

# A Day-Long Seminar on Thin-film Electronics and Advanced Materials

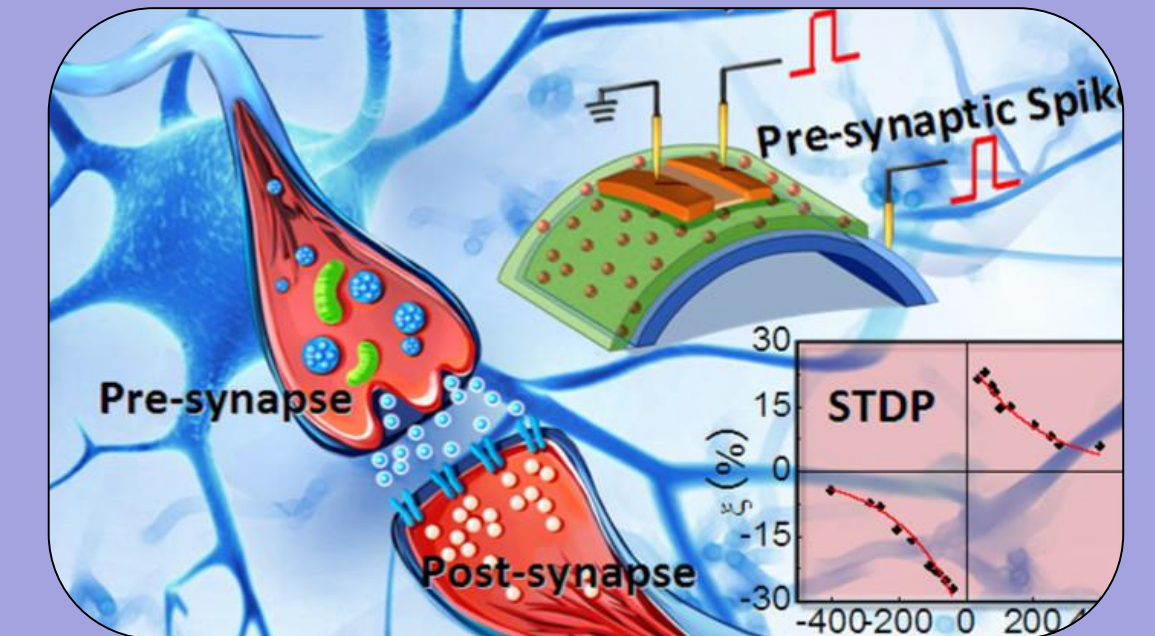
