Technology, 275 (2015) 357-362, doi:10.1016/j.surfcoat.2015.04.042, GRF

Evolution of the functional properties of titanium-silver thin films for biomedical applications: Influence of in-vacuum annealing, C. Lopes, C. Goncalves, J. Borges, T. Polcar, M.S. Rodrigues, N.P. Barradas, E. Alves, E. Le Bourhis, F.M. Couto, F. Macedo, C. Fonseca, F. Vaz, Surf. Coatings Technol., 261 (2015) 262-271, 10.1016/j.surfcoat.2014.11.020, IF =1.998, GRF

Influence of Design Parameters on the Mechanical Behavior and Porosity of Braided Fibrous Stents, Rita Rebelo, Nivea Vila, Raul Fangueiro, Sandra Carvalho and Sohel Rana, Materials & Design 86 (2015) 237-247. URL: doi:10.1016/j.matdes.2015.07.051, GRF

Influence of hydrogen incorporation and coating thickness on the corrosion resistance of carbon based coatings deposited by magnetron sputtering, N.K. Manninen, S. Calderón V, C.F. Almeida Alves, S. Carvalho, A. Cavaleiro, Surface and Coatings Technology, 275 (2015) 127-132. URL: doi:10.1016/j.surfcoat.2015.05.029, GRF



Influence of load on the dry frictional performance of alkyl acrylate copolymer elastomers coated with diamond-like carbon films, D.M. Martinez, J. Nohava, J. Th. M. De Hosson, *J. Applied Physics*, 118 (2015) 175302, DOI: 10.1063/1.4934854, GRF

Label-free ITO-based immunosensor for the detection of very low concentrations of pathogenic bacteria , M. Barreiros dos Santos, S. Azevedo, J.P. Agusil, B. Prieto-Simon, C. Sporer, E. Torrents, A. Juarez, V. Teixeira, J. Samitier, *Bioelectrochemistry*, 101 (2015) 146-152 10.1016/j.bioelechem.2014.09.002 , GRF

Low temperature and autogenous pressure synthesis of spinel-type Cu₂GeO₄, S. Ferdov, *Materials Letters*, 138 (2015) 13-15, 10.1016/j.matlet.2014.09.073, GRF

Materials incompatibility as a major causes of hip prostheses rejection, I. Carvalho, M. Henriques, T. Polcar, S. Carvalho, *Reviews on advanced materials science*, 42 (2015) 36-49. GRF

Microstructural evolution of Au/TiO₂ nanocomposite films: The influence of Au concentration and thermal annealing, J. Borges, T. Kubart, S. Kumar, K. Leifer, M.S. Rodrigues, N. Duarte, B. Martins, J.P. Dias, A. Cavaleiro, F. Vaz, *Thin Solid Films*, 580 (2015) 77-88 DOI: 10.1016/j.tsf.2015.03.024, IF = 1.867, GRF

Mild hydrothermal synthesis and structural characterization of nano sized pyroxene-type NaVSi₂O₆, S. Ferdov, *CERAMICS INTERNATIONAL*, 41 (2015) 11546-11549, 10.1016/j.ceramint.2015.05.076, GRF

Multichannel EEG with novel Ti/TiN dry electrodes, P. Fiedler, S. Griebel, P. Pedrosa, C. Fonseca, F. Vaz, L. Zentner, F. Zanow, J. Haueisen, *SENSORS AND ACTUATORS A-PHYSICAL*, 221 (2015) 139-147, DOI: 10.1016/j.sna.2014.10.010, IF = 1.903, GRF

Multifunctional Ti-Me (Me = Al, Cu) Thin Film Systems For Biomedical Sensing Devices, C. Lopes, M. Vieira, J. Borges, J. Fernandes, M.S. Rodrigues, E. Alves, N.P. Barradas, M. Apreutesei, P. Steyer, C.J. Tavares, L. Cunha, F. Vaz, *Vacuum* 122B (2015) 353-359. IF: 1.858 , GRF Centro de Ciências e Tecnologias Nucleares, Instituto Superior Técnico, Universidade de Lisboa Instituto de Plasmas e Fusão Nuclear, Instituto Superior Técnico, Universidade de Lisboa Université de Lyon, Institut des Nanotechnologies de Lyon INL-UMR, France MATEIS Laboratory-INSA de Lyon, France

Novel Multipin Electrode Cap System for Dry Electroencephalography , P. Fiedler, P. Pedrosa, S. Griebel, C. Fonseca, F. Vaz, E. Supriyanto, F. Zanow, J. Haueisen, *BRAIN TOPOGRAPHY*, 28 (2015) 647-656, 10.1007/s10548-015-0435-5, IF = 3.468, GRF

Photocatalytic fabrics based on reduced graphene oxide and TiO₂ coatings, J. Molina, F. Fernandes, J. Fernandez, M. Pastor, A. Correia, A.P. Souto, J.O. Carneiro, V. Teixeira, F. Cases, *MATERIALS SCIENCE AND ENGINEERING B-ADVANCED FUNCTIONAL SOLID-STATE MATERIALS*, 199 (2015) 62-76, 10.1016/j.mseb.2015.04.013, GRF

Preparation and characterization of dye-sensitized TiO₂ nanorod solar cells, Lijian Meng, Hong Chen, Can Li, M. P. dos Santos, *Thin Solid Films*, 577 (2015) 103-108 DOI: 10.1016/j.tsf.2015.01.064, IF:1.867; GRF. Dalian Inst Chem Phys, China; Key Lab Appl Surface & Colloid Chem, China; Shaanxi Normal Univ, China; Inst Super Engrn Porto, Dept Fis, Portugal; Ctr Fis, Univ Minho, Portugal; Univ Chinese Acad Sci, China

Preparation of Robust Polyamide Microcapsules by Interfacial Polycondensation of p-Phenylenediamine and Sebacoyl Chloride and Plasticization with Oleic Acid, N. Rosa, G.V. Martins, M.M.S.M. Bastos, J.R.



Gois, J.F.J. Coelho, J. Marques, C.J. Tavares, F.D. Magalhães, Journal of Microencapsulation 32 (2015) 349–357. IF: 1.585 , GRF

PVD-grown antibacterial Ag-TiN films on piezoelectric PVDF substrates for sensor applications, S.M. Marques, I. Carvalho, M. Henriques, T. Polcar, S. Carvalho, Surf. Coatings Technol. 281 (2015) 117–124. URL: doi:10.1016/j.surfcoat.2015.09.057 GRF

Silver activation on thin films of Ag–ZrCN coatings for antimicrobial activity, I. Ferreri, S. Calderon V., R. Escobar Galindo, C. Palacio , M.Henriques, A.P. Piedade, S.Carvalho, Materials Science and Engineering C 55 (2015) 547–555. URL: doi:10.1016/j.msec.2015.05.071, GRF

Silver Nanoparticles: Synthesis, Properties, and Applications, P. Rauwel, E. Rauwel, S. Ferdov, M.P. Singh, ADVANCES IN MATERIALS SCIENCE AND ENGINEERING, (2015) 624394, 10.1155/2015/624394, GRF University of Minho, University of Oslo, Norway, University of Tartu, Estonia, Tallinn University of Technology, Estonia, Brock University, Canada.

Silver surface segregation in Ag-DLC nanocomposite coatings, N.K. Manninen, R.E. Galindo, S. Carvalho, A. Cavaleiro, Surface and Coatings Technology, 267 (2015) 90-97. doi:10.1016/j.surfcoat.2014.12.029, GRF

Solar selective absorbers based on Al₂O₃:W cermets and AlSiN/AlSiON layers, L. Rebouta, A. Sousa, P. Capela, M. Andritschky, P. Santilli, A. Matilainen, K. Pischow, N. P. Barradas, E. Alves, Solar Energy Materials and Solar Cells, 137 (2015) 93-100, IF:5.03), GRF CFUM, Univ Minho; Savo Solar Oy, Finland; C2TN IST-ID, Portugal; IPFN, IST-ID, Portugal.

Structure dependent resistivity and dielectric characteristics of tantalum oxynitride thin films produced by magnetron sputtering, D. Cristea, A. Crisan, N. Cretu, J. Borges, C. Lopes, L.Cunha, V. Ion, M. Dinescu, N.P. Barradas, E. Alves, M. Apreutesei, D. Munteanu, Applied Surface Science 354 B (2015) 298-305 doi:10.1016/j.apsusc.2015.06.167, GRF Department of Materials Science, Transilvania University, Brasov, Romania Laser Department, Electrical Engineering and Applied Physics Department, Transilvania University, Brasov, Romania; National Institute for Lasers, Plasma and Radiation Physics, Lasers Department, “Photonic Processing of Advanced Materials” Group, Magurele-Bucharest, Romania Centro de Ciências e Tecnologias Nucleares, Instituto Superior Técnico, Universidade de Lisboa Instituto de Plasmas e Fusão Nuclear, Instituto Superior Técnico, Universidade de Lisboa Université de Lyon, Institut des Nanotechnologies de Lyon INL-UMR, France

Study and characterization of the crest module design: A 3D finite element analysis, C. Costa, N. Peixinho, J.P. Silva, S. Carvalho, Journal of Prosthetic Dentistry, 113 (2015) 541-547. http://dx.doi.org/10.1016/j.prosdent.2014.12.008, GRF

Study of the electrical behavior of nanostructured Ti-Ag thin films, prepared by Glancing Angle Deposition, C. Lopes, P. Pedrosa, N. Martin, N.P. Barradas, E. Alves, F. Vaz, MATERIALS LETTERS, 157 (2015) 188-192, 10.1016/j.matlet.2015.05.067, IF = 2.489, GRF

Tribological characterization of TiO₂/Au decorative thin films obtained by PVD magnetron sputtering technology, C. S. Abreu, J. Matos, A. Cavaleiro, E. Alves, N.P. Barradas, F. Vaz, M. Torrell, J.R. Gomes, Wear, 330 (2015) 419-428 , DOI: 10.1016/j.wear.2015.01.069, IF = 1.913, GRF

Optical properties of zirconium oxynitride films: the effect of composition, electronic and crystalline structures, P. Carvalho, J. Borges, M. S. Rodrigues, N.P. Barradas, E. Alves, J. P. Espinos, A. R. Gonzalez-Elipe, L. Cunha, L. Marques, M. I. Vasilevskiy, F. Vaz, Applied Surface Science 358 B (2015) 660-669 doi:10.1016/j.apsusc.2015.09.129, GRF e GCEP Department of Control Engineering, Faculty



of Electrical Engineering, Czech Technical University in Prague, Czech Republic Centro de Ciências e Tecnologias Nucleares, Instituto Superior Técnico, Universidade de Lisboa Instituto de Plasmas e Fusão Nuclear, Instituto Superior Técnico, Universidade de Lisboa Instituto de Ciencia de Materiales de Sevilla (CSIC-University Sevilla), Sevilla, Spain

The influence of nitrogen and oxygen additions on the thermal characteristics of aluminium-based thin films, J. Borges, F. Macedo, F.M. Couto, M.S. Rodrigues, C. Lopes, P. Pedrosa, T. Polcar, L. Marques, F. Vaz, MATERIALS CHEMISTRY AND PHYSICS, 163 (2015) 569-580, DOI: 10.1016/j.matchemphys.2015.08.015 IF = 2.259, GRF, GCEP

Thin films composed of Ag nanoclusters dispersed in TiO₂: influence of composition and thermal annealing on the microstructure and physical responses, J. Borges, M.S. Rodrigues, C. Lopes, D. Costa, F.M. Couto, T. Kubart, B. Martins, N. Duarte, J.P. Dias, A. Cavaleiro, T. Polcar, F. Macedo, F. Vaz, Applied Surface Science 358 (2015) 595-604. DOI: <http://dx.doi.org/doi:10.1016/j.apsusc.2015.08.148>. IF = 2.453, Q1. GRF, GCEP.

Thin films composed of gold nanoparticles dispersed in a dielectric matrix: The influence of the host matrix on the optical and mechanical responses, J. Borges, M.S. Rodrigues, T. Kubart, S. Kumar, K. Leifer, M. Evaristo, A. Cavaleiro, M. Apreutesei, R.M.S. Pereira, M.I. Vasilevskiy, T. Polcar, F. Vaz, Thin Solid Films 596 (2015) 8-17. Doi: 10.1016/j.tsf.2015.08.058. IF = 1.759, Q1. GRF e GCEP.

Ag-TiNx electrodes deposited on piezoelectric poly(vinylidene fluoride) for biomedical sensor applications, S.M. Marques, N.K. Manninen, S. Lanceros-Mendez, S. Carvalho, Sensors Actuators A Phys. 234 (2015) 1–8. URL: doi:10.1016/j.sna.2015.08.016, GRF e FCD

Mechanical and piezoelectric properties of polycrystalline AlN films sputtered on titanium bottom electrodes (2015) Pătru, M., Isac, L., Cunha, L., Martins, P., Lanceros-Mendez, S., Oncioiu, G., Cristea, D., Munteanu, D. Structural, Applied Surface Science, 354, pp. 267-278. DOI: 10.1016/j.apsusc.2015.07.022, ISI,FCD, GRF, CFUM

One-step preparation of optically transparent Ni-Fe oxide film electrocatalyst for oxygen evolution reaction, Doudou Zhang, Lijian Meng, Jingying Shi, Nan Wang, Shengzhong Liu, Can Li, Electrochimica Acta, ISSN: 0013-4686, 169, 402-408, doi:10.1016/j.electacta.2015.04.101, 2015. IF:4.086; FCD GRF Inst Super Engr Porto, Dept Fis, Portugal; Ctr Fis, Univ Minho, Portugal; Key Lab Opt Syst Adv Mfg Technol, Changchun, China; Dalian Inst Chem Phys, China; CEFITEC, Univ Nova Lisboa; Dept Fis, Univ Evora.

Development of electrospun photocatalytic TiO₂-Polyamide-12 nanocomposites, E. Cossich, R. Bergamasco, M.T. Pessoa de Amorim, P. M. Martins, J. Marques, C. J. Tavares, S. Lanceros-Méndez, V. Sencadas, Materials Chemistry and Physics 164 (2015) 91-97. IF 2.259 , GRF e FCD, ISI

Effect of Electrospun Alumina Nanofibers Incorporation in Ceramic Glaze, E. Carneiro, P. Sá, B. Almeida, C. A. Pinto, J. T. Fernandes, J. P. Mendonça, S. Carvalho, Journal of Ceramic Science and Technology, 6 (2015) 69-74, DOI: 10.4416/JCST2014-00042, GRF, FCD

Structural, mechanical and piezoelectric properties of polycrystalline AlN films sputtered on titanium bottom electrodes, M. Pătru, L. Isac; L. Cunha, P. Martins; S. Lanceros-Mendez; D. Cristea; D. Munteanu, Applied Surface Science 354B (2015) 267-278 doi:10.1016/j.apsusc.2015.07.022, GRF e FCD Department of Materials Science, Transilvania University, Brasov, Romania Institute for Nuclear Research Pitesti, Mioveni, Romania;



Effect of acid or alkaline catalyst and of different capping agents on the optical properties of CdS nanoparticles incorporated within a diureasil hybrid matrix, Luis F. F. F. Gonçalves · Carlos J.R. Silva · Fehmida K. Kanodarwala · John A. Stride · Mario R. Pereira, *Optical Materials* 11/2015; 49:171. DOI:10.1016/j.optmat.2015.09.007. Grupos envolvidos. *FAMO, GRF (CFUM)*

Effect of clustering on the surface plasmon band in thin films of metallic nanoparticles, R. M. S. Pereira, J. Borges, F. R. C. Peres, P. Pereira, G. V. Smirnov, F. Vaz, A. Cavaleiro, and M. I. Vasilevskiy, *J. Nanophotonics* 9 (2015) 09736, <http://hdl.handle.net/1822/32685>, ISI, GCEP,GRF

Raman study of insulating and conductive ZnO:(Al, Mn) thin films, Phys. M. F. Cerqueira, T. Viseu, J. Ayres de Campos, A. G. Rolo, T. de Lacerda-Aroso, F. Oliveira, I. Bogdanovic-Radovic, E. Alves, and M. I. Vasilevskiy, *Physica Status Solidi A: Applications and Materials Science* 212 (2015), p. 2345 – 2354, <http://hdl.handle.net/1822/37624>, ISI, GCEP, FAMO, GRF

Development of electrospun photocatalytic TiO₂-polyamide-12 nanocomposites. Cossich, E., Bergamasco, R., Pessoa De Amorim, M. T., Martins, P. M., Marques, J., Tavares, C. J., . . . Sencadas, V. (2015). *Materials Chemistry and Physics*, 164, 91-97. doi: 10.1016/j.matchemphys.2015.08.029 | RepositóriUM: <http://hdl.handle.net/1822/36972>

Regular articles not yet included at the ISI database

Easy process to obtain suspended graphene flakes on TEM grids,Hugo Gonçalves, Joel Fernandes, Cacilda Moura, Peter Schellenberg, Michael Belsley, Luís Alves, *Materials Research Express* 2(5), 055602 (2015) Revista recente será indexada no ISI a partir de 2016 *FAMO, GRF (CFUM)*

6.4.3.2 Conferences Proceedings published in ISI Journals

Effect of surface plasmon resonance in TiO₂/Au thin films on the fluorescence of self-assembled CdTe Qds structure, I. Moura, M. F. Cerqueira, D. Melnikau, D. Savateeva, Y. Rakovich, J. Borges, F. Vaz, and M. Vasilevskiy, *Journal of Physics Conference Series*, 605 (2015) 012025, <http://hdl.handle.net/1822/39102>, ISI, GCEP,GRF

INVESTIGATIONS ON MAGNETRON SPUTTERED TANTALUM OXYNITRIDE THIN FILMS, D. Cristea, L. Cunha, M. Pătru, D. Munteanu, MATERIALS SCIENCE. NON-EQUILIBRIUM PHASE TRANSFORMATIONS, issue 2/2015 (2015) 30-33, GRF

OVERVIEW ON MAGNETRON SPUTTERED TANTALUMOXYNITRIDE THIN FILMS – STRUCTURES AND PROPERTIES, D. Cristea, L. Cunha, A. Crisan, D. Munteanu, *thenomus journal No 22 (2015) 185-190*, GRF

Electrochemical Performances of Li⁺ Intercalation and Deintercalation Processes for Electrochromism of MoO₃-Doped V₂O₅ Films Prepared By The Sol-Gel Method; He Wang, Manuel F. M. Costa, Shengnan Sun, Vasco Teixeira, Haining Cui, SMART 2015; A.L. Araújo, C.A. Mota Soares, et al. (Editors); IDMEC, Lisbon 2015, ISBN 978-989-96276-8-0, pp 1-10 (2015)

Structure Optimization on the Photoelectric and Photocatalytic Properties of Cu₂S and ZnO Complex Films. Paper presented at the Materials Today: Proceedings.Xu, F., Costa, M. F., Sun, S., Teixeira, V., Wang, Y., Bian, F., . . . Cui, H. (2015).

