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Constraints on dark matter properties from the JWST lensed quasar dark matter survey

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The JWST lensed quasar dark matter survey has delivered precise measurements of image flux ratios in 31 quadruply-imaged quasars. The compact emission surrounding the background AGN, which is now accessible with JWST, experiences significant perturbation from dark matter subhalos and field halos along the entire line of sight. As a result, this dataset is a powerful tool for characterizing the properties of dark matter substructure, and by extension, the particle nature of dark matter. I will present constraints on dark matter properties from an analysis of the full JWST sample, including the joint modeling of image flux ratios and the extended lensed arcs that encircle the main deflector. I will discuss implications for the particle nature of dark matter, and describe new ways this dataset can be utilized to explore the physics of dark sectors in the coming years.

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