

Abstract Submitted
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Projection Effect in TNG Simulations ALESSIA MOLINO, HEIDI WU, ROSANA LENHART, Boise State University — One of the major goals in cosmology is to study how the observed galaxies in clusters are associated with the underlying dark matter. However, galaxies that are farther away from each other but appear at the same location in the sky can be mistaken to be in the same galaxy cluster. This phenomenon is called the projection effect. In order to study this problem we use the IllustrisTNG simulations, a state-of-the-art public simulation suite. We quantify how the projection effect changes the richness and gravitational lensing of galaxy clusters. Richness refers to the amount of galaxies that are associated with an individual galaxy cluster, and we calculate richness under different observational conditions. We study the gravitational lensing signal associated with those different richness definitions and use our result to interpret observed gravitational lensing signals.

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