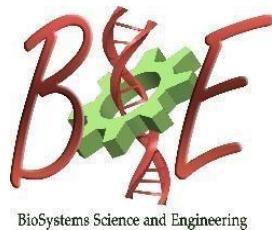




Indian Institute of Science

Centre for BioSystems Science and Engineering

BSSE Seminar



31 December 2020, 11:00 a.m., Virtual

Miniaturized interfaces for efficient biosensing and high-throughput bioanalysis

Dr. Shailabh Kumar,
Post-doctoral research fellow,
Stanford University

About the speaker:

Shailabh is currently a postdoctoral scholar at Stanford Bioengineering developing miniaturized interfaces for vector-borne disease surveillance, working with Prof. Manu Prakash. Shailabh completed his PhD in Biomedical engineering with Prof. Sang-Hyun Oh at the University of Minnesota, Twin Cities. His doctoral work focused on overcoming diffusion-limited transport of molecules on nanostructured surfaces for improved biosensing and bioanalysis. He also trained as a postdoctoral scholar at Caltech with Dr. Hyuck Choo towards nanosensors-driven multiplexed detection of clinical biomarkers. Shailabh received his undergraduate education in Biotechnology and Biochemical engineering from the Indian Institute of Technology Kharagpur.

Abstract:

Miniaturized material interfaces can couple with biology at several different scales, from molecules to organisms, revealing information at improved resolution and throughput. I will discuss platforms enabling a) rapid biomolecule concentration and uniform signal enhancement for improved detection, b) arrayed assembly of individual biological particles for high-throughput analysis, and c) automated collection of salivary samples from biting mosquitoes for vector-pathogen diagnostics. Scalable nanosensors and biointerfaces can play a leading role towards improving our understanding of biological systems, as well as solving human health and environmental challenges in the coming decades.