



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. Srinivasa R. Raghavan

Department of Chemical & Biomolecular Engineering
University of Maryland, College Park
on

“How Electric Fields Can be Used to 3D-Print Hydrogels, Burst Capsules, and Stick Gels to Tissues”

Date: 13th February, 2024

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. Partho Sarathi Gooh Pattader
Indian Institute of Technology Guwahati

Abstract of the Webinar

This talk will show how electric fields can induce a rich variety of behavior in soft materials that contain water (e.g., hydrogels and capsules).

First, I will describe how gels of biopolymers can be created in 3D using an electric field. The biopolymer is gelled at a precise location by applying the field through a fine electrode. By moving the electrode in 3D space, we can build a gel in a specific shape.

Next, I will move on to soft microcapsules made from biopolymers. When these capsules are placed in aqueous solution and subjected to an electric field, they deform and burst. These electroresponsive containers could be used to deliver drugs in wearable devices.

Lastly, I will discuss the electroadhesion (EA) of cationic hydrogels to animal tissues. We are using this technique to perform surgeries without using sutures.

Information about the speaker

Srinivasa (Srini) Raghavan received his B.Tech. and Ph.D. in Chemical Engineering from the Indian Institute of Technology, Madras, and North Carolina State University, respectively. His research has resulted in more than 190 publications and 20 patents, which have been cited more than 18,000 times (h index of 75). He is currently a professor in the Department of Chemical & Biomolecular Engineering at University of Maryland (UMD), College Park. At UMD, he has been recognized both for his teaching and his research, including being designated a Distinguished Scholar-Teacher in 2017. He has been a four-time nominee for a UMD Invention of the Year and won this award in 2009 and 2022. He is also the scientific co-founder of four startup companies based on technologies invented in his laboratory.