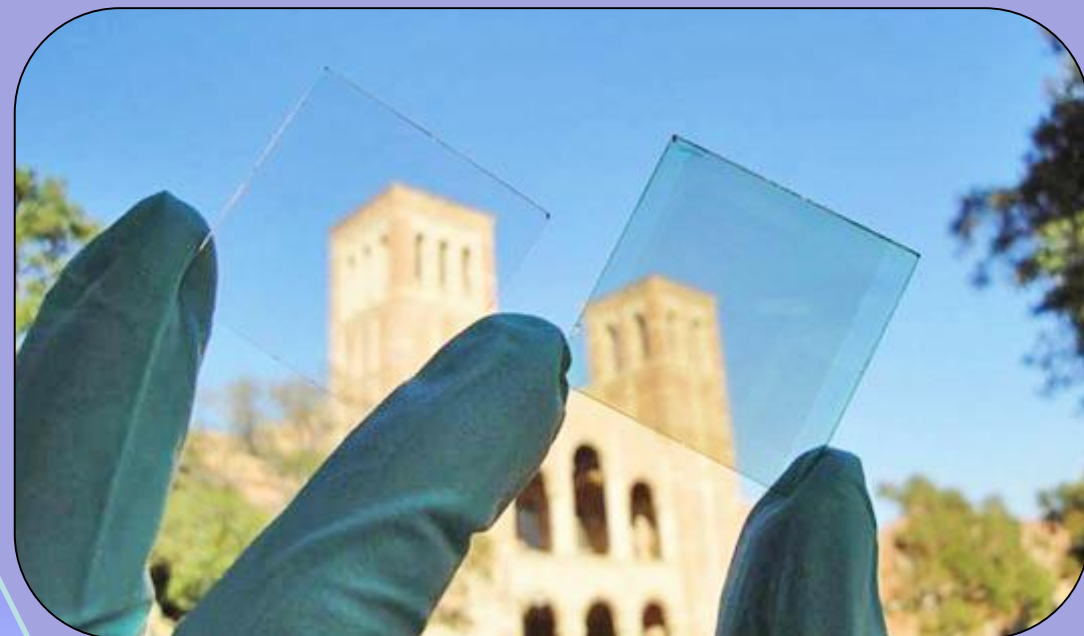
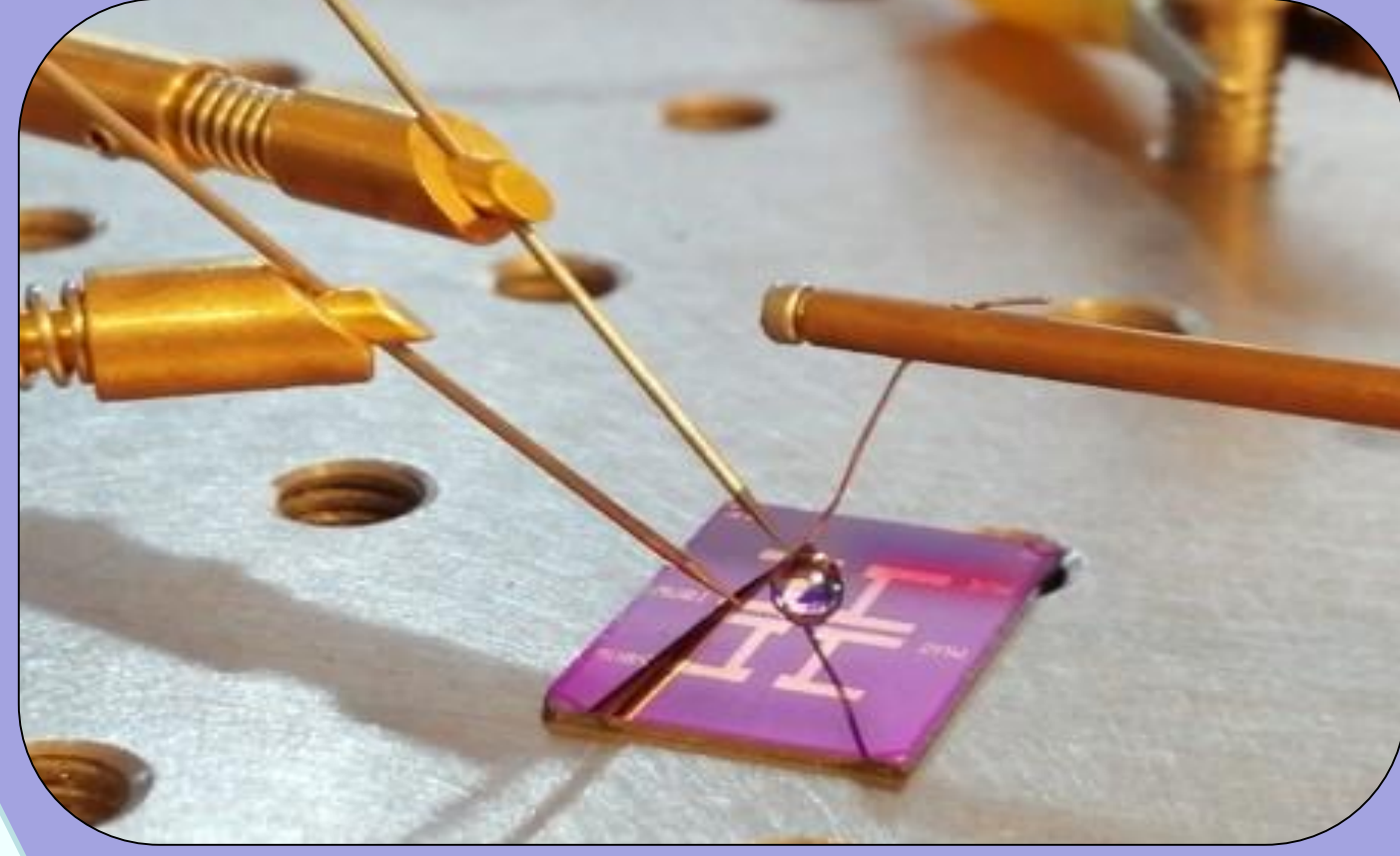


