

**University of South Florida**

***Thermo-plasmonic Preconcentration of Bacteria from Blood Samples for Rapid Point-of-care Analysis***

Our goal is to develop a rapid, point-of-care in vitro diagnostic test that distinguishes between bacterial, fungal, and viral infections and allows to identify causative organisms without any need for long culturing. We propose to address the fundamental challenge of biological micromanipulation with a novel thermo-plasmonic platform that can powerfully, but gently, capture, move, and concentrate bacteria or other type of cells. After that preconcentrated bacteria can be directly analyzed in small microfluidic wells treated with different antibiotics. This way specific disease-causing agent(s) can be identified, and personalized treatment can be determined for the patient.