

Probing dark matter and dark energy with strong gravitational lensing

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Evidence from different cosmological probes have lead to the establishment of the dark matter and dark energy paradigm. The fundamental physical origin of these phenomena remain unknown to date. Challenging this model with high-precision measurements is key in guiding theoretical models.

In my talk, I will describe how we use the phenomena of strong gravitational to constrain the physical nature of dark matter and dark energy. I will describe the lensing observables and the analysis techniques we have developed to measure the small scale dark structure and the expansion rate of the Universe. I will present the recent results in both domains and look in the near future and highlight the prospects of this technique with increasing sample size, analysis techniques and advances in instrumentation.

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