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Rotational Kinematics of the Galactic Dark Halo Through the Lens of Stellar Streams[1] REBECCA GUILFOYLE, MONICA VALLURI, University of Michigan — The dark matter halo of the Milky Way galaxy is presumed to be triaxial. Cosmological simulations predict that triaxial halos should tumble or rotate (figure rotation) so slow that it is virtually undetectable. A recent study has found that it is possible to determine the rotational kinematics of the dark matter halo by studying its effects on long stellar streams in the halo of the Milky Way. However, the perturbations due to the rotation of the triaxial dark matter halo can be similar to effects caused by the gravitational pull of the nearby Large Magellanic Cloud. In this project, we aim to shed light on the rotational kinematics of the Galactic dark halo by simulating multiple stellar streams in various orientations originating from various progenitor masses within the dark matter halo of the Milky Way without the presence of the LMC. We hope to gain insights on whether the rotation of the halo can be detected using stellar streams distributed across the entire halo. These simulations may provide a new way of detecting cold dark matter halo rotation.

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