

# Galaxy cluster mass reconstruction using weak lensing shear multipoles

*mardi 29 novembre 2022 09:00 (20 minutes)*

Weak lensing is a powerful tool to estimate the matter distribution around massive galaxy clusters. In general, such effect can be measured by estimating the averaged tangential shear of background galaxies in circular annuli from the lens center. In addition to the average tangential shear, valuable informations on the underlying dark matter distribution can be extracted by using shear multipoles, sensitive to higher order moments of the projected matter distribution. By releasing the spherical hypothesis of halo dark matter density, joint analysis of shear multipoles can be used to improve weak lensing mass reconstruction of massive clusters. We use the data of the Three Hundred project, which allows to perform our weak lensing analysis for the different orientations available in the simulation. We show that using shear multipoles enables not only to have constraints on halo triaxiality, but can also improve the mass reconstruction of individual massive clusters.

**Auteur principal:** PAYERNE, Constantin (LPSC (IN2P3))

**Orateur:** PAYERNE, Constantin (LPSC (IN2P3))

**Classification de Session:** Science talks