YORK UNIVERSITY
DEPARTMENT OF EARTH AND SPACE SCIENCE AND ENGINEERING

SEMINAR

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MEMS, micro-assembly and packaging:
enabling technologies for next generation miniaturized Space instruments

ABSTRACT

Current trends in Space technology emphasise cost effectiveness through size reduction without compromising performance. Nano-, pico- and femto- satellites are being developed and will be possible thanks to the integration of Micro-Electro-Mechanical Systems (MEMS) for the miniaturization of different functionalities from propulsion (MEMS-based micro-thrusters), navigation (accelerometers and gyroscopes) and attitude control to different payloads such as IR sensors and microspectrometers. Furthermore, future long manned Space missions will require miniaturized life support and health diagnostics instruments. MEMS packaging and micro-assembly technologies are key to the success of the integration of microdevices into Space systems.

In recent years, INO has carried out a considerable amount of research in wafer-level hermetic vacuum packaging of IR microbolometer detector arrays as well as other kinds of MEMS packaging technologies for various Space missions. A microbench technology permitting the miniaturization of optical devices by 3-D integration has also been developed. The technology can be integrated with different kinds of waveguide based devices and microfluidics to make truly portable sensing and diagnosis systems adapted for Space use. In this seminar an overview of this work will be presented along with a summary of current and future trends of these technologies and their application to Space missions.

Refreshments will be served at 1:45 p.m. in 317 Petrie.

DATE: **Thursday, July 16, 2009**
TIME: **2:00 p.m. to 3:30 p.m.**
LOCATION: **Room 317, Petrie Building**