

The MPIfR MeerKAT Galactic Plane Survey (MMGPS)

Monday, 6 May 2024 15:30 (25 minutes)

On behalf of the MMGPS team, I will present preliminary results from the ongoing 3000-h MPIfR MeerKAT Galactic Plane Survey being performed at L and S bands. The survey provides high-fidelity maps at $\sim 20\mu\text{Jy/beam}$ with $5\text{--}20''$ resolution. Due to the dense array configuration of MeerKAT and sensitivity towards low surface brightness diffuse emission, we detect a plethora of extended structures. When completed, the survey will produce an unprecedented rotation measure (RM) grid that will be sensitive to $|\text{RM}|$ up to $2 \times 10^4 \text{ rad/m}^2$ with an accuracy of $\sim 15 \text{ rad/m}^2$, and Faraday depth structures extended up to 280 rad/m^2 . The data products from the MMGPS, comprising of maps of total intensity, spectral index, polarized intensity, and Faraday depth, will provide a detailed view of the thermal and nonthermal emission processes of the extended diffuse emission, filamentary structures and the 3D magnetic field structures in the turbulent Galactic plane. This will enable us to investigate a diverse array of astrophysical phenomena, encompassing supernova remnants, molecular gas, HII regions, star-forming complexes and non-thermal filaments.

keywords

Galactic plane survey, star-forming

In-person or online?

in-person

Career level

ECR

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