Departamento de Física de la Materia Condensada

Universidad Zaragoza

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It's getting hot in here: Luminescence thermometry and the anomalies of liquid water

The emergence of luminescent nanothermometry during the last decade opened up the possibility of measure thermal flows at spatial scales below 10 μm, unreachable by conventional electrical methods. Diverse phosphors capable of providing a contactless thermal reading through their light emission properties have been examined, e.g., polymers, DNA or protein conjugated systems, organic dyes, quantum dots, and trivalent lanthanide (Ln^{3+}) ions incorporated in organic-inorganic hybrids, and nanoparticles.

In the last couple of years, the focus of luminescence thermometry has gradually shifted from the fabrication of more sensitive nanoarchitectures towards the use of the technique as a tool for thermal bioimaging and the unveiling of properties of the thermometers themselves and their local surroundings.

After a general perspective of the work done on luminescence nanothermometry since the explosion of the field one decade ago, the lecture will be focused on recent examples illustrating the potential of the technology to measure the anomalies of liquid water.

Luís António Dias Carlos is a Full Professor in the Department of Physics at the University of Aveiro, Portugal. He is a member of the Lisbon Academy of Sciences and the Brazilian Academy of Sciences. His current research interests include luminescent nanothermometers, luminescent solar concentrators, and organic-inorganic hybrids for green photonics. He is coinventor of 5 international patents and was co-guest editor of an RSC book on Nanoscale Thermometry among others. He is editor of Physica B – Condensed Matter, Physics Open, special chief editor of Frontiers in Chemistry (Inorganic Chemistry), associate editor of the Journal of Luminescence, and member of the editorial board of several indexed journals such as Sensors or Results in Optics.

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28th of May (Friday)

PLACE: Zoom & Youtube (scancode)

TIME: 12:30

ZOOM

SCAN ME