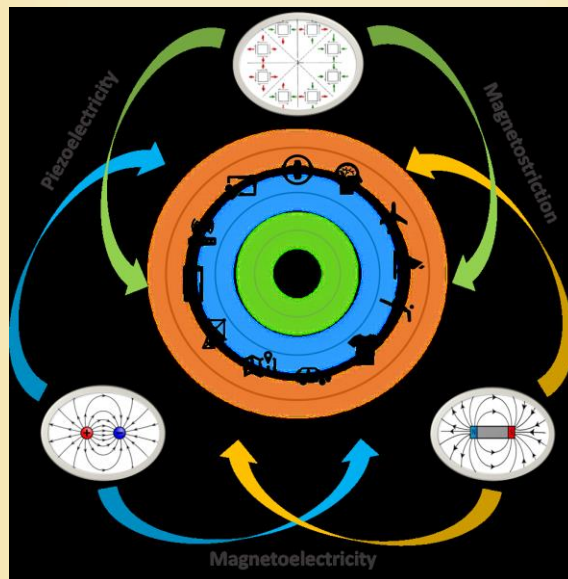


Terça-feira, 17 de Julho de 2018, às 14:30h
anf. 12-1.03 (EC1.01) - Escola de Ciências, Campus de
Azurém
Polymer-based magnetoelectric materials: From
fundamental to applications

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Resumo: Developing new smart materials and exploring their applicability has been in focus in the field of materials, sensors, actuators and biomedical applications. Smart and functional polymers are taking advantage on the understanding and control of their physico-chemical properties leading to a suitable tailoring of processability, shape control and performance.

In particular, magnetic devices have become an essential measuring/actuation tool in a range of application areas including biomedicine, multimedia, automobile and military, just to mention some of them, being the magnetoelectric (ME) effect increasingly considered as an attractive alternative for magnetic field sensing/actuation, able to sense/induce static and dynamic magnetic fields.

In contrast with ceramic-based ME composites, polymer-based ME composites can be easily fabricated by conventional low temperature processing into a variety of forms, such as thin sheets or molded shapes and can exhibit improved mechanical properties, meeting the latest magnetic sensing market demands.

This talk reports on the development of novel composites based on the understanding of the magnetoelectric coupling as well as on the development of magnetic sensors, magnetic actuators, energy harvesters and biomedical applications, not only understanding and optimising their magnetoelectric coupling, but also demonstrating their practical characteristics as technological devices.

Further, the main characteristics and potential applicability of polymer composites based on isotropic and anisotropic magnetostrictive magnetic nanoparticles within a piezoelectric polymer will be introduced.

This talk will try to provide an overview of the front-line research of this fascinating research field and will present the open questions and open needs to reach full applicability of the novel materials.