SPRING 2023 CHEMISTRY SEMINAR SERIES

DR. JING LI

Department of Chemistry and Chemical Biology

Rutgers University, New Brunswick, NJ

HOST: DR. AKOPOV

ALL THOSE INTERESTED ARE WELCOME TO ATTEND

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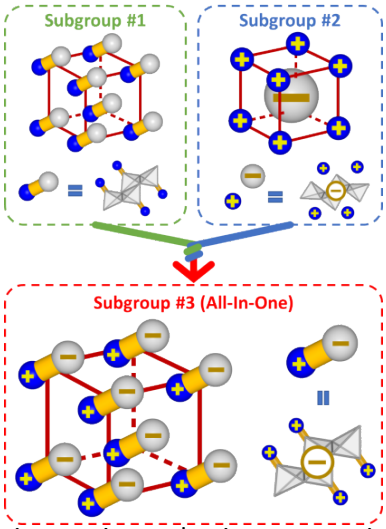
"Copper Halide Based Hybrid Luminescent Materials for Energy Efficient Solid State Lighting Technology"

Friday, March 24, 2023, 11:30 AM

Life Science Center II, Room 130

Biographical Sketch: Professor Jing Li is a Distinguished Professor in the Department of Chemistry and Chemical Biology at Rutgers University, USA. Professor Li completed her Ph.D. degree at Cornell University in 1989 under the guidance of Professor Roald Hoffmann (1981 Nobel Laureate in Chemistry). After two years of postdoctoral research with Professor Francis J. DiSalvo at Cornell University, she joined the chemistry faculty at Rutgers, The State University of New Jersey (Rutgers University) in 1991 as Assistant Professor. She was promoted to Associate Professor in 1996, to Full Professor in 1999, and to Distinguished Professor in 2006. Her research focuses on the development of functional materials that are both fundamentally important and potentially useful for applications related to clean energy and environment, including metal-organic frameworks and inorganic-organic hybrid semiconductors. She has published 430+ research articles, book chapters and invited reviews, highlights and feature articles, and holds 15 issued or pending patents. She has served as Associate Editor for Journal of Solid State Chemistry (8 years) and Crystal Growth & Design (6 years), and as Editorial/Advisory Board member for numerous international journals including J. Materials Chemistry A, Materials Advances, Inorganic Chemistry, EnergyChem, Crystal Growth & Design, and CrystEngComm. She was a recipient of the first Clean Energy Education and Empowerment (C3E) Award for women (U.S. Department of Energy) and her other honors include a U.S. Presidential Faculty Fellow Award (National Science Foundation), a Henry Dreyfus Teacher-Scholar Award (Camille & Henry Dreyfus Foundation), a CAREER Award (National Science Foundation), and more recently a Humboldt Research Award (Alexander von Humboldt Foundation). She was elected as a Fellow of the American Association for the Advancement of Science (AAAS) in 2012, a Fellow of the Royal Society of Chemistry (RSC) in 2015, and a Fellow of the European Academy of Sciences (EurASc) in 2021. She has been recognized as a "Highly Cited Researcher" in 2015, 2016 (by Thomson Reuters) and in 2019, 2020 and 2022 (by Clarivate Analytics).



Abstract: Energy efficient solid-state lighting (SSL) technologies based on light-emitting diodes (LEDs) and organic light-emitting diodes (OLEDs) are future global lighting solutions. Developing earth-abundant, eco-friendly, low-cost, and high-performance photoluminescent (PL) and electroluminescent (EL) materials for LEDs/OLEDs represents an important area of today's materials research. In the recent years, we have devoted a strong effort to the design of copper halide-based hybrid luminescent materials (HLMs) with an emphasis on enhancing their chemical and physical properties by engineering their crystal structure, composition and chemical bonding at the inorganic-organic interface. Our investigations demonstrate strong structure-property correlations in these materials and reveal that their very interesting and unique properties are a result of interplay of inorganic and organic components. A powerful combination of experimental and theoretical studies has provided explanations and insight on the origin and mechanism of luminescence in these systems. Featured by low cost, nontoxicity, good solution processability, excellent moisture/thermal/photo-stability, high luminescence efficiency, easy scalability and sustainability, these materials show considerable promise for use as phosphors and emissive layers in energy-efficient lighting technologies.