

Abstract Submitted
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Cross-Scale Correlation in the Galactic Magnetic Field ANNA ORDOG, JO-ANNE BROWN, Univ of Calgary — The Galactic Magnetic Field (GMF) is an important constituent of the interstellar medium, contributing, for example, to star formation and providing pressure balance for the Galaxy. Determining the GMF structure will lead to a better understanding of its origin and evolution. Studies of the large-scale GMF structure have revealed spiral shaped field lines with a radially varying pitch angle and a predominantly clockwise orientation. In contrast, the GMF on far smaller scales is not well understood. We present an analysis of Rotation Measure (RM) data from the Canadian Galactic Plane Survey that indicates a potential correlation between the large- and small-scale field components, previously assumed to be independent. We hypothesize a small-scale field component that varies randomly in direction but within a maximum angular deviation from the large-scale field lines. We model both field components using the RM data to constrain the parameters, with the aim of determining whether a statistically significant improvement in data-fitting can be obtained compared to modelling only the large-scale component. Preliminary results suggest a likely cross-scale correlation, taking us one step closer to a comprehensive model of the GMF that includes structure over a wide range of scale sizes.

Anna Ordog
Univ of Calgary

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