A LOW-COST PHOTOVOLTAIC TECHNOLOGY: FROM DYE-SENSITIZED TO PEROVSKITE SOLAR CELLS

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Location:
W122 Eng. Bldg. 2, University of Houston

Center for Integrated Bio and Nano Systems Houston Chapter of IEEE Nanotechnology Council and Houston Chapter of IEEE Magnetics Society

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Abstract: Over the past five years, the rapid emergence of a new class of solar cell based on mixed organic-inorganic halide perovskite semiconductors has captured the attention of scientists and researchers in the field of energy conversion. Benefiting from the optimization of perovskite film deposition approaches, the design of new material systems, and the diversity of device concepts, the efficiency of perovskite solar cells (PSCs) has increased from 2.19% in 2007 to a certified 20.1% in 2014, making this the fastest-advancing photovoltaic technology to date. Our research interests mainly focus on developing low-temperature processable planar heterojunction PSCs. Through solvent engineering, the formation of perovskite active layer with smooth, compact and homogeneous morphology has been well controlled. Also, the phase transformation from intermediate phase to perovskite phase has been investigated. The characterization of the intermediate phase structure and critical control of the phase transformation benefit the understanding of perovskite crystal growth and the fabrication of highly efficient planar heterojunction PSCs.
Bio of Dr. Rong: Dr. Yaoguang Rong received his BS degree in Material Physics from Wuhan University in 2009, and PhD degree in Optics Engineering from Huazhong University of Science and Technology in 2014. Since then, he has been working as a postdoctoral researcher in the Department of Electrical and Computer Engineering in University of Houston. His current research interests include perovskite solar cells, dye-sensitized solar cells, and mesoscopic-structure materials.

Contact Prof. Jiming Bao (jbao [at] uh [dot] edu) if you would like to arrange for a time to meet with Dr. Rong.