

Title:

Wearable Sweat Sensors – Towards big data for human health

Speaker:

Mallika Bariya

Abstract:

Wearable sensor technologies have exciting potential for realizing personalized medicine through continuous monitoring of individuals' health indicators. Human sweat is an excellent candidate for non-invasive monitoring as it has a rich chemical composition that could reflect the body's health and physiological state. In this talk, I will present our recent advancements on fully-integrated, wearable sweat sensors that can simultaneously measure sweat chemicals (including metabolites, electrolytes, heavy metals, and drugs), sweat rate, and skin temperature for signal calibration. I will discuss how we can integrate microfluidics to more accurately interpret biomarker measurements, and mass fabricate devices to enable correlation studies into the physiological relevance of sweat. We demonstrate these devices for estimating fluid loss during exercise, studying drug metabolism, and comparing glucose trends across sweat and blood.

Bio:

Mallika joined Prof. Ali Javey's group as a PhD student and NSF Graduate Research Fellow in 2016. Her research is focused on electrochemical sensing technologies for healthcare applications, with particular emphasis on developing and using sweat sensors to understand how non-invasive parameters can reflect deeper physiology.