

The Milky Way Revealed by Gaia: The Next Frontier



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Studying Jeans Equations in the Milky Way disk

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Determining the circular velocity curve of a galaxy is a powerful tool for studying its overall properties. One can fit a potential and determine the dark matter distribution and density and the virial mass of the system. One way of determining the rotation curve is through Jeans equations (Eilers et al. 2019, Ou et al. 2023). However, when using Jeans equations one needs to assume axisymmetry and time-independence. In this talk, I will show how the components in Jeans equations behave in different regions in the Milky Way disk, determined with Gaia DR3 data. I will talk about how well the aforementioned assumptions hold up, and show what the uncertainty in our conclusions can be if they don't.

I will also show results from cosmological and N-body simulations of Milky-Way like systems to show the effectiveness of Jeans equations.

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