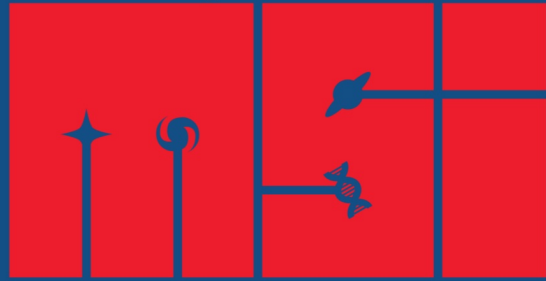


Institut Spatial de McGill



McGill Space Institute

SEMINAR SERIES

One Photon, two photon red(shifted) photon, blue photon: Superconducting devices for Astrophysics

Roger O'Brient
JPL

I will discuss how novel superconducting detector technology has enabled our team to make unprecedented constraints on inflationary tensor modes using the BICEP and Keck Array telescopes.

We are preparing for the next phase of this program—BICEP4—and I will describe technology development in support of this, specifically using Kinetic Inductance Parametric UP-conversion (KPUP) for TES readout. KPUPs are closely related to KIDs, and I will describe our prototype KID-based spectrometers for cosmic tomography. Lastly, I'll describe our designs of millimeter wave parametric amplifiers that should operate at the quantum limit. We aspire to use these for space-based spectroscopy and spatial interferometry.

Tuesday Nov 3, 3:30 pm
MSI Conference Room, 3550 University