



DEPARTMENT OF  
**PHYSICS & ASTRONOMY**  
SPEAKER SERIES

*High Resolution Far-Infrared  
Imaging Using Spectral/Spatial  
Interferometry*

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**Thursday, Jan 31**  
**1:40-2:55PM**  
**D632**

**Everyone welcome!**

The Far-Infrared (FIR) astronomy community has identified sub-arcsecond spatial resolution as a necessary requirement for probing the physics of stellar, planetary, and galactic formation in addition to studying the origin and evolution of the Universe. The diffraction limit of optical systems and the added requirement that FIR observations be made from space-based instruments poses significant technical challenges. A space-based interferometer is a practical solution capable of achieving the desired resolution. Combining spatial interference techniques with spectral interferometry allows for the synthesis of hyperspectral images; images with enhanced spatial resolution which preserve the information density of spectroscopy. In this presentation I

highlight the necessity of a space-based FIR interferometer. I will then present the theoretical foundation of spectral and spatial interferometry and show how these principles are applied to aperture synthesis and image reconstruction. I will conclude by outlining the progress towards a laboratory testbed spatial/spectral interferometer developed by the Astronomical Instrumentation Group at the University of Lethbridge.

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