



Inorganic Chemistry Seminar Series

Tuesday, January 29, 2019, 12:30 pm

Seaver Science Library, Room 150

SSC Auditorium next to the library

Professor Jakoah Brgoch

Department of Chemistry

University of Houston

The pursuit of novel phosphors for the next generation of LED lighting

The development of new phosphors that are necessary for the next generation of high efficiency LED lighting requires a unique approach for materials discovery. Researchers often rely on chemical substitution or serendipity to identify new materials; however, this inevitably leads to slow, incremental advances in technology development. Our work has recently created a new approach that uses computational chemistry and machine learning to identify new materials guiding our experimental efforts. By predicting the vibrational properties and electronic structure of potential phosphors compounds, high-efficiency materials can be screened a priori ensuring the only best materials are experimentally explored. Following this methodology, our research has developed a number of materials ranging from borates to nitrides with high efficiency and thermal stability at elevated temperatures. Moreover, the complementary use of computation, machine learning, and synthesis provides the fundamental understanding of the composition, structure, and property relationship necessary for the continued advanced optical materials.

Hosted by Professor Brent Melot

The scientific community is invited

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