NANO seminars

ICN2 Institut Català de Nanociència i Nanotecnologia

EXCELENCIA SEVERO OCHOA

Nano in Chemistry & Materials

Halide perovskite nanocrystals: Synthesis, the role of the surface, heterostructures

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Abstract

Halide perovskite semiconductors can merge the highly efficient operational principles of conventional inorganic semiconductors with the low temperature solution processability of emerging organic and hybrid materials, offering a promising route towards cheaply generating electricity as well as light. Following a surge of interest in this class of materials, research on halide perovskite nanocrystals (NCs) as well has gathered momentum in the last years. While most of the emphasis has been put on $CsPbX_3$ perovskite NCs, more recently the so-called double perovskite NCs, having chemical formula $A^+_2B^+B^{3+}X_6$, have been identified as possible alternative materials, together with various other metal halides structures and compositions, often doped with various other elements. This talk will also discuss the research efforts of our group on these materials. We will highlight how for example halide double perovskite NCs are much less surface tolerant than the corresponding Pb-based perovskite NCs and that alternative surface passivation strategies need be devised in order to further optimize their optical performance. Other topics that will be covered are the role of surface ligands on stabilizing the NCs, including those with alloy compositions, and the synthesis of heterostructures in which one domain is a halide perovskite and the other domain is made of another material.

Introductory talk by Dr Sonia Ruiz Raga

Back contact electrode strategies for perovskite solar cells

Senior Researcher at Nanostructured Materials for Photovoltaic Energy group at ICN2

Thursday 24 February at 03:00 PM (CET)

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