

**DEPARTMENT OF MECHANICAL ENGINEERING****SEMINAR**

**Title: KEEPING PROMISES: HOW ELECTROSPINNING WILL AID TISSUE ENGINEERING IN THE 21<sup>ST</sup> CENTURY**

**Speaker: Dr. Paul Dalton**  
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**Date: 10 February 2012 (Friday)**

**Time: 3:00 p.m.**

**Venue: Room 7-37, Haking Wong Building, HKU**

There is an urgent need for engineered materials to improve outcomes within medicine. The electrostatic drawing of fibres, or electrospinning, is one such technology that produces new forms of materials for use within tissue engineering. As with many new technologies, electrospinning promised to revolutionize the fields of tissue engineering and textiles in particular. After initially generating an exponentially increasing number of scientific publications over the past decade, enthusiasm for electrospinning has been tempered somewhat by the “underwhelming nature” of the first products. However, there are still many reasons why electrospinning is an important process that will shape tissue engineering in the 21<sup>st</sup> century. Electrospinning is inexpensive, can be applied to many different polymers and contains diverse aspects that are only now being researched - new electrospinning products are being described in the literature daily.

Electrospun fibres are formed by applying a high voltage between a polymeric liquid and a collection target. One major application of electrospinning is to make nano-scale fibres to mimic the extracellular matrix or to produce a scaffold for tissue engineering. Where a cell may adhere to only one micro-fibre in a conventional scaffold, one cell can adhere to multiple electrospun nanofibres. The fibres can guide migration, allow proliferation and even differentiate cells.

This talk describes the technique of electrospinning, focussing on surface engineering the fibres for specific interaction *in vitro*. Additionally the automation of the electrospinning process is introduced and how this allows a new generation of complex biomedical materials to be produced.

**ALL INTERESTED ARE WELCOME**

**For further information, please contact Dr. B.P. Chan at 2859 2632.**