NANOMATERIALS SPEAKER SERIES

EATH ABUNDANT FUNCTIONAL NANOMATERIALS FOR EMERGING ENERGY AND MEDICAL APPLICATIONS

November 4, 2016 at 12:30pm

Engineering Bulding 2, Rm W122

In recent years, there has been a renewed interest in many earth abundant low cost materials, which were extensively investigated in the past century for scientific understanding and technological use. This is primarily because of the realization that nanoarchitectures of these so called "old materials" could exhibit unique properties. For example, the discovery of carbon nanotubes and graphene dramatically changed the scope of application of carbon materials. Similarly, several well-studied functional oxides such as titanium dioxide and zinc oxide in nano-dimensions have demonstrated the potential for making paradigm shifts in certain application areas. The research at Nanomaterials and Devices Lab in the University of Houston's Physics Department is focused on developing nanoarchitectures of functional materials, identifying their potentials and using them for applications, primarily in the fields of solar energy conversion and medical diagnosis or treatment. Very recently, the group became successful in developing a zinc oxide nanotube-nanowire hybrid structure through sustainable pathways for use as chemiresistive sensors for early detection of breast cancer. The focus of this presentation will be on the specific properties exhibited by such nanoscale oxide and carbon materials. A few examples illustrating their potential use in devices/processes for solar energy conversion and medical diagnosis will also be discussed.

Oomman K. Varghese

Associate Professor

Department of Physics

University of Houston

SPEAKER BIO

Dr. Oomman K. Varghese is an Associate Professor in Physics Department at University of Houston. After receiving Ph.D degree in Physics from Institute of Technology Delhi, he worked as a post-doctoral scholar in University of Kentucky and The Pennsylvania State University. Later he was employed as Chief Scientist at Sentech Corporation, Pennsylvania and then as Development Engineer at First Solar, Ohio. In 2011, Thomson Reuters ranked him 9th among 'World's Top 100 Materials Scientists' in the past decade. In 2014, 2015 and 2016 he received the title 'Highly Cited Researcher' and had name listed in Thomson Reuters' World's Most Influential Scientific Minds.

Contact Professor Jiming Bao at jbao@uh.edu if you would like to arrange for a time to meet with Dr. Varghese.

UNIVERSITY of HOUSTON

CULLEN COLLEGE of ENGINEERING

Department of Electrical & Computer Engineering