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## Gravitational Focusing of Dark Matter Streams in Solar Neighborhood and Implications for Detection

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Cosmological models of dark matter in the galaxy reveal more intricate features than a smooth standard Halo model. One of the features is the existence of numerous fine-grained streams at solar location where these fine-grain streams have very small velocity dispersion owing to the cold non-interacting nature of dark matter. The gravitational focusing of dark matter from the sun and the planets has been explored previously. These studies have shown that a small modulation in dark matter density would result at Earth's location if velocity profile of dark matter is Maxwellian which is the assumption in the standard Halo model. The semi-analytic models indicate large density enhancement are possible for streams. We advance the studies further by considering full numerical N-body simulations which take into account input from cosmological simulations on streams, consider the cumulative gravitational effects of Sun, Moon, Earth on DM, and include dispersion effects. Density enhancements and inferences for dark matter candidate measurements will be presented.

### Speaker

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