Current state and future of 3D extinction mapping

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Abstract

Three dimensional extinction mapping is a relatively recent technique used to map out the structure of the interstellar medium. It contributes to our understanding of the physical processes observed in the ISM by providing distances to observed objects. Furthermore it can provide environmental context in the analysis of ISM phenomenon.
Many stellar surveys have been used to construct 3D extinction maps. Currently ESA's Gaia satellite is providing crucial information on the distances to over 1 billion stars in the Milky Way via parallax measurements. As it is a full sky survey in the visible band, the denser regions of the ISM remain hidden. Future missions in the near infrared could provide the means to fully explore the ISM in the arm and interarm regions of the inner Galaxy.

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