



Shalini Prasad, Ph.D.

Department of Bioengineering, Professor and Chair
University of Texas at Dallas

[Website](#) | [LinkedIn](#) | [Contact](#)

Date Friday, February 14, 2025

Time 10:00 to 11:00 AM

Location CEMO 105

Title: *Non -invasive tracking host inflammatory response due to infection and chronic disease*

Abstract: Inflammation is a biological response of the immune system that can be triggered by a variety of factors, including pathogens, damaged cells and toxic compounds. These factors may induce acute and/or chronic inflammatory responses in multiple organs, potentially leading to tissue damage or disease. Both infectious and non-infectious agents and cell damage activate inflammatory cells and trigger inflammatory signaling pathways. Hence, there is a widespread interest in designing technologies that will enable tracking of the human body's inflammatory response due to non-infectious and infectious triggers. In this work we demonstrate the viability of passive eccrine sweat as a functional biofluid toward tracking the human body's inflammatory response. Cytokines are biomarkers that orchestrate the manifestation and progression of an infection/inflammatory event. Hence, noninvasive, real-time monitoring of cytokines can be pivotal in assessing the progression of infection/inflammatory event, which may be feasible through monitoring of host immune markers in eccrine sweat. We have expanded the tracking of Inflammation to chronic disease with inflammatory bowel disease being the disease model. This work demonstrates the first proof-of-feasibility of multiplexed cytokine and inflammatory marker detection in passively expressed eccrine sweat in a wearable form-factor that can be utilized toward better management of inflammatory bowel disease.

Bio: Shalini Prasad is Cecil H. and Ida A. Green Professor of Systems Biology and Department Head of Bioengineering in the Erik Jonsson School of Engineering and Computer Science at the University of Texas at Dallas. Dr. Prasad is the Director of Biomedical Micro devices and Nanotechnology Laboratory at UT Dallas, which develops novel sensor technologies ranging from wearable technologies, portable diagnostics to defense and environmental monitors. Her lab studies human host response in context to multiple disease models. Her research work has been supported by several federal and state agencies as well as foundations and corporate entities. She is fellow of American Institute of Medical and Biological Engineering, Biomedical Engineering Society, Royal Society of Chemistry, International Institute of Advanced Materials and the Society of Laboratory Automation and Screening. She is the recipient of the 2024 Tech Titans Tech Inventor Award, 2024 Dallas Business Journal Woman in Tech Awardee, 2021 Albert Nelson Marquis Lifetime achievement award for her contributions to higher education and entrepreneurship.