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Impact of blending on weak lensing measurements with Rubin/LSST

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Upcoming deep optical surveys such as the Vera C. Rubin Observatory Legacy Survey of Space and Time will scan the sky to unprecedented depths and detect billions of galaxies. This amount of detections will however cause the apparent superposition of galaxies on the images, called blending, and generate a new systematic error due to the confusion of sources. As consequences, the measurements of individual galaxies properties such as their redshifts or shapes will be impacted, and some galaxies will not be detected. However, galaxy shapes are key quantities, used to estimate masses of large scale structures, such as galaxy clusters, through weak gravitational lensing.

This talk will present a new catalog matching algorithm, called friendly, for the detection and characterization of blends in simulated LSST data for the DESC Data Challenge 2. The purpose of this matching algorithm is to combine several matching procedures and to use well-defined blended systems in order to study their impact on weak gravitational lensing profiles and in a second time on galaxy clusters mass estimates and on cosmological parameters.

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