

# 2010 Departmental Seminar

Thursday 12 August 2010

3.00 pm

Mechanical Engineering Seminar Room – E547

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## **A Two-mass Cantilever Beam Model for Vibration Energy Harvesting Applications**

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**Abstract:**

Currently most wireless sensors in the world are powered by a finite battery source. The dependence of batteries not only requires frequent maintenance, but also has adverse environmental effects associated with battery disposal. For these reasons, massive deployment of wireless sensors in the industry is problematic. With recent advances in semiconductors, power consumption of wireless sensors has greatly reduced. While vibration energy harvesting has become a viable means to power wireless sensors, narrow bandwidth is still a hurdle to the practical use of the technology. For conventional piezoelectric or electromagnetic harvesters, having multiple proof masses mounted on a beam is one way to widen the effective bandwidth. In this presentation the derivation and experimental validations of a two mass beam dynamic model are introduced.