



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. Sameer Sonkusale

Professor
Department of Electrical and Computer
Engineering
Tufts University

on
“Flexible sensors and bioelectronics on
threads”

Date: 14th February, 2023

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. Mitradip Bhattacharjee

Indian Institute of Science Education and
Research, Bhopal

Abstract of the Webinar

This talk will explore the new realm of using threads as an ultimate platform for flexible and stretchable bioelectronics. Threads offer unique advantages of universal availability, low cost, material diversity and simple textile-based processing. Interestingly, threads also provide an ideal platform for passive microfluidic sampling and delivery of analytes. In this talk, reel-to-reel fabrication of functional smart threads for variety of sensing and electronics application will be reported. Nanomaterial-infused smart threads for sensing strain and temperature will be presented. Nano-infused threads will be presented for sensing pH, glucose, lactate, ammonium and other chemical and biological biomarkers directly in biological fluids such as sweat or wound exudate. Beyond sensing and microfluidics, some of our new work on making super-thin transistors and electronics directly on threads will also be presented. This new toolkit of highly flexible thread-based microfluidics, sensors, transistors and electronics makes it possible to realize wearable and implantable sensor platforms for health monitoring and treatment.

Information about the speaker

Dr. Sameer Sonkusale is currently a Professor of Electrical and Computer Engineering at Tufts University with a joint appointment in the department of Biomedical Engineering and also Chemical and Biological Engineering. He received his MS and PhD in Electrical Engineering from the University of Pennsylvania. For 2011-2012 and again in 2018-2019, he held a visiting appointment at the Brigham and Women’s Hospital, Harvard Medical School and the Wyss Institute at Harvard University. He has received several awards including the National Science Foundation CAREER award in 2010. He received the best paper award, and highly cited paper award from the journal Microsystems and Nanoengineering in 2020. Dr. Sonkusale is or has been on the editorial boards of several journals including Scientific Reports (Nature) and IEEE Transactions on Biomedical Circuits and Systems (past). He is a senior member of the IEEE, and a member of OSA, MRS, BMES and AAAS.

At Tufts University, Dr. Sonkusale directs an interdisciplinary research group Nano Lab with research focus on flexible bioelectronics, biomedical devices circuits and systems, micro- and nano-fabrication, and point of care diagnostics.