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**TOPIC:**

Perovskite based solar cells - Device Physics and Performance Optimization

**ABSTRACT:**

Photovoltaic devices for solar energy conversion is still dominated by Silicon based devices. However, the demand for a low cost alternative on flexible substrates has resulted in increased research activity of organic and dye based solar cells. Although, significant advances have been reported in such solar cells, the efficiencies are still not high for many applications. In this context, Perovskite based solar cells are particularly encouraging as efficiencies of the order of 15% has already been reported. In spite of these exciting recent results, however, the prospects and promises of this new class of solar cells is not clearly evident as the functional parameters that limit efficiency and the stability of such devices is yet to be clearly elucidated. In this talk, we explore the basic device physics of perovskite based solar cells to identify the key functional parameters that control the efficiency.

**PROFILE:**

Pradeep R. Nair received the B. Tech. degree in Electronics and Communication Engineering from Regional Engineering College, Calicut, India (2002), the M. Tech. degree in Electrical Engineering from the Indian Institute of Technology (IIT), Bombay, Mumbai, India, (2004), and his Ph.D from School of ECE, Purdue University, West Lafayette, IN USA (2009). He joined EE, IITB in 2011 after two years of post-doctoral research at Purdue University. His research interests include modeling and simulation of nanoscale devices for healthcare and energy applications, semiconductor device physics and reliability, and nanoelectromechanical systems.