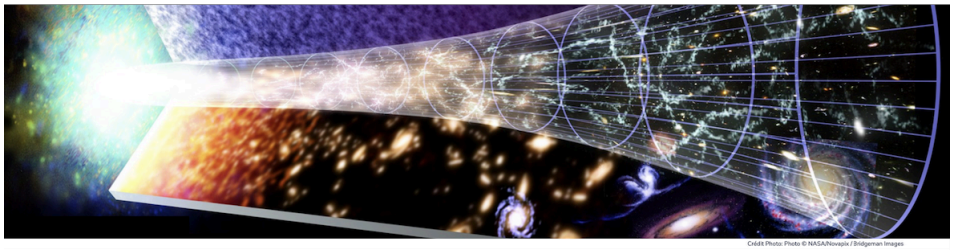

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Cosmology with strong lensing images

lundi 1 juin 2026 15:30 (30 minutes)

Massive galaxies, acting as gravitational lenses, can form greatly distorted images of background galaxies in so called strong lensing events. When background galaxy and lens are almost aligned along the line of sight, the image take the shape of an Einstein ring whose shape encodes basic properties of the lens.
However, since lenses are not isolated objects in an otherwise perfectly homogeneous universe, these Einstein rings are slightly altered by further weak lensing along the line of sight coming from the large scale matter distribution in the universe in front and behind the lens. This coupling between strong and weak lensing offers a novel opportunity to probe cosmic shear, in a slightly different regime than standard weak lensing shear.
We will present this new observable and, in particular, its recent measurements in the SLACS sample of gravitational lenses. We will also highlight its potential for cosmological parameter constraints when combined with standard cosmological observables such as cosmic shear and number counts.

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