



Contribution ID : 44

Type : **Contributed talk**

Mapping Magnetic Field Structure in Galactic Supernova Remnants with ASKAP

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Polarization observations provide a unique opportunity to probe the geometry and structure of astrophysical magnetic fields. In the Milky Way, Supernova remnants (SNRs) are a key environment for connecting polarized emission to the physical processes tied to shaping the magnetic field: shocks, turbulence, and instabilities. By studying the organization of the on-sky polarization angle (PA) in SNRs, we are able to directly investigate the structure of the local magnetic field. Past radio observations of Galactic SNRs have been limited by sky coverage or resolution. However, with new observations from the Australian Square Kilometre Array Pathfinder (ASKAP) telescope, we are able to study the polarization properties of Galactic SNRs in unprecedented detail across the entire southern sky. Here, we present an in-depth study of the on-sky magnetic field structure for seven Galactic SNRs. We use radio polarization and continuum data from the Polarization Sky Survey of the Universe's Magnetism (POSSUM) and the Evolutionary Map of the Universe (EMU) surveys. We derive on-sky magnetic field maps for the seven SNRs from the recovered intrinsic polarization angles. We also quantify the uncertainties in the intrinsic polarization angle measurements due to the differential rotation induced by the Faraday effect. Our on-sky magnetic field maps serve as an important foundation for future work mapping the three-dimensional magnetic field structure of the Galaxy.

Did you give a contributed talk at CASCA 2026?

No

If you are selected for a poster, would you be interested in giving a short flash talk on your work?

Yes

What is your career level?

MSc

Which keyword describes the area of focus of this talk?

Gas & dust

Primary author(s) : GRAHAM, Gabrielle (University of Alberta)

Co-author(s) : Dr KOTHES, Roland (Dominion Radio Astrophysical Observatory ; University of Alberta); Prof. ROSOŁOWSKY, Erik (University of Alberta)

Presenter(s) : GRAHAM, Gabrielle (University of Alberta)

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