

The effect of dark matter substructure on strong lensing measurements of the Hubble constant

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The particle nature of dark matter manifests in the abundance and density profiles of dark matter structure on sub galactic scales, both in the form of subhalos and field halos along the the line of sight. The lensing effects of these structures leaves subtle imprints on the arrival time delays and flux ratios between images in quadruply imaged quasars (quads). I will describe recent work that quantifies the effects of dark substructure on strong lensing measurements of the Hubble constant, showing that substructure contributes an small additional source of uncertainty - but does not bias - strong lensing measurements of H_0 . Time permitting, I will also describe an analysis framework that constrains the particle nature of dark matter by forward modeling flux ratios in quads, with an emphasis on how it can be applied to a variety of structure formation scenarios based on dark matter theory.

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