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# Invited talk: Mapping dark matter in the Milky Way

*Friday, 30 October 2015 10:45 (30 minutes)*

The presence of dark matter in spiral galaxies was inferred long ago by measuring the rotational speed of the gas across each galaxy. Applying the same technique to the Milky Way, a spiral itself, is much more challenging due to our peculiar position and thus the Galactic distribution of dark matter remains poorly constrained to this day. In this talk, I shall introduce two important developments for dynamical studies of the Milky Way. First, a new compilation of kinematic measurements is presented and used to pinpoint with unprecedented precision the rotation curve of our Galaxy. Second, an exhaustive array of observation-based baryonic models is constructed to set the contribution of stellar bulge, stellar disc and gas to the total gravitational potential. I will then quantify the discrepancy between these two components and derive the latest constraints on the dark matter distribution. The implications for modified Newtonian dynamics are also briefly examined. I shall end with a discussion of future directions to improve our mapping of the dark matter distribution in the Milky Way.

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