**Organized by  
School of Physics**

**Indian Institute of Science Education and Research Thiruvananthapuram (IISER-TVM)**

## Scope of this seminar:

During the last several decades, processing of thick, thin and ultrathin films has spurred the miniaturization of electronic devices while contributing to the rapid growth of different industries, most notably, electronics related. This international seminar aims to discuss the new perspectives of thin-film electronics and advanced materials as the era of nanoelectronics has arrived. Thin films are used to process by applying various production techniques like evaporation, sputtering, ionic deposition, chemical vapour deposition, liquid-phase deposition, plating-type methods, and printing. Nowadays, thin-films on solution-based processing attracted colossal attention due to cost-effectiveness and large-area production by avoiding high vacuum and high-temperature techniques. The total market value for thin-film materials will reach almost \$11.3 billion in 2021 by guessing a compound annual growth rate (CAGR) of 3%. On-going miniaturization in the semiconductor-related industry impacts other sectors, as seen in the constant effort in the thin films market to produce components and products that are smaller, thinner, flexible, and lighter. Also, new developments are impacting advances in thin-film electronics and materials by making thin films less than 30 nm or those with a thickness down to atoms. Therefore, miniaturization trends in electronics, optoelectronics, and other industry sectors (e.g., energy, sensors, medicine, and instrumentation) are driving market growth, as well. However, the need to fabricate devices that can target mass markets and compete on price is raising the opportunity to utilize lower-cost manufacturing processes. Consequently, the thin-film industry based on emerging advanced materials are becoming increasingly popular, but they still represent a small share of the entire industry market.



**Prof. Ajay Gupta,**  
Amity University  
Noida

**Title:**  
Role of interfaces in  
magnetic thin films  
and multilayers for  
spintronic  
applications



**Prof. Satish Patil,**  
IISc Bangalore

**Title:**  
Exceeding Shockley-  
Queisser Limit with  
Singlet Fission



**Prof. Amit  
Ghoshal, IISER  
Kolkata**

**Title:**  
Vortex state in a thin  
film of disordered  
superconductor in the  
presence of an orbital  
magnetic field



**Prof. Achintya  
Dhar, IIT  
Kharagpur**

**Title:**  
Present Status and  
Challenges in  
Organic  
Electronics



**Dr. Leszek  
Majewski,**  
University of Manchester

**Title:**  
Ultra-low voltage thin-  
film transistors (TFTs):  
materials, processes  
and applications



**Prof. Mayank  
Shrivastava, IISc  
Bangalore**

**Title:**  
The Future of World  
Electronics and  
Possible Roles India  
Can Play



**Prof. Rudra Pratap,**  
IISc Bangalore

**Title:**  
Nanoengineering of  
Material Stacks for  
Piezoelectric MEMS  
Devices

**In promotion of UGC-UKIERI  
Project (Phase-III)**

**Title:**  
Brain-like computing - Designing the basic  
building blocks for artificial neurons and  
synapses

**PI (India):**  
Dr. Bikas C. Das  
SoP, IISER-TVM

**PI (UK):**  
Dr. Leszek A. Majewski,  
EEE, University of Manchester



**Venue:** PSB 3201  
**Date:** 24<sup>th</sup> August 2019  
**Time:** 09:20 -16:30

**Organising Committee:-**  
**Convener:** Dr. Bikas C. Das  
**Members:** Dr. Amal Medhi  
Dr. Ramesh C. Nath  
Dr. S. Kumaragurubaran

**UKIERI**  
UK-India Education  
and Research Initiative