



## Dr. Xiong Gong

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**FRI, FEB 19, 2016  
12:30pm- 1:30pm  
EGR BLDG 2 RM W122**

## BULK HETEROJUNCTION PEROVSKITE HYBRID SOLAR CELLS WITH LARGE FILL-FACTOR

### Abstract:

In the past five years, methylammonium lead halide (MAPbX<sub>3</sub>) perovskites as novel photovoltaic materials have been attracted much attention due to their super optical and electrical properties. Over 20% power conversion efficiency (PCE) has been reported from perovskite-based hybrid solar cells (pero-HSCs), but shorter diffusion length of the electrons than that of the holes is one of the major limitations to further boost efficiency of pero-HSCs. To facilitate electron extraction efficiency in pero-HSCs and make it comparable to that of hole, we, for the first time, demonstrate bulk heterojunction (BHJ) pero-HSCs fabricated by mixture of perovskite materials with water-soluble fullerene derivatives rather than pristine perovskite materials. As compared with planar heterojunction pero-HSCs, more than 22% enhancement in PCE is observed from BHJ pero-HSCs. Therefore, our strategy of using BHJ structure in pero-HSCs offers an efficient and simple way to further boost the device performance.

### Biography:

Dr. Gong is an Associate Professor in the Department of Polymer Engineering of the College of Polymer Science and Polymer Engineering at the University of Akron. He also holds an Adjunct Chair Professor in the State Key Laboratory of Luminescence Materials and Devices at the South China University of Technology, P. R. China, and holds a Chief Scientist position at Heeger Beijing R&D Center. He has accomplished over 158 articles published in the peer reviewed journals including in Science, with a peer citation over 16,000 times. He earned an H-index of 48. He also contributed 35 granted/pending patents and 9 book chapters. Dr. Gong received many international and national awards and honors including named the top 1% mostly cited researchers 2015, the world's most influential scientific minds 2014 (2015) and the top 1% mostly cited scientists in the field of materials science between 2002 and 2012 (2014) reported by Thomson Reuters, National Science Foundation (NSF) Career award (2014) and NSF of China oversea outstanding Chinese youngest scientist award (2008).

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