



University
of Victoria

PHYSICS AND ASTRONOMY COLLOQUIUM (In Person)

Dr. Anna Ordog
University of British Columbia

**“The Polarised Radio Sky at DRAO and the Quest to
Understand the Magnetized Milky Way”**

Abstract

“The Milky Way hosts an extensive and complicated Galactic magnetic field structure ranging in scale from stellar environments up to the Galactic spiral arms. Establishing a thorough understanding of the present-day three-dimensional magnetic field morphology is instrumental to developing a complete understanding of the physics of the Milky Way. The magnetized interstellar medium imprints signatures of its structure onto polarisation maps of the radio sky, and a wealth of information can be gained by studying how observed Galactic polarised synchrotron emission varies with frequency through the effect of Faraday rotation. In this talk, I present recent progress toward Galactic polarisation maps from the radio telescopes at the Dominion Radio Astrophysical Observatory (DRAO). Specifically, I show results from the Canadian Hydrogen Intensity Mapping Experiment (CHIME) telescope and the DRAO 15-m single-dish telescope. The data sets will form the low-frequency, Northern hemisphere contribution to the Global Magneto-Ionic Medium Survey (GMIMS), an ongoing international effort to map the entire polarised radio sky covering 300 to 1800 MHz that will yield unprecedented spatial coverage and Faraday rotation resolution for studying large-scale structures in the magnetized interstellar medium (ISM). All previously published and new GMIMS data sets are already yielding fascinating insights into the magnetic field structure, and I highlight some of the early science results. These include: differences between the large-scale patterns in the northern and southern Galactic hemispheres, which inform dynamo models of the magnetic field, examples of Faraday complexity towards objects such as HII regions, and potential methods to distinguish the layers of the magnetized ISM through comparisons of data sets probing different depths.”

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3:30 p.m. PST

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