

Upcoming Seminar:

Date: Friday, September 12 10:30 / 9 月 12 日 10 時 30 分

Place: Room 803, East Building 6 / 東 6 号館 803 号室

Organizer: Research Center for Quantum Science /

Hosted by the Institute for Advanced Science

<http://www.ias.uec.ac.jp/>

Title: The curious case of hybrid halide perovskites

Speaker: Professor. Pablo Docampo (Ikerbasque

Research Professor at BCMaterials and formerly University of Glasgow, U.K.)



Abstract:

Hybrid perovskites continue to surprise and challenge us, exhibiting a rich interplay between ionic motion, structural complexity, and optoelectronic function. In this talk, I will follow two research threads from my laboratory that illustrate how embracing these complexities can lead to deeper understanding and technological advancement. First, I will focus on ion migration — long considered a source of instability and hysteresis in devices — and present a new diagnostic framework we have developed to extract meaningful physical insights from it. By applying a combination of a stabilising bias and rapid voltage pulses (termed stabilise-and-pulse, SaP, technique) to working devices, we can probe ionic accumulation and interfacial band alignment in working devices, providing a powerful tool for understanding charge extraction and recombination under realistic conditions.

In the second part of the talk, I will explore the diverse world of layered perovskites. These low-dimensional structures offer a platform for tuning stability and functionality through careful control of organic-inorganic interactions. I will present recent work on the growth of thin layers of these materials over standard, 3D perovskites, highlighting the dual challenges of stability and charge transport. In addition, I will show how the interaction between the bulky organic cation can be used to distort or relax the underlying inorganic lattice.

お問合せ / Contact Us :

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