

Engineering Strongly Correlated Molecules towards Multiferroicity

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ABSTRACT

There is growing evidence that ferroic orders and metallic transport in macromolecular solids depends on the structural ordering and dimensionality. However, it is still unclear what conditions, charge-transfer and polaronic features are required for molecular solid systems to behave the multiferroic and/or metallic state. In addition to its scientifically relevant, this is also becoming a practical interest in connecting with unusual high-T_c molecular multiferroics and even superconductors. In this talk, I will discuss materials design and transformative manufacturing of molecular crystalline solids, and promising prospects in ferroelectrics, magnets and multiferroics.

Dr. Shenqiang Ren is Professor of Materials Science and Engineering at the University of Maryland College Park with research interests in materials design and assembly, and transformative manufacturing of emerging multifunctional materials. He earned his Ph.D. degree in Materials Science and Engineering at the University of Maryland College Park, and then served as a postdoc fellow at Massachusetts Institute of Technology (MIT). He received 2015 National Science Foundation – CAREER Award, 2014 Army Research Office – Young Investigator Award, 2014 RSC Emerging Investigator, 2013 NSF EPSCOR First Award, 2013 Air Force Summer Faculty Fellowship, 2009 China's National Award for Outstanding Graduate Students Abroad, 2009 Dean's Doctoral Research Award and Distinguished Doctoral Dissertation Award at the University of Maryland, College Park.