

APRIL VICTORIAN BRANCH MEETING

**Surface Acoustic Waves:
A New Paradigm for Driving Ultrafast Microfluidics**

Dr. Leslie Yeo

**Department of Mechanical and Aerospace Engineering
Monash University**

6.30pm Thursday 16 April, 2009

(Refreshments provided from 6:00 pm prior to the talk)

Hercus Theatre, David Caro (Physics) Building
University of Melbourne

Recently, there has been significant interest in *microfluidics*, which involves the manipulation of fluids at micron and submicron dimensions, due to the enormous potential of lab-on-a-chip systems for a wide range of exciting practical applications in biomedicine and pharmaceuticals or even homeland security, environmental monitoring and fuel cell technology. Whilst micro/nano-fabrication technology has contributed to the capability for fabricating very small chip-scale devices, the ability to move fluids through such small devices still relies on large benchtop syringe pumps - quite the antithesis of microfluidic philosophy. Electric, acoustic and magnetic fields have been exploited to develop miniature pumps, valves, dispensers, reactors, mixers, separators, concentrators, etc., such that they fit on a chip, but these are hindered by the inability to generate inertial flows, and hence such devices are not only slow but also inefficient. In this talk, I will give an overview of our recent work on surface acoustic waves, which are nanometre amplitude analogues of earthquakes that propagate along the substrate of a piezoelectric material, demonstrating that these can be harnessed for a host of rapid microfluidic manipulations, often two orders of magnitude faster than other actuation methods.

Members are encouraged to join the speaker and members of the Branch Committee for dinner following the talk at a local restaurant. In order to assist with table reservations please contact the Honorary Secretary (email below) by Monday April 13.

Honorary Secretary

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