6.4.3.3 Books and book chapters



Innovation in Medicine and Healthcare, Rita Rebelo, Nivea Vila, Raul Fangueiro, Sandra Carvalho, Mariana Henriques, "Developed of a braided fiber-based stents , ed. Manuel grana, Carlos Toro, Robert J.Howlett and Lakhmi C. Jain, in Studies in Health Technology and Informatics, vol 207, IOS press, 2014. doi:10.3233/978-1-61499-474-9-135

Chapter:

Física 10 (Manual de Física A 10º Ano), Agostinho Oliveira, Cacilda Moura, José Costa Leme, Luís Cunha, Paula Cristina Silva, Raiz Editora, Lisboa (2015) ISBN 978-989-744-204-9

Física 10 (Caderno de Atividades + Começar a preparar o exame), Agostinho Oliveira, Cacilda Moura, José Costa Leme, Luís Cunha, Paula Cristina Silva, Raiz Editora, Lisboa (2015), ISBN 978-989-744-206-3

Física 10 (Livro do Professor), Agostinho Oliveira, Cacilda Moura, José Costa Leme, Luís Cunha, Paula Cristina Silva, Raiz Editora, Lisboa (2015)

6.4.3.4 International Patents

PCT/IB2015/057171 (17/09/2015), Universidade do Minho “Implante dentário”; Priority: PT 107890 (17/09/2014). Sandra Carvalho

6.4.3.5 Master theses completed in 2015

Author	Supervisor	Title	Situation
Catarina Isabel da Silva Oliveira	Luís Cunha and Diego Martinez	Tailored deposition of ZrOxNy coatings: on the widening of the available colour range	Terminated in november/2015 At Engineering School
David Ribeiro	Carlos Tavares	Painéis cerâmicos com propriedades antimosquito	Terminated in december/2015 At Engineering School
João Pedro Fernandes	Filipe Vaz, Joel Borges	Produção e caracterização de filmes finos nanocompósito de Au-Ag dispersos numa matriz dielétrica, com efeito de ressonância de plasmão de superfície localizado	Terminated in december/2015 At Engineering School
Mónica Sofia Bastos Vieira	Luís Cunha and Cláudia Lopes	Estudo das propriedades físicas fundamentais de filmes finos intermetálicos do tipo Ti-Me (Me = Al, Au) na funcionalização de elétrodos/ sensores para dispositivos biomédicos	Terminated in november/2015 At Engineering School

6.4.3.6 Ph.D. theses completed in 2015

Author	Supervisor	Title	Situation
Noora Manninen	Albano Cavaleiro (EngMEC-Univ.)	Development of a barrier for controlling the AG+ realese for antimicrobial	Terminated in december/2015 at



	Coimbra), Sandra Carvalho	activity on DLC-nIAg-DLC-Au based coatings for biomedical implants	Universidade de Coimbra
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6.4.3.7 Master theses in progress in 2015

Author	Supervisor	Title	Situation
Carlos Filipe dos Santos Lima	Luís Cunha	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	Developing since october/2013 at ECUM
Marco Pires	Filipe Vaz and Joel Borges	Filmes finos de nanopartículas de ouro dispersas numa matriz dielétrica de TiO ₂ com efeito de ressonância de plasmão de superfície localizado	Developing since january/2015 at ECUM
Sara Flor	Luís Marques	Modelação da interação da proteína E do vírus do dengue com ligantes de interesse farmacológico	Developing since september/2015 at ECUM
Beatriz Duro de Freitas	José Filipe Vilela Vaz; Cláudia de Jesus Ribeiro Lopes	Title: Otimização das propriedades físicas fundamentais de filmes finos intermetálicos do tipo Ti-Me (Me = Ag, Au, Al, Cu) na funcionalização de eletrodos/sensores do tipo polimérico, para aplicação em dispositivos biomédicos	Developing since october/2015 At Engineering School
Bruno Filipe Pedrosa Gomes	Sandra Maria Fernandes Carvalho; Sebastián Calderón Velasco	Zn-Fe bimetallic nanoparticles development for oxygen sensor in food packaging applications	Developing since october/2015 At Engineering School
Catarina Alves Aires Fernandes	Isabel Carvalho; Sebastián Calderón Velasco	Polypropylene Films Deposited On Biodegradable Substrates for Intelligent Food Packaging	Developing sincotober/2015 At Engineering School
João Duarte Pereira de Sousa	Luis Rebouta	Sistema ótico baseado em nitretos e oxinitretos para conversão fototérmica da radiação solar	Em desenvolvimento na desde october/2015 at Engineering School
Nuno Pires Soares	Isabel Carvalho; Stanislav Ferdov	Propriedades antimicrobianas do couro modificado por nanopartículas de TiO ₂ :Ag	Developing since october/2015 At Engineering School
Rui Pedro Pereira Domingues	José Filipe Vilela Vaz; Joel Nuno Pinto Borges	Desenvolvimento de filmes finos coloridos constituídos por nanopartículas metálicas (Au, Ag, Cu) dispersas numa matriz dielétrica	Developing since october/2015 At Engineering School
Tiago Samuel Castro de Oliveira	Sandra Carvalho; Cristiana Alves	Nanoestruturação de Tântalo para aumento da osseointegração em implantes dentários	Developing since october/2015 At Engineering School
Vasco Maria Gomes	Bernardo Almeida	Filmes compósitos para junções de efeito túnel	Developing since october/2015 At Engineering School
Vitor H. M. Fernandes	Bernardo Almeida, Etelvina Gomes	Nanofibras de metais por electrospinning	Developing since october/2014 At Engineering School



6.4.3.8 Ph.D. theses in progress in 2015

Author	Supervisor	Title	Situation
António Castro	Luís Marques	Modeling cellular population dynamics in complex extracellular environments: Study of encapsulated tumour spheroids	Develloping since february/2015 at ECUM
Cláudia de Jesus Ribeiro Lopes	Filipe Vaz, José Fonseca (EngMat. – Univ. Porto)	Estudo das Propriedades Físicas e Eletroquímicas de Filmes Finos Aplicados a sensores de pressão em próteses ortopédicas	Develloping since november/2011 at ECUM
Isabel Maria Ferreri Gusmão e Silva	Sandra Carvalho, Mariana Henriques (DEB)	Development of AG-Zr(C,O,N) multifunctional coatings for biomedical devices	Develloping since october/2011 at ECUM
Salmon Landi	Joaquim Carneiro, Pier Parpot (DQ)	Tratamento de efluentes industriais através de processos photocatalíticos com dióxido de titânio	Develloping since september/2014 at ECUM
Sergey Vladimirovich Pyrlin	Marta Ramos	Modeling the physical properties of nanostructures and composites	Develloping since 2011 at ECUM
Vítor Vasco Lourenço Vasconcelos	Jorge Pacheco (DMAT), Marta Ramos, Francisco C. Santos (DEI-IST)	Processos de sinalização na emergência e auto-organização da cooperação	Develloping since 2012 at ECUM
Cibeli Navarro Belleti Garcia	Carlos Tavares	Estudo da utilização da microscopia electrónica de varrimento em materiais com aplicações emergentes em nanotecnologia	Develloping since october/2009 at Engineering School
Cristiana Alves	Sandra Carvalho	Desenvolvimento de superfícies bioativas para o crescimento ósseo em implantes dentários	Develloping since march/2014 at Engineering School
Mariana Kristiina Marques	Sandra Carvalho, Senen L. Mendez, Mariana Henriques (DEB)	Development of multifunctional coatings deposited on polymer substrates	Develloping since october/2011 at Engineering School
Rita Daniela Nogueira Rebelo	Raul Fangueiro (DEC), Sandra Carvalho, Mariana Henriques (DEB)	Hybrid braided stent with antimicrobial properties	Develloping since october/2012 at Engineering School
Sandra Mariana da Silva Marques GRF	Sandra Carvalho, Senentxu Lanceros-Mendez, Mariana Henriques	Development of multifunctional coatings deposited on polymers based sensors for biomedical applications	Develloping since september/2011 at Engineering School
Sebastian Calderon Velasco	Sandra Carvalho, Albano Cavaleiro (Eng.Mec.- FCTUC)	Development of a diffusion barrier for controlling the Ag+ release on Zr(C,N)-nAg system for antimicrobial activity	Develloping since march/2011 at Engineering School
Simone Rodrigues	Orientador: Albano Cavaleiro, Co-orientador: Sandra Carvalho	Development of hidrophilic / oleophobic treatments for self-cleaning anti-greasy surfaces	Develloping since november/2014 at Fac. Ciências e Tecnologia da Univ. de Coimbra
Sofia Ferreira	Rodrigo Martins (FCT-UNL) e Luis Rebouta	Multifunctional metal oxides semiconductor presenting	Develloping since november/2015



		simultaneously transparency, conductivity and luminescent properties - Luminescent-TCOs.”.	at Fac. Ciências e Tecnologia da Univ. de Lisboa
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6.4.4 Other scientific activities

Conference organization

Carlos Tavares - Photocatalytic and Superhydrophilic Surfaces Workshop, PSS2015 (<http://www3.fisica.uminho.pt/pss2015/>), September 10-11th 2015, University of Minho, Guimarães (Portugal). Conference Chairman.

Carlos Tavares- Advances on Photocatalysis (AdvPhotoCat 2015) (<http://www.photocatalysis-workshop.com/>), July 6-8 2015, Iasi, Romania, member of the organizing committee.

F. Vaz - Chairman e organizador da 78th IUVSTA Workshop on “New horizons in oxynitride thin films: from synthesis to applications”, October 5 to 9, 2015, Braga – Portugal.

F. Vaz - Membro da Conference Steering Committee da “International Conference on Materials Science & Engineering - BRAMAT 2015”, Brasov, Roménia, 5 a 7 março de 2015.

Luis Cunha- Member of the Scientific Committee (International Advisory Committee and Steering Committee) of the International Conference on Materials Science and Engineering (BRAMAT 2015), Transylvania University, Brasov (Romania), from 5 to 7 March 2015

M. Andritschky, Member of the International Steering Committee Advances in Materials and Processing Technologies (AMPT), Madrid, Spain, IMDEA Materials Institute and Universidad Carlos III 2015,

Marta Ramos e Luís Marques – RICI6-6th Iberian Meeting on Colloides and Interfaces, Guimarães, 8 a 10 de julho 2015

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

MC3T3-E1 cell response of PVD-grown antibacterial thin films on piezoelectric PVDF Substrates for sensor applications Sandra Carvalho, 12th International Conference on Nanosciences & Nanotechnologies (NN15), Tessalónica, Grécia, 7 a 10 julho 2015

Nanocomposite thin films resulting from Au nanoclusters dispersed in a dielectric matrix: evolution of the localized surface plasmon resonance with annealing temperature. F.Vaz - Palestra convidada (Keynote Lecture) proferida na “E-MRS 2015 - Spring Meeting, lille, França, 11 a 15 de maio de 2015.

Nanofunctionalized Bioactive Surfaces for improved osseointegration of metallic implants, Sandra Carvalho - Stage I - Nanomedicine Translation Advisory Board (TAB), Dublin, 14 outubro 2015

Our history with the transition metal oxynitrides”, L. CUNHA, D. CRISTEA, A. CRISAN, D. MUNTEANU, F. Vaz, P. Carvalho, International Conference on materials Science and Engineering (BRAMAT 2015), in Brasov, Romania (5-7 March 2015)



Postgraduate Institute of Science (PGIS) S. Ferdov, Research Congress, 9-10 October 2015, Peradeniya, Sri Lanka.

Simulation of Organic-Based Materials for Energy and Sensing Applications", Marta M. D. Ramos, comunicação apresentada na Conferência Internacional "RAMP - Recent Advances in Materials Physics", Londres, Reino Unido, Dezembro 2015

Solar-activated controlled release of compounds from polymeric microcapsules functionalized with photocatalytic nanoparticles, Advances on Photocatalysis (AdvPhotoCat 2015), July 6-8, Iasi, Romania.

Thin films composed of noble metal clusters dispersed in a dielectric matrix: influence of composition and thermal annealing on the microstructure and physical response. F.Vaz - Palestra convidada (Plenary Lecture) proferida na "BRAMAT 2015 - International Conference Materials Science & Engineering, Brasov, Roménia, 5 a 7 de março de 2015.

Transparent conductive and photocatalytic metal oxide thin films, Winter Workshop 2015 on Heavy Metal Removal and Water Treatment within the Collaboration Project between German Jordanian University and Leibniz Institute for Analytical Science-ISAS - e.V., German Jordanian University Campus, October 18- 22 October 2015, Madeba, Jordan.

6.4.5 Funded Projects Ongoing

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



Title: PROGRAMA DE AÇÕES UNIVERSITÁRIAS INTEGRADAS LUSO-FRANCESAS – PAUILF -“Development of bioactive surfaces for bone ingrowth on dental implant”-

Coordenator: Sandra Carvalho

Funding: 3000 €

Title: TheLink - Marie Skłodowska-Curie European Training Network to Accelerate the Development Chain of Nanostructured Polymers

Referência: H2020-MSCA-ITN-2014: Grant agreement no. 642890

Coordenator: Marta Ramos – CN

Funding: 476 713€ (Univ. Minho)

Start date: 31 october 2014

Duration: 4 years

Title: Design of New Tetrahedral-Octahedral Silicates via Ion Exchange - Towards Advanced Applications

Referência: IF/01516/2013

Coordenator: Stanislav Ferdov

Funding: 50 000 Eur

Start date: 01.01.2014

Duration: 5 years

Title: Super Protective Coatings (SUPROCOAT): MAX/Lubricant nanocomposite coatings deposited at low temperature by magnetron sputtering

Referência: IF/00671/2013

Coordenator: Diego MArtinez

Funding: 50 000 Eur

Start date: 01.07.2014

Duration: 5 years

Title:- Second joint transnational call (2013) within the ERA-NET SIINN on “safe implementation of innovative nanoscience and nanotechnology” – NANO-SAFE-LEATHER - The effect on human health of Ag/TiO₂ NM-treated leathers for footwear industry

Coordenator Sandra Carvalho (Portugal)

Funding 125.000,00 €

Start date- 1/1/2015 a

End date: 31/12/2017

Title: PROGRAMA DE AÇÕES UNIVERSITÁRIAS INTEGRADAS LUSO-FRANCESAS – PAUILF – 2015 – “Development of bioactive surfaces for bone ingrowth on dental implant”-

Funding: 1500 €

IR: Sandra Carvalho

6.4.6 Other information

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

International



Oral

Study of Ga- and Al-doped ZnO thin film transparent electrodes deposited by D.C. pulsed magnetron sputtering, C. Tavares, XXIV International Materials Research Congress 2015 (IMRC2015), Symposium 7D, August 16-20, Cancun, Mexico.

Antibacterial activity of silver-based coatings for orthopedic devices triggered by an activation process, I Ferreri, M. Henriques, S. Carvalho, The 3rd Stevens Conference on BacteriaMaterial Interaction - June 17-18, 2015, in Hoboken NJ, USA.

Antibacterial properties of fibrous stents coated with silver oxide nanocoatings, Rita Rebelo, Nivea Vila, Raul Fanguero, Sandra Carvalho, and Mariana Henriques, Materias 2015, Porto, 2015.

Bioactive response of Tantalum based surfaces", C. F. Almeida Alves and S. Carvalho; 6th Iberian Meeting on Colloids and Interfaces – RICI 6, Guimarães, Portugal, 8-10 July 2015.

Biotribological behavior of Ag-ZrCxN1-x coatings against UHMWPE for joint prostheses devices" S. Calderon V, J.C. Sánchez-López, J.T.M. De Hosson, A. Cavaleiro, S.Carvalho, 6th International Conference on Mechanics and Materials in Design, Ponta Delgada/Azores, 26-30 July 2015.

Biotribological behaviour of a-C:Ag nanocomposite coatings", N.K.Manninen, S.Carvalho, A.Cavaleiro, 6th International Conference on Mechanics and Materials in Design, Ponta Delgada/Azores, 26-30 July 2015.

Effect of electrospun alumina nanofibers incorporation in ceramic glaze for hotel applications", Sandra Carvalho, Edgar Carneiro, Bernardo Almeida, WORKSHOP

"Applications of Electrospinning in Composites, Nanofabrication, Food, Packaging, Pharma and Controled Release" 25th-27th Mar, 2015, Novi Sad

Electrochemical Response of ZrCN-Ag-a(C,N) coatings in simulated joint electrolyte", S. Calderon V, A. Cavaleiro, S. Carvalho, 42nd ICMCTF, International Conference on Metallurgical Coatings and Thin Films, San Diego, EUA, April 20-24.

Evaluation of nanoparticle antimicrobial properties in surgical gauze", E. Carneiro, J. Souza, R. Fanguero and S. Carvalho, 6th Iberian Meeting on Colloids and Interfaces, 2015, Jul 8-10, Guimarães, Portugal

Influence of anodizing parameters on steel and aluminum alloys surface oleo/hydro-phobic/phobic character, S. P. Rodrigues, A. Cavaleiro and S. Carvalho, MATERIALS 2015 – VII International Materials Symposium, FEUP-Porto, Portugal

INVESTIGATIONS ON MAGNETRON SPUTTERED TANTALUM OXYNITRIDE THIN FILMS, D. Cristea, L. Cunha, M. Pătru, D. Munteanu. XII INTERNATIONAL CONGRESS - MACHINES, TECHNOLOGIES, MATERIALS 16–19.09.2015 VARNA, BULGARIA

Nanocomposite thin films resulting from Au nanoclusters dispersed in a dielectric matrix: evolution of the localized surface plasmon resonance with annealing temperature, J. Borges, M.F. Rodrigues, L. Cunha, M. Vasilevsky, A. Cavaleiro, T. Polcar, T. Kubart, F. Vaz, E-MRS 2015 - Spring Meeting, lille, França, 11 a 15 de maio de 2015.



