

SEMINAR NOTICE

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SPEAKER: Scott Chapman
Dalhousie and UBC

TOPIC: *CCAT-Prime: Sub-mm astronomy at 5600m with Prime
Cam instrument*

DATE: Friday February 3rd, 2023

TIME: 11:30am -12:30 p.m.

PLACE: *Physics 175*

Abstract:

The Fred Young Submillimeter Telescope (FYST) at the Cerro-Chajnantor Atacama Telescope prime (CCATprime) Facility will host Prime-Cam as a powerful, first generation camera with imaging polarimeters working at several wavelengths and spectroscopic instruments aimed at intensity mapping during the $z > 6$ Epoch of Reionization. I am the lead for the 850 GHz (350 micron) camera module, being build at the NRC-Herzberg in Victoria. This will be the highest frequency module in Prime-Cam and the most novel for astronomical and cosmological surveys, taking full advantage of the atmospheric transparency at the high 5600 meter CCAT-prime siting on Cerro Chajnantor. The 850 GHz module will deploy $\sim 45,000$ superconducting Kinetic Inductance Detectors (KIDs) operating at 0.1K, with Silicon platelet feedhorn coupling (both being fabricated in collaboration with NIST and SFU). These will provide unprecedented broadband intensity and polarization measurement capabilities. The 850 GHz module will be key to addressing pressing astrophysical questions regarding galaxy formation, Big Bang cosmology, and star formation within our own Galaxy. I will present the science motivation and overall design of the detectors and Prime-Cam and the 850GHz module, and initial laboratory characterization.