



DEPARTMENT OF  
CHEMISTRY &  
CHEMICAL BIOLOGY

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SMLC 102

4:00 p.m.

# SOUND WAVES IN MICROFLUIDICS: MINIATURIZED TOOLS FOR BIO-ANALYTICAL APPLICATIONS



**PRESENTED BY:**  
**Dr. Menake Piyasena**

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New Mexico Tech

Microfluidics is evolving as a new platform for the development of miniaturized techniques that are advantageous for a wide range of bio-analytical and bio-medical applications. A typical microfluidic device is comprised of single to multiple fluid flow channels with the width of few hundred micrometers, and many laboratory functions can be performed in these channels. The ability to integrate sound waves into microfluidic channels has further enabled the development of new arrays of bio-analytical devices with unique capabilities that are not achievable in macroscale. These devices typically need only a few microliters of samples and reagents; however, the devices' flow-through layout is capable of handling several milliliters of a sample if necessary. We exploit these unique conditions to develop new miniaturized bio-analytical tools. In this talk, first, a simple and inexpensive new method of creating a microfluidic device on a commonly available aluminum substrate and its usefulness in cell separation and analysis will be discussed. In the second part of the talk, development of new cell and particle separation and enrichment technique by manipulating the microfluidic flow using sound waves will be presented.