Our history with the transition metal oxynitrides”, L. CUNHA, D. CRISTEA, A. CRISAN, D. MUNTEANU, F. Vaz, P. Carvalho, International Conference on materials Science and Engineering (BRAMAT 2015), in Brasov, Romania (5-7 March 2015)

OVERVIEW ON MAGNETRON SPUTTERED TANTALUMOXYNITRIDE THIN FILMS – STRUCTURES AND PROPERTIES, THE 18 th INTERNATIONAL SCIENTIFIC CONFERENCE „TEHNOMUS”, D. Cristea, L. Cunha, A. Crisan, D. Munteanu, May 8-9, 2015 „tefan cel Mare” University of Suceava – ROMANIA

PVD-grown Antimicrobial Thin Films on PVDF Substrates for Sensors Applications”, S.M. Marques, I. Carvalho, S. Lanceros-Mendez , M. Henrique, T. Polcar, S. Carvalho, 42nd ICMCTF, International Conference on Metallurgical Coatings and Thin Films, San Diego, EUA, April 20-24, 2015.

Silver activation as a trigger element of the silver ionization for antibacterial activity in multifunctional coatings, I. Ferreri, M. Henriques, S. Carvalho, International Conference on Metallurgical Coatings and Thin Films - CMCTF 2015 – April 20 - 25, 2015, in San Diego, EUA.

Solar-activated controlled release of compounds from polymeric microcapsules functionalized with photocatalytic nanoparticles, J. Marques, A.D. Ribeiro, F.C. Correia, P. Parpot, C.J. Tavares, Photocatalytic and Superhydrophilic Surfaces Workshop, PSS2015, September 10-11 2015, University of Minho, Guimarães, Portugal.

Structural study and Ab-initio simulation of TaO_x coatings deposited by magnetron sputtering”, C. F. Almeida Alves, L. Marques, F. Paumier, T. Girardeau, D. Schneider, S. Carvalho, MATERIAIS 2015 – VII International Materials Symposium, FEUP-Porto, Portugal

Thin films composed of gold nanoclusters dispersed in a dielectric matrix”, J. Borges, T. Kubart, M. Vasilevsky, A. Cavaleiro, F. Vaz, T. Polcar, 42nd ICMCTF 2015 - International Conference on Metallurgical Coatings and Thin Films, San Diego, CA, USA April 20 to 24 2015.

Maria Antónia Forjaz, António Mário Almeida, T. de Lacerda-Arôso, Jorge Pamplona, “Special matrices for visco-elastic systems”, - ICNAAM 2015 – 13th International Conference of Numerical Analysis and Applied Mathematics, Symposium Numerical Optimization and Applications, Rhodes, Greece, 23-29 September 2015.

Poster

Development of Ag/TiO₂NM-Treated Leathers with antibacterial activity for Footwear Industry, I. Carvalho, S.M. Marques, M. Henriques, T. Polcar, C.J. Tavares, S. Carvalho, Photocatalytic and Superhydrophilic Surfaces Workshop, PSS2015, September 10-11 2015, University of Minho, Guimarães, Portugal.

Development of Ag/TiO₂NM-Treated Leathers with antibacterial activity for Footwear Industry”, I. Carvalho, S.M. Marques, M. Henriques, T. Polcar, C.J. Tavares, S. Carvalho., Photocatalytic and Superhydrophilic Surfaces Workshop, PSS2015, Guimarães, Portugal, 10-11 de setembro 2015.

Development of tantalum and tantalum oxide bioactive coatings”, C. F. Almeida Alves, A. Cavaleiro, M. V. Oliveira and S. Carvalho; XXXVI CBRAVIC I WTMS, Vitória, ES, September 05-09, 2015.

Electrical and optical properties of Nb:TixOy, J. Stryhalski, D.A. Duarte, J.C. Sagás, L.C. Fontana, L. Rebouta, C.J. Tavares, 36th CBRAVIC – The Brazilian Congress on Vacuum Applications in Industry and Science, September 5-9, Espírito Santo Federal University, Vitória ES, Brazil.



Low-Density Macroporous Foams Obtained from Molecular Sieve by Temperature-Induced Amorphization, S. Ferdov, International Symposium on Zeolites and Microporous Crystals (ZMPC 2015), 28 Jun - 2 Jul 2015, Sapporo, Japan.

Mechanical properties of (Au, Ag):TiO₂ films prepared by magnetron sputtering" M. S. Rodrigues, J. Borges, C. Gabor, D. Munteanu, M. APREUTESEI, P. STEYER, C.LOPES, P. PEDROSA, L. CUNHA, D. MARTÍNEZ-MARTÍNEZ, F. VAZ, International Conference on materials Science and Engineering (BRAMAT 2015), in Brasov, Romania (5-7 March 2015)

Photocatalytic behavior of magnetron sputtered tantalum oxynitride thin films",D. CRISTEA, L. CUNHA, I. GHIUȚĂ, N. P. Barradas, E. Alves, D. MUNTEANU, International Conference on materials Science and Engineering (BRAMAT 2015), in Brasov, Romania (5-7 March 2015)

Release of Pyriproxyfen from polymeric microcapsules mediated by photocatalytic nanoparticles: A novel tool for control of *Aedes Aegypti* in Madera Island, Martins Alves, G; Marques, J; Pires, B; Seixas, G; Nazareth, T; Viveiros, B; Clairouin, M; Silva, AC; Tavares, CJ; Sousa, CA, VII EMCA WORKSHOP 2015: Global change: impacts and strategies to fight against mosquitoes and mosquito-borne diseases, February 23-26 2015, Valencia, Spain.

Structural and morphological evolution of TiAgx thin films as a function of in-vacuum thermal annealing temperature", C. Gonçalves, C. Lopes, C. Fonseca, A. Guedes, F. Vaz, 9th International Conference on Materials Science & Engineering – BRAMAT 2015, Brasov, Romania, 5-7 March 2015.

Surface nanofunctionalization for biomedical applications" Sandra Carvalho, EuroNanoForum, Riga, Letónia, junho 2015

Thermal and Ion-Exchange Properties of Microporous Copper Silicate with 12-Ring Channel System, S. Ferdov and Z. Lin, 6th International Symposium of Advanced Micro- and Mesoporous Materials, 6-9 Sep 2015, Burgas, Bulgaria.

Treatment of industrial effluents by photocatalytic processes with TiO₂ nanoparticles, J.O. Carneiro, A.P. Samantilleke, P. Parpot, C.J.Tavares, M. F. Costa, F. Fernandes, M. Pastor, A. Correia, V. Teixeira, Nanoscience and Nanotechnology International Conference - NanoPT 2015, February 11-13 2015, Alfândega do Porto, Portugal.

National

Oral

COMPORTAMENTO MECÂNICO DE STENTS FIBROSOS", Rita Rebelo, Nívea Vila, Raul Fangueiro, Sandra Carvalho, Mariana Henriques.6º Congresso Nacional de Biomecânica, Rui B. Ruben et al. (Eds) Monte Real, Leiria, Portugal, 6-7 de fevereiro, 2015. ISBN 978-972-8793-74-6

Let there be light..." Aida Alves, Celeste Magro, Conceição Marques, Dulce Geraldo, Fátima Bento, Isabel A-P. Mina, Jorge Pamplona, Luís Cunha, Luís Gonçalves, Paula Martins, Teresa Viseu, Alexandra Nobre, International Symposium on Communication and Light / 2 a 4 de Novembro de 2015 / Braga – Portugal

My school of Sciences" a project from the University of Minho involving 5000 high school students and a network of 19 Schools from the Minho region" Ana Isabel Pinheiro, Alice Dias, Ana Carvalho, Ana Cunha, Arminda Manuela Gonçalves, Carlos Silva, Elisabete Coutinho, João Paulo André, Luís Cunha, Luís Gonçalves, Maria Cláudia Araújo, Maria Teresa Almeida, Pedro Pimenta Simões, Estelita Vaz, Rui



Baptista, Sandra Paiva; Congresso de Comunicação de Ciência SciCom PT 2015, in Lagos, Portugal (28-30 May 2015)

PRODUCTION AND CHARACTERIZATION OF ZrCN-Ag COATINGS DEPOSITED BY MAGNETRON ", S. Calderon V, A. Cavaleiro, S. Carvalho, Jornadas do Centro de Física 2015, Braga, Portugal, 20 November 2015.

Poster

Antibacterial activity of silver-based coatings for orthopedic devices triggered by an activation process", I. Ferreri, M. Henriques, S. Carvalho: Jornadas do Centro de Física 2015, Braga, Portugal, 20 November 2015.

Development of tantalum and tantalum oxide bioactive coatings", C. F. Almeida Alves, A. Cavaleiro, M. V. Oliveira and S. Carvalho; Jornadas do Centro de Física 2015, Braga, Portugal, 20 November 2015.

Evaluation of nanoparticle comfort properties in surgical gauze", J. M. Souza, E. Carneiro, S. Carvalho, M.E.S. F. Raul, Jornadas do Centro de Física 2015, Braga, Portugal, 20 November 2015.

PVD-grown Thin Films on PVDF Substrates for sensors Applications", S. M. Marques, S. Lanceros-Mendez, M. Henriques, S. Carvalho, Jornadas do Centro de Física 2015, Braga, Portugal, 20 November 2015.

Wettability control of Al substrates under anodization process", S. P. Rodrigues, A. Cavaleiro and S. Carvalho, Jornadas do Centro de Física 2015, Braga, Portugal, 20 November 2015. GRF

6.4.7 Future Research

Development of a new generation of active, intelligent and smart bio-based food film packaging materials through dispersion of nano-sized oxygen scavengers in a bio-based polymeric matrix.

Development of new coatings based on carbon nanomaterials and technologies for leather surface finishing able to be used in upholstered furniture, automotive industry and protective equipment.

Development of bimetallic clusters for controlled antimicrobial activity on stents

Development of coatings for selective solar radiation absorption for high temperature applications based in structures nitride/oxynitride and in ceramic/metal composites with different metal volume fraction.

Development of nitride- and oxide-based thin films for bio-sensing and bio-electrode applications

Development of thin films with surface Plasmon resonance behaviour for gas and bio-sensing applications



6.5 Complexity and Electronic Properties Group (GCEP)

6.5.1 Summary description of the scientific work carried out by the group in 2015

Several aspects of the electronic and optical properties of graphene were clarified, with particular emphasis on: the magnetic properties of graphene dots; the electronic transport through extended defects on graphene; transport properties of fluorinated bilayer-graphene; propagation of electromagnetic radiation through disordered graphene-based photonic crystal; effect of a magnetic field on the Purcell factor of a quantum emitter in the presence of graphene.

In 2015 the group achieved consistent results in the development of a process for fabrication of graphene field-effect transistors (GFETs) over 200 mm Si-wafers covered with a 200 nm layer of SiO₂. A new design for electrolyte-gated GFETs using an in-plane recessed gate replacing the normally used external wire-gate was also successfully achieved and the new devices were shown to be able to work as chemical and biosensors. The work on graphene plasmonic devices continued in 2015 with the fabrication of diffraction gratings made of alternating stripes of dielectrics with contrasting dielectric constant on high-resistance, terahertz-transparent silicon wafers. The work on thin-film silicon-based devices was centered in three research projects: (i) fabrication of super-high-efficient oxygen and moisture barrier films (water-vapor transmission rate, WVTR <10·4 g/m²/day) for encapsulation of organic photovoltaics and OLEDs; (ii) direct writing of highly conductive lines and structures on thin amorphous silicon films by laser-induced crystallization and doping activation; (iii) p-i-n amorphous silicon photodiodes for integrated optoelectronic biosensors. In research project (i) a multilayered silicon nitride structure was developed on plastic (PET) substrates with WVTR = 7×10·5 g/m²/day. For project (ii) a software was developed that converts any drawing into a set of instructions that a computer program uses to drive a Nd-YAG laser operating at 532 nm that selectively crystallizes an a-Si:H film (with thickness in the range 10 nm to 1 μm). This process was optimized for plastic, glass, and oxidized silicon wafer substrates. As for (iii) the clean-room fabrication process for a-Si:H photodiodes was established.

I have supervised the research activities of the post-doc Tilen Cadez. Within my collaboration with that young researcher, a paper on the spin dynamical structure factors of an electronic Mott-Hubbard insulator was submitted to Nuclear Physics B and the preparation a second paper on one-electron spectral functions of a many-electron system in a magnetic field is in progress.

Concerning results presented in papers submitted and published during 2015, within collaboration with several researchers of institutions from Portugal, the Nederlands, and the US, we have studied the longitudinal and transverse spin dynamical structure factors of the spin-1/2 XXX chain at finite magnetic field h , focusing in particular on the singularities at excitation energies in the vicinity of the lower thresholds. While the static properties of the model can be studied within a Fermi-liquid like description in terms of pseudoparticles, our derivation of the dynamical properties relies on the introduction of a form of the ‘pseudofermion dynamical theory’ (PDT) of the 1D Hubbard model suitably modified for the spin-only XXX chain and other models with two pseudoparticle Fermi points. Specifically, we derived the exact momentum and spin-density dependences of the exponents $\zeta\tau(k)$ controlling the singularities for both the longitudinal and transverse ($\tau = t$) dynamical structure factors for the whole momentum range, in the thermodynamic limit. This has required the numerical solution of the integral equations that define the phase shifts in these exponent expressions. We have also discussed the relation



to neutron scattering and suggest new experiments on spin-chain compounds using a carefully oriented crystal to test our predictions.

Another project involved a collaboration with scientists from Slovenia and the US. Whether at the zero spin density $m = 0$ and finite temperatures $T > 0$ the spin stiffness of the spin-1/2 XXX chain is finite or vanishes remains an unsolved and controversial issue, as different approaches yield contradictory results. We have explicitly computed the stiffness at $m = 0$ and find strong evidence that it vanishes. In particular, we derived an upper bound on the stiffness within a canonical ensemble at any fixed value of spin density m that is proportional to $m^2 L$ in the thermodynamic limit of chain length $L \rightarrow \infty$, for any finite, nonzero temperature, which implies the absence of ballistic transport for $T > 0$ for $m = 0$. Although our method relies in part on the thermodynamic Bethe ansatz (TBA), it does not evaluate the stiffness through the second derivative of the TBA energy eigenvalues relative to a uniform vector potential. Moreover, we have provided strong evidence that in the thermodynamic limit the upper bounds on the spin current and stiffness used in our derivation remain valid under strong deviations. Our results also provide strong evidence that in the thermodynamic limit the TBA method used by X. Zotos [Phys. Rev. Lett. 82, 1764 (1999)] leads to the exact stiffness values at finite temperature $T > 0$ for models whose stiffness is finite at $T = 0$, similar to the spin stiffness of the spin-1/2 Heisenberg chain but unlike the charge stiffness of the half-filled 1D Hubbard model.

6.5.2 Updated composition of the group

Research GroupTitle	Complexity and electronic properties
Principal investigator	Ricardo Ribeiro
Research area	Condensed Matter Physics
Group Members	<p><u>Effective Members:</u></p> <ul style="list-style-type: none"> -Anabela G Rolo – Assistant Professor -Francisco J M Macedo – Assistant Professor -João Pedro H A Alpuim – Assistant Professor -José M P Carmelo – Full Professor -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 <p><u>Post-doctorate researchers and research Fellows with PhD:</u></p> <ul style="list-style-type: none"> -Yuliy Bludov, Post-Doc Fellow -João Viana Lopes, Post-Doc Fellow (until June) <p><u>PhD and other research students:</u></p> <ul style="list-style-type: none"> -Filipe Oliveira - PhD student with FCT grant -Flávio Portas Pinheiro - PhD student with FCT grant



-Icaro Mendonça - Ph-D student CAPES
-André Chaves - PhD student CAPES
-Bruno Amorim - PhD student with FCT grant
-George Junior - PhD student CAPES

6.5.3 Scientific Production

6.5.3.1 Regular Articles Published in ISI Journals

Active magneto-optical control of spontaneous emission in graphene, W. J. M. Kort-Kamp, B. Amorim, G. Bastos, F. A. Pinheiro, F. S. S. Rosa, N. M. R. Peres e C. Farina, Phys. Rev. B 92, 205415 (2015). ISI, GCEP

Amorphous oxygen-rich molybdenum oxysulfide decorated p-type silicon microwire arrays for efficient photoelectrochemical water reduction, Xiao-Qing Bao, Dmitri Y. Petrovykh, Pedro Alpuim, Daniel G. Stroppa, Noelia Guldris, Helder Fonseca, Margaret Costa, Joao Gaspar, Chuanhong Jin, Lifeng Liu, Nano Energy (2015) 16, 130–142. ISI, GCEP

Analytical solution of electronic transport through a benzene molecule using lattice Green's functions, E. J. C. Dias e N. M. R. Peres, Journal of Physics: Condensed Matter 27, 145301 (2015). ISI, GCEP

Cloaking Resonant Scatterers and Tuning Electron Flow in Graphene, Diego Oliver, Jose H. Garcia, Tatiana G. Rappoport, N. M. R. Peres e Felipe A. Pinheiro, Physical Review B 91, 155416 (2015). ISI, GCEP

Discrete solitons in graphene metamaterials, Yu.V. Bludov, D.A. Smirnova, Yu.S. Kivshar, N.M.R. Peres, M.I. Vasilevskiy, Physical Review B. - 2015. - V.91, N4. - p. 045424-1-8. ISI, GCEP

Effect of argon ion energy on the performance of silicon nitride multilayer permeation barriers grown by hot-wire CVD on polymers”, P. Alpuim, S. Majee, M.F. Cerqueira, D. Tondelier, B. Geffroy, Y. Bonnassieux, and J.E. Bourée, Thin Solid Films Vol 595, p.258-265 (2015), doi: 10.1016/j.tsf.2015.09.048, ISI, GCEP

Electrically tunable resonant scattering in fluorinated bilayer graphene, Adam A. Stabile, Aires Ferreira, Jing Li, N. M. R. Peres e J. Zhu, Physical Review B 92, 121411(R) (2015). ISI, GCEP

Electronic Structure and Optical Signatures of Semiconducting Transition Metal Dichalcogenide Nanosheets, Weijie Zhao, Ricardo Mendes Ribeiro, Goki Eda, Acc. Chem. Res. 48 (2015) 91 , ISI-GCEP

Electronic transport across linear defects in graphene, C. J. Paez, J. N. B. Rodrigues, A. L. C. Pereira e N. M. R. Peres, Physical Review B 92, 045426 (2015). ISI, GCEP

Exciton-polaritons in 2D dichalcogenide layers placed in a planar microcavity: tuneable interaction between two Bose-Einstein condensates, M. I. Vasilevskiy, D. G. Santiago-Perez, C. Trallero-Giner, N. M. R. Peres and A. Kavokin, Phys. Rev. B 92 (2015) 005400, ISI, GCEP

