

The Statistics and Galactic Properties of the Methanol Multibeam Survey

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Abstract. The methanol multi-beam (MMB) survey has produced the largest and most complete catalogue of Galactic 6.7-GHz methanol masers to date. 6.7-GHz methanol masers are exclusively associated with high-mass star formation, and as such provide invaluable insight into the Galactic distribution and properties of high-mass star formation regions. I present the statistical properties of the MMB catalogue and, through the calculation of kinematic distances, investigate the resolution of distance ambiguities and explore the Galactic distribution.

Keywords. stars: formation, Masers, Surveys

6.7-GHz methanol masers provide an incredible tool to study both the properties of high-mass star formation regions and the structure of our Galaxy. The Methanol Multi-beam (MMB) survey has recently completed its southern hemisphere observing with the Parkes Radio Telescope, covering over 60% of the Galactic plane and detecting in excess of 900 sources throughout the Galaxy. Factoring for the completeness of the survey gives a total population estimate of ~ 1200 masers, in line with modelling of previous inhomogeneous surveys. The MMB sources have a narrow latitude distribution, peaking in longitude around $\pm 20\text{--}30^\circ$, and have a flux density distribution peaking at around 1-2 Jy. Analysis of the distribution in longitude-velocity space shows 45 sources associated with the near and far 3-kpc arms. Kinematic distances to the MMB sources have been determined and the Galactic distribution analysed. Preliminary results suggest an overall galactocentric peak at 5-6 kpc with individual peaks at the positions tangential to the spiral arms.

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