UCF | Department of Chemistry

Special Seminar at 11:00 am

followed by graduate-recruiting & pizza at noon

Next-Generation Semiconductors: The Renaissance of Halide Perovskites

Tuesday, October 17, 2023, Physical Sciences Building, Room 160

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Hosted by Stephen M. Kuebler

Abstract:

Semiconductor materials are the core components of many important industrial applications spanning from solar cells and light-emitting diodes (LEDs) to γ-ray detectors, transistors, and solid-state lasers. With the rapid advancement of technology, the need for next-generation semiconductors that exhibit multiple functionalities is of utmost importance. In particular, for space applications, materials that are lightweight, flexible, hard-radiation tolerant, and can assemble highly efficient optoelectronic devices are greatly sought after. Unfortunately, current available semiconductors cannot satisfy these requirements. The solution to overcoming these deficiencies will come through tailor-made structural engineering stemming from versatile synthetic chemistry. Towards this end, we recently reported the new family of porous metal halide semiconductors (PMHS), which are water-stable and exhibit fine-tunable porosity, optoelectronic and mechanical properties.

Biography:

Dr. Spanopoulos earned his Ph.D. in Materials Chemistry from the University of Crete, where he worked on the development of Metal-Organic Frameworks (MOFs) for gas storage and separation applications. Following this, he joined the research group of Prof. Mercouri G. Kanatzidis at Northwestern University as a post-doctoral fellow, developing perovskite semiconductors for optoelectronic applications. In 2021, he started his independent career at the University of South Florida as an Assistant Professor at the Departments of Chemistry and Chemical, Biological and Materials Engineering. He received the 2020 IIN Outstanding Researcher award from the International Institute for Nanotechnology and the 2022 ACS PRF Doctoral New Investigator Research award. Research at the Spanopoulos Group focuses on utilizing molecular and crystal engineering to design and synthesize next-generation, multi-functional materials for energy and environmental-related applications.

Undergraduates are invited to remain after the seminar or to join at noon for pizza and a presentation on graduate-training opportunities at USF.