Flexible organic-inorganic hybrid layer encapsulation for organic opto-electronic devices, Subimal Majee, Maria Fátima Cerqueira, Denis Tondelier, Bernard Geffroy, Yvan Bonnassieux, Pedro Alpuim, and Jean



Eric Bourée, Progress in Organic Coatings 80, p.27-32 (2015), doi:10.1016/j.porgcoat.2014.11.015
ISI, GCEP

Large Deviations in Linear Control Systems with Nonzero Initial Conditions, B. T. Polyak, A. A. Tremba, M. V. Khlebnikov, P. S. Shcherbakov, G. V. Smirnov, Automation and remote control, 2015, Volume 76, pp 957-976, DOI 10.1134/S0005117915060028

Local minima of quadratic functionals and control of hydro-electric power stations, M. Ferreira, A.F. Ribeiro, G. Smirnov, Journal of Optimization Theory and Applications, Vol. 165, Issue 3, pp 985-1005, DOI 10.1007/s10957-014-0610-y

Localization of light in disordered superlattices containing graphene layers, A. J. Chaves, N. M. R. Peres, F. A. Pinheiro, Anderson Phys. Rev. B 92, 195425 (2015). ISI, GCEP

Multi-stacks of epitaxial GeSn self-assembled dots in Si: Structural analyses, F. Oliveira, I. A. Fischer, A. Benedetti, M. F. Cerqueira, M. I. Vasilevskiy, S. Stefanov, Chiussi, and J. Schulze, Journal of Applied Physics 117, 125706 (2015), doi: 10.1063/1.4915939 ISI, GCEP

Permeation barrier performance of Hot Wire-CVD grown silicon-nitride films treated by argon plasma, S. Majee, M.F. Cerqueira, D. Tondelier, J.C. Vanel, B. Geffroy, Y. Bonnassieux, P. Alpuim, J.E. Bourée, Thin Solid Films 575 (2015), 72-75 ISI, GCEP

Silicon Nanowire Arrays Coupled with Cobalt Phosphide Spheres as a Low-Cost Photocathode for Efficient Solar Hydrogen Evolution, Xiao-Qing Bao, M. Fatima Cerqueira, Pedro Alpuim and Lifeng Liu, Chem. Commun., 51, 10742 - 10745 (2015), doi: 10.1039/C5CC02331a ISI, GCEP

Singularities of the dynamical structure factors of the spin-1/2 XXX chain at finite magnetic field, J. M. P. Carmelo, P. D. Sacramento, J. D. P. Machado, D. K. Campbell, Journal of Physics: Condensed Matter 27, 406001 (2015). ISI, GCEP

Solar selective absorbing coatings based on AlSiN/AlSiON/AlSiOy layers, L. Rebouta, A. Sousa, M. Andritschky, F. Cerqueira, C.J. Tavares, P. Santilli, K. Pischedow, Applied Surface Science, 356 (2015) 203-212, IF:2.538, GRF, GCEP CFUM, Univ Minho; Savo Solar Oy, Finland;

Straightforward phase-transfer route to colloidal iron oxide nanoparticles for protein immobilization, Vânia Vilas-Boas, Guldris Noelia, Enrique Carbó-Argibay, Daniel Stroppa, M. Fátima Cerqueira, Espiña Begoña, Jose Rivas, Carlos Rodríguez-Abreu and Yury V. Kolen'ko, RSC Advances 5, pp. 47954-47958 (2015), doi: 10.1039/C5RA08200E ISI, GCEP

Strain induced edge magnetism at zigzag edge in graphene quantum dot, Shuai Cheng, Jinming Yu, TianxingMa e N. M. R. Peres, Physical Review B 91, 075410 (2015). ISI, GCEP

Terahertz response of patterned epitaxial graphene, C. Sorger, S. Preu, J. Schmidt, S. Winnerl, Y. V. Bludov, N. M. R. Peres, M. I. Vasilevskiy e H. B. Weber, New Journal of Physics 17, 053045 (2015). ISI, GCEP

Up-scaling the Synthesis of Cu₂O Submicron Particles with Controlled Morphologies for Solar H₂ Evolution from Water, Enrique Carbó-Argibay; Xiao-Qing Bao; Carlos Rodriguez; M. Fatima Cerqueira; Dimitri Y. Petrovykh; Lifeng Liu; Yury V. Kolen'ko, Journal of Colloid & Interface Science, 456, pp.219-227 (2015), doi:10.1016/j.jcis.2015.06.014 ISI, GCEP

Vanishing spin stiffness in the spin-1/2 Heisenberg chain for any nonzero temperature, J. M. P. Carmelo, T. Prosen, , D. K. Campbell, Physical Review B 92, 165133 (2015). ISI, GCEP



Wetting behaviour of SAC305 solder on different substrates in high vacuum and inert atmosphere, C. Gonçalves, H. Leitão, C. S. Lau, J. C. Teixeira, L. Ribas, S. Teixeira, M. F. Cerqueira, F. Macedo, D. Soares, *J Mater Sci: Mater Electron* 26, pp. 5106-5112 (2015), doi: 10.1007/s10854-015-3037-9 ISI, GCEP

A Systematic Study of the Structural and Magnetic Properties of Mn-, Co-, and Ni-Doped Colloidal Magnetite Nanoparticles, Francis Leonard Deepak, Manuel Bañobre-López, Enrique Carbó-Argibay, M. Fátima Cerqueira, Yolanda Piñeiro-Redondo, José Rivas, Corey M. Thompson, Saeed Kamali, Carlos Rodríguez-Abreu, Kirill Kovnir, and Yury V. Kolen'ko, *J. Phys. Chem. C* 119, 11947-11957 (2015), doi: 10.1021/acs.jpcc.5b01575 ISI, GCEP

Optical properties of zirconium oxynitride films: the effect of composition, electronic and crystalline structures, P. Carvalho, J. Borges, M. S. Rodrigues, N.P. Barradas, E. Alves, J. P. Espinos, A. R. Gonzalez-Elipe, L. Cunha, L. Marques, M. I. Vasilevskiy, F. Vaz, *Applied Surface Science* 358 B (2015) 660-669 doi:10.1016/j.apsusc.2015.09.129, GRF e GCEP Department of Control Engineering, Faculty of Electrical Engineering, Czech Technical University in Prague, Czech Republic Centro de Ciências e Tecnologias Nucleares, Instituto Superior Técnico, Universidade de Lisboa Instituto de Plasmas e Fusão Nuclear, Instituto Superior Técnico, Universidade de Lisboa Instituto de Ciencia de Materiales de Sevilla (CSIC-University Sevilla), Sevilla, Spain

Thin films composed of Ag nanoclusters dispersed in TiO₂: influence of composition and thermal annealing on the microstructure and physical responses, J. Borges, M.S. Rodrigues, C. Lopes, D. Costa, F.M. Couto, T. Kubart, B. Martins, N. Duarte, J.P. Dias, A. Cavaleiro, T. Polcar, F. Macedo, F. Vaz, *Applied Surface Science* 358 (2015) 595-604. DOI: <http://dx.doi.org/doi:10.1016/j.apsusc.2015.08.148>. IF = 2.453, Q1. GRF, GCEP.

Thin films composed of gold nanoparticles dispersed in a dielectric matrix: The influence of the host matrix on the optical and mechanical responses, J. Borges, M.S. Rodrigues, T. Kubart, S. Kumar, K. Leifer, M. Evaristo, A. Cavaleiro, M. Apreutesei, R.M.S. Pereira, M.I. Vasilevskiy, T. Polcar, F. Vaz, *Thin Solid Films* 596 (2015) 8-17. Doi: 10.1016/j.tsf.2015.08.058. IF = 1.759, Q1. GRF e GCEP.

Effect of clustering on the surface plasmon band in thin films of metallic nanoparticles, R. M. S. Pereira, J. Borges, F. R. C. Peres, P. Pereira, G. V. Smirnov, F. Vaz, A. Cavaleiro, and M. I. Vasilevskiy, *J. Nanophotonics* 9 (2015) 09736, <http://hdl.handle.net/1822/32685>, ISI, GCEP,GRF

Degradation of all-inkjet-printed organic thin-film transistors with TIPS-pentacene under processes applied in textile manufacturing, H.F. Castro, E. Sowade, J.G. Rocha, P. Alpuim, A.V. Machado, R.R. Baumann, S. Lanceros-Méndez, *Organic Electronics* 22 (2015) 12–19. ISI, GCEP, FCD, CPD

Raman study of insulating and conductive ZnO:(Al, Mn) thin films, *Phys. M. F. Cerqueira, T. Viseu, J. Ayres de Campos, A. G. Rolo, T. de Lacerda-Aroso, F. Oliveira, I. Bogdanovic-Radovic, E. Alves, and M. I. Vasilevskiy, Physica Status Solidi A: Applications and Materials Science* 212 (2015), p. 2345 – 2354, <http://hdl.handle.net/1822/37624.>, ISI, GCEP, FAMO, GRF

New algorithms for smart assessment of math exercises. Vol. 353. Advances in Intelligent Systems and Computing (pp. 1221-1230). Araújo, I., Brito, I., Machado, G. J., Pereira, R. M. S., Almeida, J. J., & Smirnov, G. (2015) | RepositórioUM: <http://hdl.handle.net/1822/35188>



Silicon nanowire arrays coupled with cobalt phosphide spheres as low-cost photocathodes for efficient solar hydrogen evolution. Bao, X.-Q., Cerqueira, M. F., Alpuim, P., & Liu, L. (2015). Chemical Communications, 51(53), 10742-10745. doi: 10.1039/c5cc02331a

Luminescent characterization of Eu²⁺ doped BaMAl₁₀O₁₇ (M = Ca/Mg or both) blue nanophosphors for white light emitting applications. Singh, D., Tanwar, V., Simantilke, A., Kadyan, P. S., & Singh, I. (2015). Journal of Materials Science: Materials in Electronics. doi: 10.1007/s10854-015-3676-x

Effects of alloy disorder and confinement on phonon modes and Raman scattering in SixGe_{1-x} nanocrystals: A microscopic modeling. Vasin, A. S., Vikhrova, O. V., & Vasilevskiy, M. I. (2015). Journal of Applied Physics, 118(18). doi: 10.1063/1.4935816

Erratum: Effects of alloy disorder and confinement on phonon modes and Raman scattering in SixGe_{1-x} nanocrystals: A microscopic modeling" Vasin, A. S., Vikhrova, O. V., & Vasilevskiy, M. I. (2015). (Journal of Applied Physics(2014) 115 (143505)). Journal of Applied Physics, 118(18). doi: 10.1063/1.4935816

6.5.3.2 Conference Proceedings

Bases and mathematical exercises generation with nondetermined structure, J.J. Almeida, I. Araújo, G. Smirnov, Grobner in 2015 10th Iberian Conference on Information Systems and Technologies (CISTI) DOI: 10.1109/CISTI.2015.7170359

Graphene based nanostructures: Plasmonics in the THz range", Yu. V. Bludov, A. Ferreira, N. M. R. Peres, J. E. Santos, M. I. Vasilevskiy, ICTON2015 Proceedings, IEEE Publ., IEEEXplore Digital Library <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=7193346&tag=1>

Effect of surface plasmon resonance in TiO₂/Au thin films on the fluorescence of self-assembled CdTe Qds structure, I. Moura, M. F. Cerqueira, D. Melnikau, D. Savateeva, Y. Rakovich, J. Borges, F. Vaz, and M. Vasilevskiy, Journal of Physics Conference Series, 605 (2015) 012025, <http://hdl.handle.net/1822/39102>, ISI, GCEP,GRF

6.5.3.3 Master theses in progress in 2015

Author	Supervisor	Title	Situation
Fábio André Rodrigues Ferreira	Ricardo Ribeiro	Estudo de estrutura eletrónica de materiais bidimensionais na aproximação GW e pela equação Bethe-Salpeter	Develloping since 2015 at ECUM
João Tiago Costa Silva	Nuno Peres, Ricardo Ribeiro	Propriedades eletrónicas e óticas de dicalcogenetos de metais de transição	Develloping since october/2013 at ECUM
Patrícia Daniela Cabral da Silva	Pedro Alpuim	Nanobiossensores Baseados em Transístores de Efeito de Campo de Grafeno para Detecção de Biomarcadores	Develloping since october/2015 at ECUM



6.5.3.4 Ph.D Theses in progress in 2015

Author	Supervisor	Title	Situation
André Chaves	Nuno Miguel Peres	Fotónica de heteroestruturas de grafeno e outros materiais bidimensionais	Develloping since september/2014 at ECUM
Filipe André Peixoto Oliveira	Mikhail Vasilevskiy, Fátima Cerqueira, Jorg Scgulze, Univ.Estudarda (Alemanha)	Photonic integrated circuit (PIC) devices for inter-chip optical communication using GsSn alloy layers grown on Silicon substrates	Develloping since 2010 at ECUM
Flávio Luís Portas Pinheiro	Jorge Pacheco (DMAT), Nuno Peres	Caracterização de processos de auto-organização em redes complexas adaptativas	Develloping since 2012 at ECUM
Bruno Amorim	Francisco Guinea (Univ. Autónoma de Madrid), Nuno Peres	Tailoring the opto-electronic properties of grapheme by mechanical deformations	Develloping since 2012 at Universidade Autónoma de Madrid, Espanha
George Luiz Machado Junior	Pedro Alpuim	Dispositivos nanoeletrónicos de grafeno para aplicações em biossensores e em electrónica flexivel	Develloping since january/2013 at Engineering School

6.5.3.5 Master theses completed in 2015

Author	Supervisor	Title	Situation
Alexandre Faia de Carvalho	Pedro Alpuim	Síntese simultânea de diamante em grafeno para aplicações eletrónicas	Terminated in july/2015 at Universidade de Aveiro

6.5.4 Other scientific activities

Conference organization

Pedro Alpuim, Member of the Scientific and Organizing Committees for the 78th IUVSTA Workshop, INL, Braga, October 5 to 9, 2015

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

Bright and dark discrete solitons in graphene metamaterials // XV International Workshop on Instabilities and Nonequilibrium Structures, Valparaíso, Chile, December 7-11, 2015.



Discrete solitons in graphene-based metamaterials // The 36th Progress In Electromagnetics Research Symposium (PIERS2015), Prague, Czech Republic, July 6-9, 2015.

Graphene and nanoparticles: Looking good together?", CityU?Hokkaido University Joint Workshop "Advanced materials and characterization", M. Vasilevskiy, City University of Hong Kong, Hong Kong, 10-11 December 2015. (Invited)

Graphene based nanostructures: Plasmonics in the THz range", Yu. V. Bludov, A. Ferreira, N. M. R. Peres, J. E. Santos, M. I. Vasilevskiy, 17-th International Conference on Transparent Optical Networks (ICTON 2015), Budapest, Hungary, July 5th to 9th, 2015, Mo.C4.4 (Invited)

Hawking-like escape of the soliton from the trap in two-component Bose-Einstein condensate // XV International Workshop on Instabilities and Nonequilibrium Structures, Valparaíso, Chile, December 7-11, 2015.

In the "Program on Correlations and Topology in Quantum Matter - 2014", held in the Beijing Computational Science Research Center, Beijing, China, July 2015 (talk delivered on 10 July). Title: "Exotic transport properties of low-dimensional spin-lattice systems".

Interaction of soliton with an exceptional point in a PT-symmetric coupler with a coupling defect // The 6th International Conference on Metamaterials, Photonic Crystals and Plasmonics (META2015), New York, USA, August 4-7, 2015.

Upconversion of photoluminescence in II-VI nanocrystals: Feasibility of anti-Stokes cooling", Yu. Rakovich and M. I. Valsilevskiy, ImagineNano 2015, Bilbao, Spain, March 10-13. (Keynote, presented by Yu. Rakovich).

6.5.5 Funded Projects Ongoing

Title: Modos guiados em estruturas com simetria paridade tempo

Reference: PTDC/FIS-OPT/1918/2012

Project Coordinator: Yuliy 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: 3.5 Years

Title: Estados quânticos emergentes de novos materiais 2D

Reference: EXPL/FIS-NAN/1728/2013

Coordinator: Nuno Peres

Funding: 7572.00€

Starting date: 10-03-2014

Duration: 1 year

Title: VAPS – Abordagem variacional para cirurgia plástica

Reference: EXPL/MAT-NAN/0606/2013

Coordinator: Gueorgui Smirnov

Funding: 17016.00€

Starting date: 01-01-2014

Duration: 1,5 years

Title: Construction of a Dhip-Scale SERF-type Atomic magnetometer

Reference: PTDC/FIS/122689/2010

Coordinator: José Carlos Gomes

Funding: 79000.00€

Starting date: 07/02/2012

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

Wafer-scale fabrication of solution-gated graphene field-effect transistors for biosensing applications" J. Borme G.M. Junior, M.F. Cerqueira, N. Vieira, P. Alpuim, P.P. Freitas // Nanoscience and Nanotechnology International Conference, NanoPT-2015, Porto, Portugal. 11-13 February 2015 (oral presentation by J. Borme)

2D Dichalcogenides for light absorption applications" Ricardo Mendes Ribeiro // Graphene Week 2015, 22–26 June, Manchester, UK

Biosensing using wafer-scale electrolyte-gated graphene field-effect transistors", J. Borme, N.C.S. Vieira, C. Towle, G.M. Junior, M.F. Cerqueira, N.M.R. Peres, P. Alpuim, Graphene Canada, 14-16 October 2015, Montreal, Canada Oral

Electrolyte-gated graphene field-effect transistors fabricated at the wafer scale for biosensing applications", P. Alpuim, N.C.S. Vieira, G.M. Junior, M.F. Cerqueira, N.M.R. Peres, J. Borme, Trends in Nanotechnology International Conference (TNT2015), 7-11 September 2015, Toulouse, France Oral

Laser patterning of amorphous silicon thin films deposited on flexible and rigid substrates", P. Alpuim, M.F. Cerqueira, J. Gaspar, H. Fonseca, V. Iglesias, and J. Borme, ICANS26 - 26th International Conference on Amorphous and Nanocrystalline Semiconductors, 13-18 September 2015, Aachen, Germany Oral

Laser patterning of amorphous silicon thin films deposited on flexible and rigid substrates", P. Alpuim, M.F. Cerqueira, J. Gaspar, H. Fonseca, V. Iglesias, J. Bormé // 26th International Conference on



Amorphous and Nanocrystalline Semiconductors ICANS26, 13-18 September 2015, Aachen, Germany
(oral presentation by P. Alpuim)

Planar solution-gated graphene field-effect transistors for biosensing" G.M. Junior, M.F. Cerqueira, N. Vieira, P. Alpuim, P.P. Freitas // ICREA Workshop on Graphene Nanobiosensors, Barcelona, Espanha. 25-26 May 2015 (oral presentation by G Junior Machado)

Planar solution-gated graphene field-effect transistors for biosensing", George Machado Junior, Nirton Cristi Silva Vieira, Jérôme Borme, Maria Fátima Cerqueira, Paulo Peixeiro Freitas, Pedro Alpuim, ICREA Workshop on Graphene Nanobiosensors, 25-26 May 2015, Barcelona, Spain Oral

Single-layer CVD graphene in electrolyte-gated transistors and electrochemical devices for biosensing applications", J. Borme, S. Teixeira, R. Queirós, G. Machado Jr, N. Vieira, M.F. Cerqueira, P. Alpuim, Graphin – Graphene Industry, December 3, 2015, Zaragoza, Spain Oral

Wafer-scale fabrication of solution-gated graphene field-effect transistors for biosensing applications", N. Vieira, J. Borme, G.M. Junior, M.F. Cerqueira, P.P. Freitas, V. Zucolotto, P. Alpuim, Graphene 2015 (5th edition), March 9-13, Bilbao, Spain Oral

Poster

Discrete solitons in graphene multilayers // The 6th International Conference on Metamaterials, Photonic Crystals and Plasmonics (META2015), New York, USA, August 4-7, 2015.

