

[Scdt] Seminar by Prof. Shree Prakash Tiwari: FlexE101, 12noon, Mon.13th



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Dear Colleagues,

Prof. Shree Prakash Tiwari who will be visiting our Centre on Monday will be giving a talk:

Venue: FlexE 101

Date: 13th June, 2022 (Monday)

Time: 12 noon

Title of talk: Multifunctional Flexible Organic Transistors for Biodegradable Systems

Abstract

Flexible electronics has emerged as a promising technology in the last few decades due to its numerous advantages, such as low cost, high flexibility, lightweight, large area and low-temperature processing capabilities, and its large number of application areas in smart health patches, flexible displays, RFID tags, electronic textiles, memories, and circuit and sensing applications. Organic field-effect transistors (OFETs) have established themselves as a key device due to their potential use for circuit and sensing applications and multifunctional capabilities. Moreover, capability of being produced with biodegradable materials have made these devices suitable to be explored for eco-friendly and green electronics. Increasing e-waste has become a severe environmental issue, and requires specific attention from researchers in demonstrating eco-friendly devices. Biocompatible or nature inspired material components can be incorporated during the fabrication process to enhance the eco-friendliness of a device. Various natural proteins such as cellulose, silk fibroin, gelatin, chitosan, and albumen can be suitable substrate or dielectric candidates. Through proper device optimizations, high performance organic transistors with multifunctional capabilities can be demonstrated. In this talk, a brief overview of efforts towards demonstration of high-performance flexible devices will be discussed. Moreover, demonstrations of devices with biodegradable substrate and natural dielectric component and recent work towards multifunctional devices will be presented.

Brief Bio-data:

Shree Prakash Tiwari joined IIT Jodhpur in May 2011 where he is currently working as Associate Professor in Electrical Engineering Department. Prior to joining IIT Jodhpur, he worked as a Postdoctoral Fellow at School of ECE, Georgia Tech., Atlanta, USA for 3 years, from 2008 to 2011. He had received Ph.D. in 2008 from Department of Electrical Engineering at IIT Bombay. During Ph.D., he had also worked at NTU Singapore for about 7 months. Dr. Tiwari is a Senior Member of IEEE, and Visvesvaraya Young Faculty Research Fellow of Ministry of Electronics and Information Technology (MeitY) for 2018-2023. His research includes development of high-performance organic transistors and resistive random-access memory devices for flexible electronics. He has published over 100 research articles, including more than 50 in peer-reviewed journals of high repute including many in IEEE Transactions on Electron Devices, Organic Electronics, Applied Physics Letters, and ACS Applied Materials and Interfaces. At IIT Jodhpur, he leads the Flexible Large Area Microelectronics (FLAME) Research Group, with focus towards demonstration of flexible devices and systems for eventual biodegradability and green electronics.

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Please join the in-person talk in FlexE 101.

With regards

S.K.I.

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