Ross Group Distinguished Speaker
School of Materials Science and Engineering
Oklahoma State University

PHILLIPS 66 ORGANIC PHOTOVOLTAICS

BRIAN WORFOLK
DIRECTOR OF ORGANIC PHOTOVOLTAICS
PHILLIPS 66
BARTLESVILLE, OKLAHOMA

Thursday, Dec 6, 2018, 2:00–3:00 PM
Room 153, Helmerich Research Center
Oklahoma State University
526 North Elgin Ave, Tulsa, OK 74106

SPEAKER

Brian Worfolk is the Director of Organic Photovoltaics at Phillips 66. He is an alternative energy scientist with 9 years of experience in academia, industry and entrepreneurial environments. He is passionate about leading innovations and developing technologies in alternative energy, predominantly in photovoltaics. Brian envisions a world where low-cost renewable energy is accessible to all. Previously Brian was a Postdoctoral Scholar at Stanford University where he worked on organic electronics. He received his Ph.D. from the University of Alberta in Materials Chemistry. Brian has published 17 peer-reviewed manuscripts and has 17 patents and patent applications.

ABSTRACT

Organic photovoltaics (OPVs) offer a differentiated value proposition from other photovoltaic technologies. They combine superior low-light performance with the ability for semi-transparent electricity generation, as well as tunable color, which adds aesthetic appeal in product design. OPVs can be manufactured using established highly scalable solution deposition techniques on flexible plastic substrates. While small area research devices continue to improve their photovoltaic performance, there has been limited success reported with large area photovoltaic modules.

This talk will highlight some of the challenges from scaling small research devices to large area photovoltaic modules using scalable solution processing. Challenges such as air stability, material solubility, toxic ink formulations and thick photoactive layers (> 300 nm) will be highlighted resulting in leading 8% power conversion efficiency OPV modules.

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