Graphene field-effect transistors for biosensing applications, G.M. Junior, N.C.S. Vieira, M.F. Cerqueira, N.M.R. Peres, J. Borme, P. Alpuim // 26th International Conference on Amorphous and Nanocrystalline Semiconductors ICANS26, 13-18 September 2015, Aachen, Germany (poster presentation)

Graphene field-effect transistors for biosensing applications", G. Machado Jr., N. C. S. Vieira, M. F. Cerqueira, N. M. R. Peres, J. Borme, P. Alpuim, Jornadas do CFUM 2015, 20 de Novembro, Gualtar, Braga, Portugal poster

Highly Sensitive Electrochemically Gated Graphene Field-Effect Transistor for Extracellular Cell Signal Recording" Sanaz Asgari, Ana Mestre, Pedro Inácio, J. Bragança, Jérôme Borme, George Machado Jr., Fátima Cerqueira, Pedro Alpuim, and Henrique L. Gomes // 3rd International Conference on Nanotechnology in Medicine 23-25 November 2015, Manchester, UK (poster contribution).

Large scale fabrication of all-integrated electrolyte-gated graphene field-effect transistors" Nirton C. S. Vieira, Jérôme Borme, George M. Junior, Fátima Cerqueira, Paulo P. Freitas, Valtencir Zucolotto, Nuno Peres, Pedro Alpuim // XIV Encontro da Sociedade Brasileira de Pesquisa em Materiais, XIV SBPMat; Área: Organic Electronics and Bioelectronics: From materials characterization to device development, 27/9 a 1/10/2015, Rio de Janeiro, Brazil (poster contribution).

Large scale fabrication of all-integrated electrolyte-gated graphene field-effect transistors", Nirton C. S. Vieira, Jérôme Borme, George M. Junior, Fátima Cerqueira, Paulo P. Freitas, Valtencir Zucolotto, Nuno Peres, Pedro Alpuim, XIV Encontro da SBPMat, 27 de Setembro a 1 de Outubro 2015, Rio de Janeiro, Brasil poster

The UV detectors based on p-n and p-i-n heterostructures (p-ZnO, n-GaN and i-Al2O3): electrical and optical properties solution-gated graphene field-effect transistors for biosensing" E. Przezdziecka, S.



Chusnutdinow, M. Stachowicz, D. Snigurenko, R. Schifano, K. Kopalko, R. Jakielka, E. Guziewicz, M. F. Cerqueira, A. Kozanecki // 44th "Jaszowiec" International school and Conference on the Physics of Semiconductors, Wista, Poland. 22-25 June 2015 (Poster presentation)

6.5.7 Future Research

The future research will be focused on the study of plasmonic effects in both corrugated graphene and in wedges with a graphene coating. The optical properties of doped MoS₂ will be investigated taking into account excitonic effects.

Continuation of the present research projects on dynamical and transport properties of low-dimensional many-particle lattice systems.

2016 will be a year of great activity for the TFD group, where the high-performance graphene electrolyte gated field-effect transistors (EGFETs) achieved last year will be used to develop high-sensitivity biosensor devices. Functionalization of the graphene channel for specific bio-recognition of target proteins and DNA will be studied in detail. Functionalization of the Au gate electrode for the same target biomolecules will be studied as an alternative strategy, and the results of both approaches will be compared. Graphene plasmonic devices will continue to be developed. Electrochemical biosensing based on graphene functionalized electrodes will be achieved. New graphene deposition processes will be studied in order to facilitate (or simply terminate) the transfer process and improve previously developed devices. CVD of 2D materials other than graphene (h-BN, MoSe₂, MoS₂) will be optimized and these materials will be combined with graphene for novel, higher performance devices. Laser writing on a-Si:H will be developed towards the fabrication of touch screen displays. The same laser-writing process developed in 2015 will be tried for the fabrication of optical wave guides. A new research project on solar-driven hydrogen production devices based on silicon photocathodes coated with nano-catalysts coupled with p-i-n double junction a-Si:H solar cells will be started in 2016 .



6.6 Group of Optics and Vision Science (OCV)

6.6.1 Summary description of the scientific work carried out by the group in 2015

The OCV group is a very active and heterogeneous group of 11 elements with background in the area of optics and vision science. Dedicates its research activity to optical, to color vision, the contact lens, the progression of myopia, the visual impairment and visual optimization for athletes

6.6.2 Updated composition of the group

Research Group Title	Optics and Vision Sciences
Principal investigator	Jorge Jorge
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 PhD, 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 Meijome 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</p> <p><u>Associate members:</u></p> <p>-Borges de Almeida – Retired Full professor -Vasco de Almeida – Assistant professor at UBI</p> <p><u>Colaborator</u></p> <p>-Paulo Rodrigues Botelho Fernandes - Pos Doc (since November)</p> <p><u>Ph.D and Other Research Students:</u></p> <p>-Miguel Ribeiro, PhD student -Alberto Manuel, PhD student -Kishor Sapktota, PhD student -Helena Neves, PhD student -Sofia Matos, research assistant (BI)</p>





6.6.3 Scientific Production

6.6.3.1 Regular Articles Published in ISI Journals

Comments to paper entitled: Predicting scleral GP lens entrapped tear layer oxygen tensions. Compañ V, Aguilera-Arzo M, Montero AE, Mollá S, Oliveira C, Peixoto-de-Matos SC, González-Méijome JM. Cont Lens Anterior Eye. 2015;38:391. *(ISI / SCOPUS)

Common symptoms of nepalese soft contact lens wearers: A pilot study. Sapkota K., Martin R., Franco S., & Lira M. (2015). Journal of Optometry, 8(3), 200-205.(Scopus)

Diffusion of anti-VEGF injections in the Portuguese National Health System. AP Marques, AF Macedo, J Perelman, P Aguiar, A Rocha-Sousa, R Santana. BMJ open 5 (11), e009006. <http://bmjopen.bmjjournals.org/content/5/11/e009006.full>

Efficacy of a Gas Permeable Contact Lens to Induce Peripheral Myopic Defocus", Pauné, Jaume; Queirós, António; Lopes-Ferreira, Daniela; Quevedo, Lluisa; Neves, Helena; González-Méijome, JM. 2015. Optometry and Vision Science 92, 5: 596 - 603. doi: 10.1097/OPX.0000000000000582

End-of-day Dryness, Corneal Sensitivity and Blink Rate in Contact Lens Wearers. Martín-Montañez V, López-de la Rosa A, López-Miguel A, Pinto-Fraga J, González-Méijome JM, González-García JM. Contact Lens and Anterior Eye 2015;38:148-151. *(ISI / SCOPUS)

Goblet cell density association with tear function and ocular surface physiology". Kishor Sapkota, Sandra Franco, Paula Sampaio, Madalena Lira, Contact Lens & Anterior Eye 38 (2015) 240–244.

Light distortion as a possible indicator of visual quality after refractive lens exchange with AT LISA diffractive multifocal intraocular lenses. Brito P, Monteiro M, Ferreira-Neves HI, González-Méijome JM, Salgado-Borges JM. J Cataract Refract Surg 2015;41:613-622.*(ISI / SCOPUS)

Myopia Control with a Novel Peripheral Gradient Soft Lens and Orthokeratology: A 2-Year Clinical Trial. Pauné J, Morales H, Armengol J, Quevedo LI, Faria-Ribeiro M, González-Méijome JM. BioMed Research International. 2015;2015:507572. *(ISI / SCOPUS)

Performance of Three Multipurpose Disinfecting Solutions with a Silicone Hydrogel Contact Lens", García-Porta, Nery; Rico-del-Viejo, Laura; Neves, Helena; Peixoto-de-Matos, Sofia C; Queirós, António; González-Méijome, JM. 2015.BioMed Research International 216932, 1: 1 - 13. doi: 10.1155/2015/216932

Peripheral Refraction with Eye and Head Rotation with Contact Lenses", Lopes-Ferreira, Daniela; Neves, Helena; Queirós, António; Faria-Ribeiro, Miguel; Fernandes, Paulo; González-Méijome, JM. 2015.Contact Lens & Anterior Eye 38, 2: 104 - 109. doi: 10.1016/j.clae.2014.11.201



Reliability of manual segmentation of cornea, contact lens and tear film using a high-resolution OCT", Rodrigues, Patrícia; Lopes-Ferreira, Daniela; Catarino, Andreia; Cervino, Alejandro; Queirós, Antonio; González-Méijome, José M. 2015. Journal of Modern Optics 62, 1: 1 - 8. doi: 10.1080/09500340.2014.995733

Short-Term Changes in Light Distortion in Orthokeratology Subjects", Santolaria Sanz, E; Cerviño, Alejandro; Queirós, António; Villa-Collar, César; Lopes-Ferreira, Daniela; González-Méijome, JM. 2015. BioMed Research International 2015, 278425: 1 - 7. doi: 10.1155/2015/278425
Spatial distributions of local illumination color in natural scenes, Nascimento, Amano & Foster (2015), Vision Research, doi:10.1016/j.visres.2015.07.005

Strategies to Regulate Myopia Progression with Contact Lenses: A Review", González-Méijome, JM; Peixoto-de-Matos, Sofia C; Faria-Ribeiro, Miguel; Lopes-Ferreira, Daniela; Jorge, Jorge; J, Legerton; Queirós, António. 2015. Eye & Contact Lens: Science & Clinical Practice 41, 1: 1 - 1.

Time-lapse ratios of cone excitations in natural scenes, Foster, D.H., Amano, K., & Nascimento, S.M.C. (2015), Vision Research, doi:10.1016/j.visres.2015.03.012.

TInfluence of Climate on Clinical Diagnostic Dry Eye Tests. Pilot Study. esón M, López-Miguel A, Ferreira-Neves H, Calonge M, González-García, MJ, González-Méijome, JM. Optom Vis Sci 2015;92:284-289 *(ISI / SCOPUS)

Validation of a method to measure light distortion surrounding a source of glare", Neves, Helena; Araújo, R.; Rico-del-Viejo, Laura; AC, Silva; Queirós, António; González-Méijome, JM. 2015. Journal of Biomedical Optics 20, 7: 1 - 12. doi: 10.1117/1.JBO.20.7.075002

Which soft lens power is better for piggyback in keratoconus? Part II. Miguel Romero-Jiménez, Jacinto Santodomingo-Rubido, Jose Manuel González-Méijome, Patricia Flores-Rodriguez, Cesar Villa-Collar. Contact Lens and Anterior Eye 2015;38 *(ISI / SCOPUS)

Importance of contact lens power and thickness in oxygen transmissibility, Madalena Lira, Clara Pereira, M. Elisabete C. D. Real Oliveira, Elisabete M. S. Castanheira, Contact Lens & Anterior Eye 38 (2015) 120-126; <http://dx.doi.org/10.1016/j.clae.2014.12.002> (ISI/Scopus) Grupos envolvidos. (FAMO; OCV) (CFUM).

Light-distortion analysis as a possible indicator of visual quality after refractive lens exchange with diffractive multifocal intraocular lenses. Brito, P., Salgado-Borges, J., Neves, H., Gonzalez-Mejome, J., & Monteiro, M. (2015). Journal of Cataract and Refractive Surgery, 41(3), 613-622. doi: 10.1016/j.jcrs.2014.07.033 | RepositóriUM: <http://hdl.handle.net/1822/39530>

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., Flores-Rodríguez, P., & González-Méijome, J. M. (2015). Journal of Optometry, 8(1), 48-55. doi: 10.1016/j.optom.2014.07.007 | RepositóriUM: <http://hdl.handle.net/1822/39495>

Erratum: Short-term changes in light distortion in orthokeratology subjects (BioMed Research International 2015 (7)). Sanz, E. S., Cerviño, A., Queiros, A., Villa-Collar, C., Lopes-Ferreira, D., & González-Méijome, J. M. (2015). Biomed Research International, 2015. doi: 10.1155/2015/458706 | RepositóriUM: <http://hdl.handle.net/1822/39487>

Level of compliance in contact lens wearing medical doctors in Nepal. Sapkota, K. (2015). Contact Lens and Anterior Eye, 38(6), 456-460. doi: 10.1016/j.clae.2015.05.010



Regular articles not yet included at the ISI database

OCular Response to Variation of the Environments in Contact Lens Wearers. Martín-Montañez V, López-de la Rosa A, López-Miguel A, Pinto-Fraga J, González-Méijome JM, González-García JM. Optom Vis Sci 2015;92 (IN PRESS). *(ISI / SCOPUS)

Stabilization in Early Adult-onset Myopia with Corneal Refractive Therapy Gonzalez-Meijome JM, Carracedo G, Lopes-Ferreira D, Faria-Ribeiro MA, Queiros A, Peixoto-de-Matos SC. Contact Lens and Anterior Eye 2015;38 (IN PRESS). *(ISI / SCOPUS)

Symptoms and Signs in Rigid Gas Permeable Lens Wearers During Adaptation Period. Carracedo G, Martin-Gil A, Peixoto-de-Matos SC, Abejón-Gil P, Macedo-de-Araújo R, González-Méijome JM. Eye & Contact Lenses. 2015; 40 (IN PRESS) *(ISI / SCOPUS)

Changes in Peripheral Refractive Profile after Orthokeratology for Different Degrees of Myopia",González-Méijome, JM; Faria-Ribeiro, Miguel; Lopes-Ferreira, Daniela; Fernandes, Paulo; Carracedo Rodriguez, J; Queirós, António. 2015. Current Eye Research 24, 3: 1 - 9.

6.6.3.2 ISI Conference Proceedings published in Conference books

Anti-saccades in early stages of multiple sclerosis. Antonio Filipe Macedo, Marisa Borges Ferreira, Marta Gamito Parreira, Inês Sousa, José Figueiredo, João José Cerqueira, Paulo Silva Pereira. Investigative Ophthalmology & Visual Science 56 (7), 2911-2911.<http://iovs.arvojournals.org/article.aspx?articleid=2332729&resultClick=1>

Causes of Vision Impairment in Portugal: A hospital based study,ARVO 2015,Denver,2015 (Poster). Baptista, António M. G; Monteiro, J.; Vieira, M.; Reimão, P.; Rocha, P.; Rocha-Sousa, Amândio; Freitas, Cristina; Macedo, António F; Marques, Ana P; Santana, Rui. Invest. Ophthalmol. Vis. Sci.. 2015; 56(7):2118.

Estimating the Colors of Paintings' In A. Tréméau, R. Schettini, & S. Tominaga, Lecture Notes in Computer Science, Vol. 9016, pp. 236–242. Nascimento, S. C., Linhares, J. M., João, C. R., Amano, K., Montagner, C., Melo, M., & Vilarigues, M. (2015),Springer International Publishing. doi:10.1007/978-3-319-15979-9_22 – ISI

Explore the concept of “light” and its interaction with matter: an inquiry-based science education project in primary school. P Varela, MF Costa. Journal of Physics, JPCS. IOP Publishing. Vol 605 , pp 012041-9 (2015) ISI

Hospital prevalence of visual of visual impairment caused by diabetic retinopathy. A Rocha De Sousa, J Tavares-Ferreira, SP Perestrelo, P Lima-Ramos, AM Batista, R Santana, AF Macedo. Acta Ophthalmologica 93 (S255). <http://onlinelibrary.wiley.com/doi/10.1111/j.1755-3768.2015.0682/abstract>

Microtopographic characterization of pre-colonial Brazilian archaeological ceramics"; Manuel F. M. Costa, Wagner Magalhaes, Márcia Angelina Alves; Optics for Arts, Architecture, and Archaeology V, edited by Luca Pezzati, Piotr Targowski, Proc. of SPIE Vol. 9527, 2015, pp. 95270S-1 to 8.

Participation rates in Epidemiologic studies. P Ramos, R Santana, J Cima, P Marques, A Baptista, L Moreno, António Filipe Macedo. 8th European Public Health Conference (The European Journal of Public Health). http://eurpub.oxfordjournals.org/content/25/suppl_3/ckv176.008



Prevalence of Visual Impairment in Portugal: study design and initial results.Rui Carneiro de Freitas, Cristina Freitas, Ricardo Leite, Keissy Sousa, José Mendes-Ferreira, Andreia Soares, Gary S Rubin, Amandio A Rocha-Sousa, Rui Santana, Antonio Filipe Macedo. Investigative Ophthalmology & Visual Science 56 (7), 2119-2119. <http://iovs.arvojournals.org/article.aspx?articleID=2331868>

The Display Gamut Available to Simulate Colors Perceived by Anomalous Trichromats' In A. Tréneau, R. Schettini, & S. Tominaga, Lecture Notes in Computer Science, Linhares, J. M., Santos, J. A., de Almeida, V. N., João, C. R., & Nascimento, S. C. (2015), Vol. 9016, pp. 104-110. Springer International Publishing. doi:10.1007/978-3-319-15979-9_10 – ISI

The Portuguese version of the activity inventory. Laura Hernández-Moreno, Robert W Massof, Sofia Sousa, Joana Cima, JPM Costa, Joel Monteiro, Antonio MG Baptista, Natacha Moreno, Rui Santana, Antonio Filipe Macedo. Investigative Ophthalmology & Visual Science 56 (7), 1368-1368. <http://iovs.arvojournals.org/article.aspx?articleid=2331062&resultClick=1>

Visual Search for Normal Color and Dichromatic Observers Using a Unique Distracter Color' In A. Tréneau, R. Schettini, & S. Tominaga, Santos, J. A., de Almeida, V. N., João, C. R., Linhares, J. M., & Nascimento, S. C. (2015), Lecture Notes in Computer Science, Vol. 9016, pp. 111–117. Springer International Publishing. doi:10.1007/978-3-319-15979-9_11 – ISI

Electrochemical Performances of Li⁺ Intercalation and Deintercalation Processes for Electrochromism of MoO₃-Doped V₂O₅ Films Prepared By The Sol-Gel Method; He Wang, Manuel F. M. Costa, Shengnan Sun, Vasco Teixeira, Haining Cui, SMART 2015; A.L. Araújo, C.A. Mota Soares, et al. (Editors); IDMEC, Lisbon 2015, ISBN 978-989-96276-8-0, pp 1-10 (2015)

Structure Optimization on the Photoelectric and Photocatalytic Properties of Cu₂S and ZnO Complex Films. Paper presented at the Materials Today: Proceedings.Xu, F., Costa, M. F., Sun, S., Teixeira, V., Wang, Y., Bian, F., . . . Cui, H. (2015).

