SCDT – FlexE Centre Webinar Series

The webinars aim to bring together researchers in Flexible Electronics and allied areas from across India (and other countries) on a single platform to promote professional interaction.

Webinar by

Dr. Dhiman Mallick
Department of Electrical Engineering
Indian Institute of Technology Delhi

on
"From Self-Powered Sensing to Sustainable Multifunctionality: Emerging Strategies for Flexible Electronics"

Date: 15th September 2026
Time: 7:30 PM to 8:30 PM

Visit www.iitk.ac.in/scdt/webinars.html to access the zoom link to join the webinar.

The event will be chaired by
Dr. Gorachand Dutta
Indian Institute of Technology Kharagpur

Abstract of the Webinar

Flexible sensors that efficiently detect various stimuli relevant to specific environmental or biomedical application have been extensively studied due to their great potential for the Internet of Things and wearable electronics applications. The application of flexible and stretchable electronics to device-engineering technologies has enabled the fabrication of slender, lightweight, stretchable, and foldable sensors with large form factor. In this talk, I will discuss various flexible sensor development activities that are going on in my research group currently. In the first part of my talk, I will discuss the development of a flexible hybrid transduction (piezoelectric/triboelectric) nanocomposite-based pressure sensor matrix with individually addressable sensor pixels over a large area. The proposed sensor is more acceptable than conventional pressure sensors due to its speedy and cost-effective desig n flow. The photo-patternable active layer of the nanocomposite enables stress and area-specific sensing that convolves into a highly sensitive, lower cross talk and large area pressure sensing. In the second part f my talk, I will talk about Laser Induced Graphene (LIG) which allows a scalable method for fabricating three-dimensional porous graphene structures with exceptional electrical properties using economical lasers on flexible substrates. We systematically investigates the impact of laser parameters on the properties of LIG as well as various innovative wearable applications that can be fetched out of that study.

Information about the speaker

Dr. Dhiman Mallick is an Associate Professor at the Department of Electrical Engineering and Associated Faculty at School for Interdisciplinary Research and Nanoscale Research Facilities, Indian Institute of Technology Delhi (IITD), New Delhi, India. Currently, he is recipient of Visvesvaraya Young Faculty Research Fellowship from Ministry of Electronics and Information Technology, Govt. of India. He was a post-doctoral researcher at Tyndall National Institute, Ireland (2017-18). He received the Ph.D. degree in Electrical and Electronic Engineering from Tyndall National Institute, University College Cork in February 2017. His research interests include MEMS and flexible sensors, energy harvesting, nanogenerators, in and near sensor computing, sensors for wearable applications etc. Till date, he has authored/co-authored ~175 published articles in peer-reviewed journals and conference proceedings, one global pat ent and three Indian patents. Presently, he is serving as the Associate Editor of IEEE Sensors Journal and Junior Editorial Board Member of Journal of Micromechanis and Microengineering (IOP)..

Samtel Centre for Display Technologies (SCDT) and the National Centre for Flexible Electronics (FlexE Centre) of IIT Kanpur are dedicated to flexible electronics research and commercial deployment respectively

For more information
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