Halo Core Tracking for Galaxy Placement in Cosmological Simulations DANILA KORYTOV, University of Chicago — Synthetic galaxy catalogs are an important product of cosmological simulations. Upcoming surveys, such as LSST, require high volume and high resolution simulations for generating large object catalogs. These catalogs have many uses including testing and improving analysis pipelines, predictions for different cosmologies and investigations of systematic errors. Dark matter (DM) only simulations are able to reach the required volume and resolution but need an accurate prescription for galaxy placement within DM halos. We present a method for galaxy placement. For halos above a characteristic mass, central DM simulation particles are taken as tracer particles for a galaxy. These halo "cores" are tracked through the simulation and may merge with other "cores" or be ripped apart by halo tidal forces. We examine how accurately we can reproduce galaxy cluster profiles, two point correlation functions and other galaxy statistics.

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