6.6.3.3 Books and book chapters

Chapter:

Villa-Collar, César; Calossi, Antonio; Queirós, António; Peixoto-de-Matos, Sofia C. 2015. El moldeo corneal mediante la ortoqueratología nocturna. In 1, ed. Superficie Ocular y Lentes de Contacto - José M. González-Méijome & César Villa Collar

J.M. González-Méijome, PhD, C. Villa-Collar, PhD (Editors). Editorial: FUNSAVI – Madrid - Spain). 2015 (IN PRESS)ISBN: 978-84-939656-9-3

Automatic Eye Blink Detection Using Consumer Web Cameras. Advances in Computational Intelligence. Beatriz Remeseiro,, Alba Fernández, Madalena Lira. Lecture Notes in Computer Science Volume 9095, 2015, pp 103-114

6.6.3.4 Master theses completed in 2015

Author	Supervisor	Title	Situation
Ana Catarina Costa Esteves	António Macedo, António Baptista	Adaptação oculomotora em escotoma central simulado	Terminated in april/2015 at ECUM



Ana Lúcia Ribeiro Braga	Jorge Jorge, António Queirós	Análise da prevalência da miopia em estudantes universitários	Terminated in november/2015 at ECUM
Ana Rita Araújo da Silva	Madalena Lira	Lentes de contacto e soluções de manutenção: alterações na humectabilidade	Terminated in december/2015 at ECUM
Bárbara da Silva Borges	António Queirós, José Meijome	Alterações na biometria e na refração durante o ano letivo II, em crianças	Terminated in december/2015 at ECUM
Catarina Esteves	Filipe Macedo, António Baptista	Adaptação oclomotora em escotoma central simulado	Terminated in 2015 at ECUM
Eva Daniela Gonçalves Silva	...	Influência de filtros de ruído dinâmico na percepção das cores utilizando um novo teste de visão das cores	Terminated in december/2015 at ECUM
Fátima Sampaio	José Meijome, Jorge Jorge	Relação entre Sinais e Sintomas em Pacientes com Disfunções da Visão Binocular, Acomodativas e Oculomotoras.	Terminated in march/2015 at ECUM
Isabel Santos Fernandes	Madalena Lira	Relatório de Atividade Profissional	Terminated september/2015 at ECUM
Ismail Araújo Neiva	Jorge M. M. Jorge	october	Terminated in december/2015 at ECUM
José Carlos Peixoto Vieira	António Queirós	Relatório de Atividade profissional	Terminated in december/2015 at ECUM
Laura Rico del Viejo	José Meijome, António Queirós	Integrated Assessment of Tear Film with Tearscope, Corneal Topography and Optical Quality	Terminated in september/2015 at ECUM
Liliana Reis	António Queirós, Jorge Jorge	Influência da Iluminação na Medição da Pressão Intra-Ocular com Tonômetro de Sopro	Terminated in march/2015 at ECUM
Luis Carlos Rodrigues Couto	Jorge Jorge, Paulo Fernandes	Estudo do efeito dos prismas de base gêmea na localização espacial	Terminated in june/2015 at ECUM
Luis Filipe Proença de Oliveira	Jorge M. M. Jorge	Relatório de Atividade Profissional	Terminated in october/2015 at ECUM
Luis Carlos Rodrigues Couto	Jorge Jorge, Paulo Fernandes	Estudo do efeito dos prismas de base gêmea na localização espacial	Terminated in june/2015 at ECUM
Luis Filipe Proença de Oliveira	Jorge M. M. Jorge	Relatório de Atividade Profissional	Terminated in october/2015 at ECUM
Maria de Fátima Teixeira Sampaio	José Meijome, Jorge Jorge	Relação entre Sinais e Sintomas em Pacientes com Disfunções da Visão Binocular, Acomodativas e Oculomotoras	Terminated in march/2015 at ECUM
Marisa Borges Ferreira	Supervisor: António Filipe Macedo	Caracterização de alterações oculomotoras na fase inicial da esclerose múltipla	Terminated in december/2015 at ECUM



Nádia Lurdes Machado Silva	António Macedo, António Baptista	Efeito de combinações de cor de ecrãs na performance visual dos observadores	Terminated in april/2015 at ECUM
Paula Cristina Gonçalves Portela	Manuel Filipe Costa	Ensino das Ciências no Ensino Básico, numa perspetiva IBSE - AR	Terminated in march/2015 at ECUM
Pedro Miguel Andrade Ferreira	António M G Baptista	Relatório de Atividade Profissional	Concluído em march/2015 at ECUM
Raúl Alberto Correia de Sousa	Jorge M. M. Jorge	Relatório de Atividade Profissional	Terminated in fevereiro/2015 at ECUM
Vera Mendinhos Loureiro	Jorge M. M. Jorge, António Queirós	Alimentação e Miopia	Terminated in november/2015 at ECUM

6.6.3.5 Ph.D. theses completed in 2015

Author	Supervisor	Title	Situation
Elena Santolaria Sanz	Alejandro Cerviño Expósito (Univ. Valencia, Espanha), José Meijome	Adaptation to light Distortion in Orthokeratology Patients	Terminated in october/2015 at Universidad de Valencia, Espanha
Nery García Porta	Maria Teresa R. Ares (Univ. Santiago, Espanha), José Meijome	Interacciones Biológicas e Biométricas das Lentes de Contacto para Ortoqueratología na Superficie Ocular	Terminated in july/2015 at Universidade de Santiago de Compostela, Espanha
Vicente Salvador Martín Montañez	Maria González García Univ. Santiago, Espanha), José Meijome	Influencia de los factores ambientales en la Superficie Ocular en usuarios de Lentes de contacto de hidrogel	Terminated in july/2015 at Universidad de Valladolid, Espanha

6.6.3.6 Master theses in progress in 2015

Author	Supervisor	Title	Situation
Ana Amorim	José Manuel González-Méijome, António Queirós	Impacto do Desfocado em medidas de Distorção Luminosa: Simulação e Medidas Experimentais	Developing since october/2015 at ECUM
Ana Catarina Gonçalves Fernandes	António Queirós, José Méijome	Alterações na biometria e na refração durante o ano letivo III (6-9)	Developing since 2014 at ECUM
Ana Cláudia Freitas Vieira	António Queirós	Estudo das alterações da astericidade corneal	Developing since october/2015 at ECUM
Ana Inês Rei da Silva	Sandra Franco	Estudo de disfunções acomodativas numa população de não presbitas	Developing since october/2014 at ECUM
	António Queirós		



Ana Isabel Carvalho Amorim de Sousa		Impacto do Desfocado em medidas de Distorção Luminosa: Simulação e Medidas Experimentais	Developing since october/2015 at ECUM
Ana Margarida Marques Antunes	Jorge Jorge/ Ana Maria Pinho	Elaboração de um dispositivo de rastreio visual para crianças	Developing since october/2015 at ECUM
Ana Meira	António Macedo, António Baptista	Fatores atencionais na adaptação a escotoma central simulado	Developing since 2013 at ECUM
Ana Sofia Costa Macedo	António Macedo, António Baptista	História da Optometria em Portugal	Developing since october/2013 at ECUM
Andrea Cristina Coelho	Paula Sampaio (DB), Madalena Lira	Avaliação da resposta inflamatória induzida por diferentes tipos de LC diárias	Developing since october/2014 at ECUM
Andreia Morgado	António MG Baptista	Relatório de Atividade Profissional	Developing since 2015 at ECUM
Bruna Filipa Cardoso Silva Pereira	António Queirós	Estudo das medidas oculares relacionadas com a montagem de prescrições	Developing since october/2015 at ECUM
Catarina de Fátima Gomes Ribeiro	Jorge Jorge/ Paulo Fernandes	Performance Visual e Rendimento Desportivo	Developing since october/2015 at ECUM
Cátia Patrícia de Brito Lourenço	Madalena Lira	Alterações da superfície ocular durante a gravidez	Developing since october/2014 at ECUM
Dora Nazaré Marques	Jorge Jorge/ Joao Linhares	Miopia e visão das cores, um caso de estudo	Developing since october/2015 at ECUM
Eduarda Martins	António MG Baptista	A Visão Binocular em crianças com dificuldades de aprendizagem	Developing since 2015 at ECUM
Eduardo Jorge Silvestre Ínsua Pereira.	Madalena Lira	Avaliação da performance clínica de lentes de contacto descartáveis em regime de uso diário	Developing since january/2014 at ECUM
Eduardo Teixeira	António MG Baptista	Relatório de Atividade Profissional	Developing since 2015 at ECUM
Graciete Sabino	Jorge Jorge	Relatório de atividade profissional	Developing since october/2015 at ECUM
Jéssica Rafaela Moreira Gomes	Sandra Franco, Sérgio Nascimento	Variação das aberrações oculares com a acomodação em tempo real	Developing since october/2014 at ECUM
Joana Silva	José Manuel González-Méijome	Efeito da Ortoqueratologia na Refração Objetiva e Subjetiva	Developing since october/2015 at ECUM
João Pedro Marques Aniceto Santos	Madalena Lira, Sandra Franco	Variação dos parâmetros acomodativos com a realização de tarefas em visão de perto	Developing since october/2013 at ECUM
João Rodrigues	Jorge Jorge	Relatório de atividade profissional	Developing since october/2015 at ECUM
Lúcia Maria Silva Ferreira	Sandra Franco	Aberrações oculares em presbítas	



			Developing since october/2014 at ECUM
Luciana Felício	Manuel Filipe Costa	Introduzindo a Teoria da Relatividade no Ensino Secundário	Developing since october/2015 at ECUM
Luis Miguel Castro Felgueiras Alves	António Macedo, António Baptista	The natural history of PAL adaptation in naive users	Developing since 2013 at ECUM
Maria Eduarda Tomás Martins	Sandra Franco, António Baptista	A Visão Binocular na realização de tarefas de leitura	Developing since october/2014 at ECUM
Maria Helena A. Brito Lopez	António Queirós, José Meijome	Alterações na biometria e na refração durante o ano letivo II, em jovens	Developing since 2013 at ECUM
Marta Rodrigues	José Manuel González-Méijome	Óptica e a Refração do Olho com Sistemas Multifocais	Developing since october/2015 at ECUM
Noémia Varzim Miranda	António Queirós	Relatório de Atividade profissional	Developing since october/2015 at ECUM
Patrícia Passos	José Méijome, António Queirós	Alterações na biometria e na refração durante o ano letivo III	Developing since october/2014 at ECUM
Rui Carlos de Oliveira Pinos Barros	Jorge M. M. Jorge	Relatório de Atividade Profissional	Developing since october/2013 at ECUM
Rui Ferreira	António Filipe Macedo, António M G Baptista	Padrões oculomotores durante a leitura e a sua relação com os testes usados na prática clínica	Developing since 2012 at ECUM
Rui Santos	Jorge Jorge	Relatório de actividades profissional	Developing since october/2015 at ECUM
Sofia Alexandra Costa	Manuel Filipe Costa	Experiências elementares de física para alunos do ensino pré- primário e 1º ciclo	Developing since october/2015 at ECUM
Susana Manuela Martins	Supervisor: António Filipe Macedo	O efeito da polaridade do monitor durante a leitura de textos com escotoma central simulado	Developing since november/2013 at ECUM
Telma Isabel Peres Nunes	Madalena Lira	Relatório de Atividade Profissional	Developing since october/2014 at ECUM
Vânia Manuela Paleja Costa	Jorge M. M. Jorge	Relatório de Atividade Profissional	Developing since october/2014 at ECUM
Zélia Costa	José Manuel González-Méijome	Características Biométricas de Olhos Miopes	Developing since october/2015 at ECUM
Graciete Sabino	Jorge Jorge	Relatório de atividade profissional	Developing since october/2015 at ECUM



6.6.3.7 Ph.D. theses in progress in 2015

Author	Supervisor	Title	Situation
Daniela Lopes Ferreira	José Meijome, António Queirós	Efeitos na refração periférica de dispositivos para o controlo da progressão da miopia	Develloping since september/2013 at ECUM
Helena Isabel Ferreira Neves	José Meijome, António Queirós	Analysis of light visual distortion and quality of vision with different multifocal lens designs for the compensation of presbyopia	Develloping since 2013 at ECUM
João Paulo Morais da Costa	António Filipe Macedo, Paulo Alexandre S. Pereira (DMAT), João José Cerqueira (ECS)	Modulating eye movements in neuro-ophthalmological conditions	Develloping since december/2014 at ECUM
Kishor Sapkota	Madalena Lira, Sandra Franco	Clinical experimental trials on changes in ocular surface induced by contact lenses wear	Develloping since november/2012 at ECUM, UM
Miguel António Faria Ribeiro	José Meijome, Jorge Jorge, Norberto López-Gil (Univ. Murcia)	Alteração da refração periférica para retenção da progressão da miopia	Develloping since 2013 at ECUM
Rui Jorge Ramoa Marques	Jorge Jorge, António Queirós	Estudo da Influência da luz no aparecimento e desenvolvimento da miopia em crianças	Develloping since 2014 at ECUM
Rute Juliana Araújo	José M. González-Méijome, Eef van der Worp (Univ. Maastrich, Holand)	CLINICAL PERFORMANCE AND BIOLOGICAL INTERACTIONS IN SCLERAL CONTACT LENS WEAR	Develloping since march/2015 at ECUM
Santiago Escandón Garcia	José Meijome	Neuroadaptation in refractive surgery: Quality of Vision after bilateral implantation of intraocular lenses in individuals Presbiopes	Develloping since september/2013 at ECUM
Ana Patrícia Marques	Rui Santana (UNL), António Filipe Macedo	Os custos da deficiência visual em Portugal	Develloping since 2013 at Escola Nacional de Saúde Pública – Universidade Nova de Lisboa

6.6.4 Other scientific activities

Conference organization International

Comité Científico Internacional, icOPEN2015.Manuel Filipe Costa International Conference on Optical and Photonic Engineering, Singapore, 14-16 April, 2015.

Comité Científico, 5th International Congress on Physics of Radiation-Matter Interactions Manuel Filipe Costa – (PIRM-V'2015), El Jadida, Marrocos, 5-7 maio 2015

Comité Científico Internacional, CINDU2015,Manuel Filipe Costa – Univ. de Vigo, Vigo, Spain, 25-27 de junho 2015



Comité Científico Internacional, ETOP2015, Manuel Filipe Costa – Bordéus, França, 29 de junho a 2 de julho de 2015

Chairman, 12th International Conference on Hands-on Science, Funchal, Manuel Filipe Costa – Madeira, 27 a 30 de julho de 2015

Comité Científico Internacional, 5th International Symposium on Experimental Mechanics (5-ISEM'2015) and the 9th Symposium Optics in Industry (9-SOI), Manuel Filipe Costa - Guanajuato, Mexico, on August 17-21, 2015

Comité Científico Internacional, ECOMASS-VipIMAGE 2015, Manuel Filipe Costa – Tenerife, Espanha, 19 a 22 de outubro de 2015

Comité Científico, OPTOANDINA 2015, Manuel Filipe Costa – Quito, Equador, 9 a 13 de novembro de 2015

CIOCV 2015 – XII Congresso Internacional de Optometria, João Linhares, 2015 (Congresso).
3rd MEETING OF THE EUROPEAN ACADEMY OF ORTHOKERATOLOGY (EurOK) A BRANCH OF THE INTERNATIONAL ORTHOKERATOLOGY ASSOCIATION – Member and Chairman of the International Scientific Committee. Budapest, (Hungary), July 12-13th, 2015.

National

6º Congresso Nacional da Óptica Ocular, 2015 (Congresso). Nome da Instituição: Associação Nacional dos Ópticos; Cidade do evento: Estoril, 13, 14 e 15 Fevereiro 2015 / Centro de Congressos do Estoril. (António Queirós e Jorge Jorge)

Optomevista'15, 2015 (Mesa-Redonda). Nome do evento: Optomevista'15 - Sou Optometrista - E Agora? Nome da Instituição: Núcleo de Estudantes de Optometria da Universidade do Minho; Cidade do evento: Braga / Universidade do Minho. (António Queirós)

10ª Jornada Científico-Técnica de Contactologia , 2015 (Simpósio).Nome do evento: 10ª Jornada Científico-Técnica de Contactologia ; Nome da Instituição: Departamento de Física da Universidade do Minho; Cidade do evento: Braga / Universidade do Minho, 9 de Março de 2015. (José Manuel Gonzalez-Mejome, Madalena Lira, António Queirós, Jorge Jorge, João Linhares)

ContactUM 2015 | 10ª Jornada Científico-Técnica de Contactologia, João Linhares Guidelines" Procedimentos obrigatórios para a consulta de Optometria. Jorge Jorge MON, 2º encontro MON , criando raízes Povoa do varzim (Portugal), Julho 2015

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

Optical Methods for Myopia Control. Gonzalez-Mejome JM. European Academy of Optometry and Optics. Budapest, May 2015.

Contact lenses fit on corneal Dystrophies. José Manuel Gonzalez-Mejome. Congresso Internacional de Optometria e Ciências da Visão (CIOCV2015), April 25th-26th, 2015. Universidade do Minho, Braga, Portugal.



Quality of Vision with Orthokeratology: Patient's Perspective. Gonzalez-Mejome JM. European Academy of Orthokeratology (EuroOk). Budapest, July 12th, 13th, 2015.

Myopia control with contact lenses: evidence based clinical practice. González-Méjome JM. Synsam Optical Group and Coopervision Seminar. Stockholm (Sweden), September 15th, 2015.

