Thursday, January 30, 2020, 4:00-5:00 p.m.
Physics & Astronomy Colloqium

The Dynamic Radio Sky
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All the magnetized planets in our solar system, including Earth, produce bright emission at low radio frequencies, predominantly originating in high magnetic latitudes and powered by magnetospheric currents. It has long been speculated that similar radio emission may be detectable from exoplanets orbiting nearby stars, potentially providing the first direct confirmation of the presence, strength and topology of exoplanet magnetospheres, and informing on their role in shielding the atmospheres of potentially habitable exoplanets. Despite 4 decades of searching, no exoplanet radio emission has been detected. Surprisingly, however, brown dwarfs have been found to produce both radio and optical emissions that are strikingly similar to the auroral emissions from solar system planets, albeit 100,000 times more luminous. I will discuss the radio emission from exoplanets and brown dwarfs with particular focus on the OVRO-LWA, a low frequency radio astronomy array located in the Owens Valley, California, that images the entire sky every 10 seconds to search for radio emission from exoplanets, and the FARSIDE array, a proposed probe class mission to place a radio array on the lunar far side to detect habitable exoplanets orbiting M dwarfs.

Location: PAB 4-330

For more information, contact Yaroslav Tserkovnyak.

We thank the following people for their contributions to the wine fund for the post-colloquium reception: Professors Katsushi Arisaka, Andrea Ghez, Karoly Holczer, Huan Huang, HongWen Jiang, Per Kraus, Alexander Kusenko, Matthew Malkan, Mayank Mehta, Warren Mori, Ni Ni, Seth Putterman, Yaroslav Tserkovnyak, Vladimir Vassiliev, Shenshen Wang, and Nathan Whitehorn.