Abstract Submitted
for the APR18 Meeting of
The American Physical Society

Testing Gravity on Cosmological Scales using Strong Gravitational Lensing DHRUBO JYOTI, Dartmouth Coll — Time delays of strongly lensed quasars have long been used to measure either the mass of the lensing galaxy or cluster, or the Hubble parameter, after assuming a value for one or the other from independent measurements. Given the growing number of precise time-delay measurements, we study the possibility of strong lensing unveiling finer information, namely serving as a test of Einstein gravity on cosmological scales. In this context, we present a phenomenological model of gravitational screening, where the classic solar system PPN curvature parameter gamma is promoted to a step function in space, dividing the galactic or cluster dark matter halo into an inner GR region, and an outer non-GR region extending to extra-galactic space. We confront our model with available data, and pave the way for upcoming observations and more sophisticated analyses.

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Date submitted: 10 Jan 2018 Electronic form version 1.4