Estrategias para regular la progresión de la miopía con lentes de contacto. Gonzalez-Mejome JM. Jornadas Andaluzas de la Visión – Control de Miopía. Punta Umbría, Huelva, Spain, October 2nd to 4th, 2015.

Eficacia, Predictibilidad y Seguridad de la OK para Bajas Miopías. Gonzalez-Mejome JM. Jornadas Andaluzas de la Visión – Control de Miopía. Punta Umbría, Huelva, Spain, October 2nd to 4th, 2015.

PERSPECTIVA ATUAL SOBRE A MIOPIA , Jorge Jorge. 6º Congresso Nacional da Óptica Ocular, Estoril. 13, 14 e 15 Fevereiro 2015,2015 (Congresso/Oral).

Discussão de casos clínicos ,Jorge Jorge. 6º Congresso Nacional da Óptica Ocular, Estoril. 13, 14 e 15 Fevereiro 2015,2015 (Congresso/Oral).

Análise e estruturação de casos clínicos. Jorge Jorge APLO XI Open Conferences of Optometry, Lisbon (Portugal), 15 and 16th November 2015

“Guidelines” Procedimentos obrigatórios para a consulta de Optometria. Jorge Jorge MON, 2º encontro MON , criando raízes Povoa do Varzim (Portugal), Julho 2015

Controlo da Miopia com Lentes de Contacto. Gonzalez-Mejome JM. Congresso Associação Nacional de Ópticos (ANO). Lisboa, February 13th, 2015.

Workshop de Imagiología Ocular com OCT. González-Méjome JM. APLO XI Open Conferences of Optometry, Lisbon (Portugal), 15 and 16th November 2015

Non-invasive microtopographic inspection of rough surfaces by optical triangulation, Manuel Filipe Costa, 5th International Symposium on Experimental Mechanics (5-ISEM'2015) and the 9th Symposium Optics in Industry (9-SOI), Guanajuato, Mexico, on August 17-21, 2015

Refracción periférica con distintos medios de compensación. Su influencia en la evolución de la miopía (convidado), Queirós, António. I Jornadas Iberoamericanas y XX Jornadas Andaluzas sobre la Visión ‘Control de la Miopía’ ,Punta Umbría, Huelva, 2-4 outubro de 2015,2015 (Oral).

Bloque II: Técnicas de control de miopía: conocimientos actuales - Mesa Redonda (Convidado), Queirós, António. I Jornadas Iberoamericanas y XX Jornadas Andaluzas sobre la Visión Control de la Miopía ,Punta Umbría, Huelva, 2-4 outubro de 2015,2015 (Oral).

Bloque II: Técnicas de control de miopía: conocimientos actuales - Casos clínicos (Convidado), Queirós, António. I Jornadas Iberoamericanas y XX Jornadas Andaluzas sobre la Visión ‘Control de la Miopía’ ,Punta Umbría, Huelva, 2-4 outubro de 2015,2015 (Conferência ou palestra/Oral).

Optical Methods for Myopia Control. Gonzalez-Mejome JM. European Academy of Optometry and Optics. Budapest, May 2015.



Contact lenses fit on corneal Dystrophies. José Manuel Gonzalez-Mejome. Congresso Internacional de Optometria e Ciências da Visão (CIOCV2015), April 25th-26th, 2015. Universidade do Minho, Braga, Portugal.

Quality of Vision with Orthokeratology: Patient's Perspective. Gonzalez-Mejome JM. European Academy of Orthokeratology (EuroOk). Budapest, July 12th, 13th, 2015.

Myopia control with contact lenses: evidence based clinical practice. González-Méijome JM. Synsam Optical Group and Coopervision Seminar. Stockholm (Sweden), September 15th, 2015.

Estrategias para regular la progresión de la miopía con lentes de contacto. Gonzalez-Mejome JM. Jornadas Andaluzas de la Visión – Control de Miopía. Punta Humbria, Huelva, Spain, October 2nd to 4th, 2015.

Eficacia, Predictibilidad y Seguridad de la OK para Bajas Miopías. Gonzalez-Mejome JM. Jornadas Andaluzas de la Visión – Control de Miopía. Punta Humbria, Huelva, Spain, October 2nd to 4th, 2015. Controlo da Miopia com Lentes de Contacto. Gonzalez-Mejome JM. Congresso Associação Nacional de Ópticos (ANO). Lisboa, February 13th, 2015.

Workshop de Imagiología Ocular com OCT. González-Méijome JM. APLO XI Open Conferences of Optometry, Lisbon (Portugal), 15 and 16th November 2015 Optica Pura y Aplicada (ISSN: 00303917). International Journal on Hands-on Science ISSN (print version): 1646-8937 Intercultural communications ISSN 1512-4363.

Cuidados Primários de Saúde Visual, Queirós, António. 6º Congresso Nacional da Óptica Ocular, Estoril. 13, 14 e 15 Fevereiro 2015, 2015 (Congresso/Oral).

Case Report: Stabilization in early adult-onset myopia with corneal refractive therapy, Lopes-Ferreira, Daniela; Queirós, António; González-Méijome, JM. XI CAOS - Open Conferences of Optometry, Lisboa, 15-16 novembro 2015, 2015 (Seminário/Oral).

Bloque I: TMiopía, una epidemia global (convidado), Jorge Jorge. I Jornadas Iberoamericanas y XX Jornadas Andaluzas sobre la Visión 'Control de la Miopía', Punta Umbría, Huelva, 2-4 outubro de 2015, 2015 (Conferência ou palestra/Oral).

Raising awareness to vision rehabilitation - the case of a public health study. António Filipe Macedo and Rui Santana. Linnaeus University, Kalmar, June 12th, 2015. Invited talk

Using eye movements to investigate functional changes in Multiple Sclerosis, António Filipe Teixeira Macedo, Cardiff University, 30-Sep-2015. Invited talk

The burden of vision loss – facts for the Portuguese population. António Filipe Macedo, Universidade de Coimbra, VII meeting IBILI, 3-4 December 2015

Reading with poor legibility in different polarities: consequences for oculomotor control. António Filipe Macedo; Ana Catarina Esteves, Ana Meira, Nádia Machado da Silva, António Manuel Gonçalves Baptista. Symposium on Visual Aspects of Reading, The Wordsworth Hotel, Grasmere, 16th to 19th March 2015, United Kingdom

6.6.5 Funded Projects Ongoing

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



Reference: PTDC/DTP-EPI/0412/2012

Project Coordenator: Filipe Macedo

Funding awarded: 96533.00 Euros

Start Date: June de 2013

Duration: 2 years

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

Reference: PTDC/mhc-pcn/4731/2012

Project Coordenator: Sérgio Nascimento

Funding awarded: 33745.00 Euros

Start Date: June de 2013

Duration: 2 years

Project ERASMUS+: Voyage - Opportunities for the young and graduates employability in Vietnam, project # 561656-EPP-1-2015-1-IT-EPPKA2-CBHE-JP - ERASMUS+ CBHE

Manuel Filipe Costa – National coordinator

(Oct 1, 2015- Oct 1, 2018)

financed on 40,306€ by EC.

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

Electrochemical Performances of Li⁺ Intercalation and Deintercalation Processes for Electrochromism of MoO₃-Doped V₂O₅ Films Prepared By The Sol-Gel Method; He Wang, Manuel F. M. Costa, Shengnan Sun, Vasco Teixeira, Haining Cui, SMART 2015; Ponta Delgada, Açores, junho de 2015 ORAL

Bloque II: Técnicas de control de miopía: conocimientos actuales - Mesa Redonda (Convidado), Queirós, António. I Jornadas Iberoamericanas y XX Jornadas Andaluzas sobre la Visión Control de la Miopía ,Punta Umbría, Huelva, 2-4 outubro de 2015,2015 (Oral).

Assessing the effects of dynamic luminance contrast noise masking on a color discrimination task, João M.M. Linhares, Catarina A. R. João, Eva Silva, Sérgio M.C. Nascimento, Vasco M. N. de Almeida, Jorge L. A. Santos, Letícia Álvaro, 23rd Symposium of the International Colour Vision Society, Sendai, Japan. (Talk)

Automatic eye blink detection using consumer web cameras. Beatriz Remeseiro, Alba Fernandez, Madalena Lira. International Work-Conference on Artificial Neural Networks (IWANN). Palma de Maiorca, 10-12 junho 2015

Bloque II: Técnicas de control de miopía: conocimientos actuales - Casos clínicos (Convidado),I Jornadas Iberoamericanas y XX Jornadas Andaluzas sobre la Visión 'Control de la Miopía' ,Queirós, António. Punta Umbría, Huelva, 2-4 outubro de 2015,2015 (Conferência ou palestra/Oral).



Could the results obtained with the Schirmer test be affected by the strip chosen?. Nery García-Porta, Aisling Mann, Val Franklin,, Virginia Saez, James Wolffsohn, Jose Manuel González-Méijome, Brian Tighe. Congresso Internacional de Optometria e Ciências da Visão (CIOCV2015), April 25th-26th, 2015. Universidade do Minho, Braga, Portugal.

Discovering Light. The 5th Science Fair Hands-on Science; MFM Costa, Z Esteves; 12th International Conference on Hands-on Science, HSCI2015, Funchal, Madeira, 27 a 30 de julho de 2015 ORAL

Effect of soft contact lens wear on corneal biomechanical properties and corneal topography. Kishor Sapkota, Sandra Franco, Madalena Lira. American Academy of Optometry 2015 New Orleans, October 7 - 10, 2015.

Effect of soft contact lens wear on tear level and subjective comfort level Congresso Internacional de Optometria e Ciências da Visão, Kishor Sapkota, Sandra Franco, Madalena Lira. Universidade de Minho, 25 -26 abril 2015.

Hands-on Science. Brightening our Future,. Costa MF, Dorriú BV (Eds.);Hands-on Science Network, 2015. ISBN 978-989-8798-01-5

International cooperation towards an improved science education. The Hands-on Science Network”, Manuel F. M. Costa, ETOP2015, Bordéus, França, 29 de junho a 2 de julho de 2015 ORAL

Miopía, una epidemia global (convidado),Jorge Jorge. I Jornadas Iberoamericanas y XX Jornadas Andaluzas sobre la Visión ‘Control de la Miopía’ ,Punta Umbría, Huelva, 2-4 outubro de 2015,2015 (Oral).

MoO₃-doped V2O₅ thin film electrodes for rechargeable Li-ion batteries; He Wang, Manuel F. M. Costa, Shengnan Sun, Vasco Teixeira, Haining Cui; Optical Nano Science 2015 - ONS2015, Capri, Itália, 17 a 19 de setembro de 2015 ORAL

Peripheral Refraction with Two Different Instruments with Multifocal Contact Lens. Lopes-Ferreira D, Jorge J, Peixoto-de-Matos SC, Faria-Ribeiro M, Queirós A1, Lopez-Gil N, González-Méijome JM. Congresso Internacional de Optometria e Ciências da Visão (CIOCV2015), April 25th-26th, 2015. Universidade do Minho, Braga, Portugal.

Predicting hue scaling for abnormal color vision with perceptual models of color deficient vision, Vasco M. N. de Almeida, Jorge L. A. Santos, João M.M. Linhares, Catarina A. R. João, and Sérgio M.C. Nascimento, 23rd Symposium of the International Colour Vision Society, Sendai, Japan. (Talk)

Preferred chromatic composition of unfamiliar paintings is similar to original, Nascimento et al., 23rd Symposium of the International Colour Vision Society, Sendai, Japan. (Talk)

Real-time measurement of monochromatic ocular wavefront aberrations: techniques and applications International Sandra Franco, Jessica Gomes, Lucia Ferreira, Tiago Correia, Sérgio Nascimento Conference on Eye Disorders and TreatmentJuly 13-15, 2015 Baltimore, USA (Oral)

Refracción periférica con distintos medios de compensación. Su influencia en la evolución de la miopía (convidado),I Jornadas Iberoamericanas y XX Jornadas Andaluzas sobre la Visión ‘Control de la Miopia’ ,Queirós, António. Punta Umbría, Huelva, 2-4 outubro de 2015,2015 (Oral).

Science Teaching in Primary School and the Importance of Interdisciplinarity in Knowledge Construction. Case Study: “Do Snails Prefer Cabbage or Lettuce?”. P Varela, V Martins, A Moreira,



MFM Costa; Hands-on Science. Brightening our Future. Costa MF, Dorrío BV (Eds.); Hands-on Science Network, 2015, pp 124-130.

Tear Film Parameters and Clinical Performance of Daily Disposable Contact Lenses. Macedo-de-Araújo, R, Rico-del-Viejo L, Martin-Montañez V, Ferreira-Neves H, González-Méijome JM. Congresso Internacional de Optometria e Ciências da Visão (CIOCV2015), April 25th-26th, 2015. Universidade do Minho, Braga, Portugal.

Validation Of A Method To Measure Light Distortion Surrounding A Source Of Glare. Congresso Internacional de Optometria e Ciências da Visão (CIOCV2015), April 25th-26th, 2015. Ferreira-Neves H, Araújo R, Rico-del-Viejo L, Silva AC, Queirós A, González-Méijome JM. Universidade do Minho, Braga, Portugal.

What Happens When Water Evaporates? An Inquiry Activity with Primary School Children". P Varela, F Serra, MFM Costa. Hands-on Science. Brightening our Future. Costa MF, Dorrío BV (Eds.); Hands-on Science Network, 2015, pp 87-94.

Testing perceptual models of dichromacy and anomalous trichromacy with a computer-based color-vision test, Sérgio M.C. Nascimento, João M.M. Linhares, Catarina A. R. João, Jorge L. A. Santos, and Vasco M. N. de Almeida. Vision Sciences Society Meeting, 2015. (Talk)

Dynamic luminance noise masking: effects on a color discrimination test on normal and deuteranomalous observers, João M.M. Linhares, Catarina A. R. João, Jorge L. A. Santos, and Vasco M. N. de Almeida, Sérgio M.C. Nascimento. Vision Sciences Society Meeting, 2015. (Talk)

EQ-5D and Activity Inventory: Measures of Visual Health Outcome.Joana Cima, R Santana, R Massof, L Moreno, A Baptista, P Marques, A Macedo. 8th European Public Health Conference (The European Journal of Public Health). http://eurpub.oxfordjournals.org/content/25/suppl_3/ckv175.052

Prognóstico das causas mais comuns das deficiências visuais. Cristina Freitas, António Manuel Gonçalves Baptista, Rui Santana, António Filipe Macedo. Jornadas científico-técnicas da Aspreh 2015, 17-19 Abril de 2015, Porto, Faculdade de Desporto, Universidade Porto. <https://aspreh2015.wordpress.com/programa-esp/>

Percursos e recursos das Deficiências Visuais. Amândio Rocha-Sousa, Cristina Freitas, Rui Santana, António Filipe Macedo. Jornadas científico-técnicas da Aspreh 2015, 17-19 Abril de 2015, Porto, Faculdade de Desporto, Universidade Porto. <https://aspreh2015.wordpress.com/programa-esp/>

Aspectos psicofísicos da leitura. António Filipe Macedo, Laura Hernández Moreno e António Baptista. Jornadas científico-técnicas da Aspreh 2015, 17-19 Abril de 2015, Porto, Faculdade de Desporto, Universidade do Porto. <https://aspreh2015.wordpress.com/programa-esp/>

A utilização da tecnologia de consumo como ajuda visual. Rui Segurado Silva, Leonardo Silva e António Filipe Macedo [Curso 4h acreditado pelo Conselho Científico-Pedagógico da Formação Contínua]. Jornadas científico-técnicas da Aspreh 2015, 17-19 Abril de 2015, Porto, Faculdade de Desporto, Universidade do Porto. <https://aspreh2015.wordpress.com/programa-esp/>

Determinação de parâmetros críticos da leitura. António Filipe Macedo e Laura Hernández Moreno [Curso 4h acreditado pelo Conselho Científico-Pedagógico da Formação Contínua]. Jornadas científico-técnicas da Aspreh 2015, 17-19 Abril de 2015, Porto, Faculdade de Desporto, Universidade do Porto. <https://aspreh2015.wordpress.com/programa-esp/>



Causes of Vision Impairment in Portugal: A Hospital Based Study. António Baptista; Marco Vieira; Pedro Reimão; Joel Monteiro; Amândio Rocha Sousa; Cristina Freitas; Ana Marques; Rui Santana; António Filipe Macedo. The European Society for Low Vision Research and Rehabilitation (ESLRR), 25th-27th September, Oxford. <http://www.eslrr.org/#!2015abstracts/cfgv>

Estimating direct medical costs of patient with visual impairment: case report. Marques, A.P.; Macedo, A.F; Rubin, G. S.; Baptista, A; Santana, R. The European Society for Low Vision Research and Rehabilitation (ESLRR), 25th-27th September, Oxford. <http://www.eslrr.org/#!2015abstracts/cfgv>

Hospital based prevalence of visual impairment caused by age-related macular degeneration. José Carlos Mendes; António Baptista; Ricardo Dourado Leite; Rui Carneiro FreitasA ; Andreia Soares; Nuno Lourenço Gomes; Cristina Freitas.

<http://www.euretina.org/nice2015/PDF/EURETINA%20Nice2015%20Prog.pdf>

Estimating visual impairment caused by diabetic retinopathy. Marta Inês Silva; Ana Marta Padrão, Paulo Rocha; António Filipe Macedo; Rui Santana; Cristina Freitas; Amândio Rocha-Sousa; Fernando Falcão-Reis. 58º Congresso Português de Oftalmologia, 3-4-5 de Dezembro de 2015, Tivoli Marina Vilamoura, Portugal. http://www.spoftalmologia.pt/wp-content/uploads/2015/11/CL-172-a-CL186-RETINA_formatados.pdf

Childhood vision impairment: facts and figures from a reference hospital. João Tavares-Ferreira; Ana Marta Padrão; , Daniela Rodrigues; Antonio Filipe Macedo; Rui Santana; Cristina Freitas; Amândio Rocha-Sousa; Fernando Falcão-Reis. 58º Congresso Português de Oftalmologia, 3-4-5 de Dezembro de 2015, Tivoli Marina Vilamoura, Portugal. http://www.spoftalmologia.pt/wp-content/uploads/2015/11/CL-17-a-CL33-ESTRABISMO_formatados.pdf

Visual health outcomes in people with visual impairment. Amândio Rocha-Sousa; Sara Perestrelo; Cláudia Galvinas; Joana Ricardo; Lurdes Martins; Rui Santana; António Filipe Macedo. 58º Congresso Português de Oftalmologia, 3-4-5 de Dezembro de 2015, Tivoli Marina Vilamoura, Portugal. http://www.spoftalmologia.pt/wp-content/uploads/2015/11/CL-17-a-CL33-ESTRABISMO_formatados.pdf

Using Saccadic Eye Movements to Measure Fatigue in Multiple Sclerosis. Marisa B. Ferreira, Marta G. Parreira, Olga J. Miguel, António F. Macedo, Inês Sousa, José Figueiredo, João J. Cerqueira, Paulo A. Pereira. 3rd International Porto Congress of Multiple Sclerosis; 27 and 28 February 2015; Ordem dos Médicos - Porto - Portugal

Poster

Microtopographic characterization of pre-colonial Brazilian archaeological ceramics”, Manuel F. M. Costa, Wagner Magalhaes, Márcia Angelina Alves; Optical Metrology'2015, Optics for Arts, Architecture, and Archaeology V, Munique, Alemania, 21 a 25 de junho de 2015 POSTER

Validation of a method to measure light distortion surrounding a source of glare. José Salgado-Borges, H. Ferreira-Neves, R. Macedo-De-Araujo, L. Rico-Del-Viejo, A. Da-Silva, C. Borges, J. Gonzalez-Mejome. 33rd Congress of the ESCRS. Barcelona (Spain), September 4-7, 2015

Application of the Quality of Vision (QoV) questionnaire in ophthalmic practice in Portugal. José Salgado-Borges, S. Peixoto De Matos, L. Silva, T. Penas, C. McAlinden, J. Gonzalez-Mejome 33rd Congress of the ESCRS. Barcelona (Spain), September 4-7, 2015.



Assessing the effects of dynamic luminance contrast noise masking on a colour discrimination task on normal and deuteranomalous observers, João Linhares; Catarina João; Jorge Santos; Vasco de Almeida; Letícia Álvaro; Sérgio Nascimento, Journal of Vision. 2015; 15(12):1316-1316. doi: 10.1167/15.12.1316 (Poster)

Causes of Vision Impairment in Portugal: A hospital based study, Baptista, António M. G; Monteiro, J.; Vieira, M.; Reimão, P.; Rocha, P.; Rocha-Sousa, Amândio; Freitas, Cristina; Macedo, António F; Marques, Ana P; Santana, Rui. ARVO 2015, Denver, 2015 (Poster).

Changes in multifocal retinal electroretinogram with Spherical Aberration? Pilot Study. Paulo Fernandes, José M. González-Méijome, Norberto Lopéz-Gil, Jorge Manuel M. Jorge. Congresso Internacional de Optometria e Ciências da Visão (CIOCV2015), April 25th-26th, 2015. Universidade do Minho, Braga, Portugal.

CHANGES IN THE PREVALENCE OF REFRACTIVE ERROR IN PORTUGUESE STUDENTS IN A DECADE, Jorge, Jorge; Braga, Ana; Fernandes, Paulo; Faria-Ribeiro, Miguel; Queirós, António. 15th International Myopia Conference, Wenzhou, China. 23-27 September 2015. Pag.86., Wenzhou, 2015 (Poster).

Characterization of the Pre-lens Tear Film with Tearscope and Corneal Topographer. Rico-del-Viejo L, Macedo-Araújo R, Martín-Montañez V, Ferreira-Neves H, Queirós A, González-Méijome JM. Congresso Internacional de Optometria e Ciências da Visão (CIOCV2015), April 25th-26th, 2015. Universidade do Minho, Braga, Portugal.

Corneal aberrations, contrast sensitivity and light distortion in orthokeratology patients: 1-year results. Congresso Internacional de Optometria e Ciências da Visão (CIOCV2015), Santolaria E, Cerviño A, González-Méijome JM. April 25th-26th, 2015. Universidade do Minho, Braga, Portugal.

Depth of Field after Overnight Orthokeratology: A theoretical study. Congresso Internacional de Optometria e Ciências da Visão (CIOCV2015), April 25th-26th, 2015. Miguel Faria-Ribeiro, Rafael Navarro and José M. González - Méijome. Universidade do Minho, Braga, Portugal.

Effect of Fenylephrine Instillation on Pentacam and Corvis Parameters. José Salgado-Borges, Ana I. Perestrelo; Alberto Díaz-Rey; Patrícia Neves; Libânia Dias; José M. González-Méijome. EuCornea Meeting. Barcelona (Spain), September 4-7, 2015.

Effect of Pupil Size in Central and Peripheral Refraction after Orthokeratology: A theoretical Study. Miguel Faria-Ribeiro, Rafael Navarro, José Manuel González-Méijome. International Myopia Conference, August 25th-28th, 2015. Wangzhou, China.

Effect of soft contact lens wear on tear level and subjective comfort level. Kishor Sapkota, Sandra Franco, Madalena Lira, CIOCV2015. Braga, 2015 (Poster)

Influence Of Spherical and Astigmatic Defocus on Light Distortion Index: a Pilot Study. Amorim-de-Sousa A, Queirós-Pereira A, Macedo-de-Araújo R, Ferreira-Neves H, Rico-del-Viejo L, González-Méijome JM. Congresso Internacional de Optometria e Ciências da Visão (CIOCV2015), April 25th-26th, 2015. Universidade do Minho, Braga, Portugal.

Influence of the Menstrual Cycle on Corneal Morphometry and Corneal Biomechanics. José Salgado-Borges, Laura Rico-del-Viejo, Helena Ferreira-Neves, Rute Araújo; Renato Ambrosio, J. Gonzalez-Meijome. EuCornea Meeting. Barcelona (Spain), September 4-7, 2015.



MYOPIA PREVALENCE IN A VEGAN POPULATION - A PILOT STUDY., Jorge, Jorge; Loureiro, Vera; Fernandes, Paulo; Faria-Ribeiro, Miguel; Queirós, António. 15th International Myopia Conference, Wenzhou, China.,23-27 September 2015. Pag.78.,Wenzhou,2015 (Poster).

Predicting hue scaling for abnormal color vision with perceptual models of color deficient vision, Vasco M. N. de Almeida, Jorge L. A. Santos, João M.M. Linhares, and Sérgio M.C. Nascimento, (2015), European Conference on Visual Perception, Liverpool. (Poster)

Predicting visual search for abnormal color vision with perceptual models of color deficient vision, Vasco de Almeida; Jorge Santos; João Linhares; Catarina João; Sérgio Nascimento, Journal of Vision. 2015; 15(12):1311-1311. doi: 10.1167/15.12.1311 (Poster)

Preferred chromatic composition of unfamiliar paintings is similar to original, Nascimento SMC, et al. (2015), European Conference on Visual Perception, Liverpool. (Poster)

Profile of refractive error in two levels of basic education. Congresso Internacional de Optometria e Ciências da Visão (CIOCV2015), Barbara Borges, Helena Lopez, Catarina Fernandes, Patrícia Passos, José Manuel Gonzalez-Mejome, António Queirós. April 25th-26th, 2015. Universidade do Minho, Braga, Portugal.

PScience Teaching in Primary School and the Importance of Interdisciplinarity in Knowledge Construction. Case Study: "Do Snails Prefer Cabbage or Lettuce?"; Varela, V Martins, A Moreira, MFM Costa; 12th International Conference on Hands-on Science, HSCI2015, Funchal, Madeira, 27 a 30 de julho de 2015 POSTER

Refração periférica com lentes de contacto multifocais medida com dois instrumentos diferentes. Congresso Internacional de Optometria e Ciências da Visão (CIOCV2015), Lopes-Ferreira D, Jorge J, Peixoto-de-Matos SC, Faria-Ribeiro M, Queirós A1, Lopez-Gil N, González-Méijome JM. April 25th-26th, 2015. Universidade do Minho, Braga, Portugal.

REFRACTIVE CONDITIONS IN TWO LEVELS OF BASIC EDUCATION (STUDY 3 YEARS). ,Queirós, António; Jorge, Jorge; Borges, Barbara; Lopez, Helena; Passos, Patrícia; Fernandes, Catarina; Amorim-de-Sousa, Ana; González-Méijome, JM. 15th International Myopia Conference, Wenzhou, China.,23-27 September 2015. Pag.73-4 (Poster).,Wenzhou,2015 (Poster).

Robust color constancy with natural scenes in red-green dichromacy Free, Leticia Álvaro; Julio Lillo; Humberto Moreira; João Linhares; Sérgio Nascimento, Journal of Vision September 2015, Vol.15, 406. doi:10.1167/15.12.406 (Poster)

STUDY HABITS AND OUTDOOR ACTIVITIES IN PORTUGUESE CHILDREN, Queirós, António; Jorge, Jorge; Filipa, Correia; Conceição, Silva; Rico-del-Viejo, Laura; Araújo, R.; Neves, Helena; Lopes-Ferreira, Daniela; González-Méijome, JM. 15th International Myopia Conference, Wenzhou, China.,23-27 September 2015. Pag.122 (Poster).,Wenzhou,2015 (Poster).

Tear film stability and ex-vivo dehydration of two novel dailies disposable contact lenses. Vicente Martínez, Rute Araujo, Laura Rico-del-Viejo, María J. González-García, José M. González-Méijome. British Contact Lens Association (BCLA) Meeting. Liverpool (UK) May 2015.

The preferred chromatic composition of unfamiliar paintings is similar to original; , Sérgio M.C. Nascimento, João M.M. Linhares, Catarina A. R. João, Kinjiro Amano, Cristina Montagner, Maria J. Melo, Márcia Vilarigues, Maria Helena de Freitas, Catarina Alfaro and Ana Bailão (2015); ECVP 2015: European Conference on Visual Perception (Liverpool, UK) – POSTER



What Happens When Water Evaporates? An Inquiry Activity with Primary School Children; P Varela, F Serra, MFM Costa; 12th International Conference on Hands-on Science, HSCI2015, Funchal, Madeira, 27 a 30 de julho de 2015 POSTER

The University of Minho Rapid Serial Visual Presentation Sentences database. Ana Paula Soares, Montserrat Comesaña, João Costa, António Filipe Macedo. X Encontro da Associação Portuguesa de Psicologia Experimental, 17 -18 April, Faro, <http://www.appe.pt/past/2015/files/ProgramaPostersAPPE-2015.pdf>

Fixational saccades in Multiple Sclerosis disorders. Costa, João P. M.; Ferreira, Marisa; Parreira, Marta; Miguel, Olga1; Sousa, Inês; Figueiredo, José, Cerqueira, J. J.; Pereira, A.P.; Macedo, A. F. Abstracts of the 18th European Conference on Eye Movements, 2015, Vienna. Journal of Eye Movement Research, 8(4):1. <http://www.jemr.org/online/8/4/1>

Investigating fatigue in Multiple Sclerosis using saccades. Ferreira, Marisa; Parreira, Marta; Miguel, Olga; Sousa, Inês; Figueiredo, José; Pereira, P.A. Cerqueira, J.J.; Macedo, A.F.. Abstracts of the 18th European Conference on Eye Movements, 2015, Vienna. Journal of Eye Movement Research, 8(4):1. <http://www.jemr.org/online/8/4/1>

Lexico-syntactic interactions in second language sentence processing: What can eye-movements reveal? Soares, Ana Paula; Oliveira, Helena; Ferreira, Marisa; Comesaña, Montserrat; Macedo, António Filipe. Abstracts of the 18th European Conference on Eye Movements, 2015, Vienna. Journal of Eye Movement Research, 8(4):1. <http://www.jemr.org/online/8/4/1>

Childhood vision impairment in a district hospital (in Portugal). European Society of Ophthalmology Congress, 6-9 June, 2015, Vienna, Austria. Queirós T., Mendes Ferreira J., Freitas C., Guimarães S., Hernández-Moreno L., Macedo, A.F. <http://www.professionalabstracts.com/soe2015/programme-soe2015.pdf>

Diabetic retinopathy is the leading cause of visual impairment - yet again. José Ferreira Mendes; Sofia Rodrigues de Sousa; Cristina Freitas; Ricardo Dourado Leite; Rui Carneiro Freitas; Andreia Braga Soares; Tatiana Queirós; António Filipe Macedo.

<http://www.professionalabstracts.com/soe2015/programme-soe2015.pdf>

Indirect costs of low vision - Consistency evaluation of unemployment rate. Joana Ferreira Cima; Rui Santana; Patrícia Marques; Pedro Ramos; Laura Moreno; António Filipe Macedo. The European Society for Low Vision Research and Rehabilitation (ESLRR), 25th-27th September, Oxford. <http://www.eslrr.org/#!2015abstracts/cfgv>

Patterns of low vision devices prescribed in public hospitals. Antonio Filipe Macedo; Ana Patricia Marques; Joana Ferreira Cima; Miguel Rodrigues; Laura Hernández-Moreno; Pedro Lima Ramos; Rui Santana. The European Society for Low Vision Research and Rehabilitation (ESLRR), 25th-27th September, Oxford. <http://www.eslrr.org/#!2015abstracts/cfgv>

Childhood vision impairment in a tertiary hospital. António Filipe Teixeira Macedo; Paulo Rocha; João Tavares-Ferreira; Sara Perestrelo Pinho; Paulo Pereira-Silva; Amandio Rocha-Sousa; Rui Santana. The European Society for Low Vision Research and Rehabilitation (ESLRR), 25th-27th September, Oxford. <http://www.eslrr.org/#!2015abstracts/cfgv>

The effect of comorbidities in questionnaires assessing visual function in people with visual impairment. Laura Hernández-Moreno; Joana Ferreira Cima; Natacha Moreno; João Costa; Pedro Ramos; António



MG Baptista; Rui Santana; Sofia Sousa; Cristina Freitas; António Filipe Macedo. The European Society for Low Vision Research and Rehabilitation (ESLRR), 25th-27th September, Oxford. <http://www.eslrr.org/#!2015abstracts/cfgv>

Factors modulating participation in Epidemiologic studies: the case of visual impairment. P. Ramos; R. Santana; J. Cima; P. Marques; A. Baptista1; L. Moreno; Antonio Filipe Macedo. The European Society for Low Vision Research and Rehabilitation (ESLRR), 25th-27th September, Oxford. <http://www.eslrr.org/#!2015abstracts/cfgv>

Executive functions and anti-saccades in multiple sclerosis. Parreira, M., Ferreira, M.B., Miguel O. J., Macedo, A.F., Sousa, I., Figueiredo J., Cerqueira J.J., Pereira, P.A. 3rd International Porto Congress of Multiple Sclerosis; 27 and 28 February 2015; Ordem dos Médicos - Porto – Portugal

Léxico-syntactic interactions in attachment preferences of temporarily ambiguous sentences in a second language: an eye-tracking study. XII INTERNATIONAL SYMPOSIUM OF PSYCHOLINGUISTICS; Valencia from 1 to 4 July 2015, Spain

National

Oral

Cause of vision impairment in Portugal: a hospital based study, Advances in low vision research and rehabilitation, Baptista, António M. G; Monteiro, J.; Vieira, M.; Reimão, P.; Sousa, S; Freitas, Cristina; Marques, Ana P; Santana, Rui; Macedo, António F. Oxford, 2015 (Conferência ou palestra).

Adaptação de Lente de Contacto Escleral após Infeção Ocular com Cicatriz na Área Pupilar: Caso Clínico. Macedo-de-Araújo RJ, González-Méijome JM. APLO XI Open Conferences of Optometry, Lisbon (Portugal), 15 and 16th November 2015

Adaptação de Lente de Contacto Multifocal: medição da curva de desfocado como técnica clínica complementar para avaliação da adaptação. Ferreira-Neves H, González-Méijome JM. APLO XI Open Conferences of Optometry, Lisbon (Portugal), 15 and 16th November 2015.

Case Report: Stabilization in early adult-onset myopia with corneal refractive therapy, XI CAOS - Open Conferences of Optometry, Lopes-Ferreira, Daniela; Queirós, António; González-Méijome, JM. Lisboa, 15-16 novembro 2015, 2015 (Seminário/Oral).

Case Report: Stabilization in early adult-onset myopia with corneal refractive therapy. Lopes-Ferreira D, Queirós A, González-Méijome JM. APLO XI Open Conferences of Optometry, Lisbon (Portugal), 15 and 16th November 2015

Changes in Accommodative Effort in Young Subjects Using Multifocal Contact Lenses, XI CAOS - Open Conferences of Optometry, Lopes-Ferreira, Daniela; Queirós, António; González-Méijome, JM. Lisboa, 15-16 novembro 2015, 2015 (Seminário/Oral).

Changes in Accommodative Effort in Young Subjects Using Multifocal Contact Lenses. Lopes-Ferreira D, Queirós A, González-Méijome JM APLO XI Open Conferences of Optometry, Lisbon (Portugal), 15 and 16th November 2015

Cuidados Primários de Saúde Visual, 6º Congresso Nacional da Óptica Ocular, Queirós, António. Estoril. 13, 14 e 15 Fevereiro 2015, 2015 (Congresso/Oral).



Implantação Bilateral de Lentes Intra-Oculares e Análise do Desempenho Visual: Novos Desafios com Geometrias Multifocais em Catarata e Presbiopia. Escandón-García S, González-Méijome JM, Ribeiro, F. APLO XI Open Conferences of Optometry, Lisbon (Portugal), 15 and 16th November 2015.

Contact lens care solutions and their influence on contact lens hydrophobicity' 2015 BCLA Conference (29 – 31 May) in Liverpool, UK.Madalena Lira, Rita Silva.

Evaluation of inflammatory response induced by different types of daily contact lenses. Andrea Coelho, Madalena Lira, Paula Sampaio. Congresso Internacional de Optometria e Ciências da Visão, Universidade de Minho, 25 -26 abril 2015.

In vivo analysis of daily disposable contact lenses wettability. Congresso Internacional de Optometria e Ciências da Visão, Universidade de Minho, 25 -26 abril 2015. Eduardo Ínsua Pereira; Madalena Lira.

Influence of contact lens care solutions on the water content of hydrogel and silicone-hydrogel contact lenses Congresso Internacional de Optometria e Ciências da Visão, Universidade de Minho, 25 -26 abril 2015 Rita Silva, M. Elisabete C.D. Real Oliveira, Madalena Lira.

6.6.7 Future Research

To investigate visual function in health visual systems and in people with visual impairments

To investigate strategies to compensate visual deficits

To investigate interactions between vision and with others systems such as attention or learning in health and diseases

To determine the prevalence and causes of vision impairment in Portugal

Develop studies about structural and funcional characterization of colour vision deficiencies and studies of art and vision.

Transfer knowledge to the market in the sportvision area.

Study the evolution of the myopia prevalence during decades in Portugal.





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