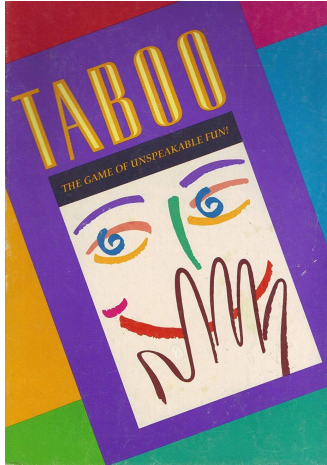




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Halo mass densities from statistics

Jenny Wagner





How to explain “cosmic structure” without using these five terms?

COSMIC STRUCTURE

(HYDRO-) DYNAMICS

EQUILIBRIUM

PHASE-SPACE

COSMOL. MODEL

SPHERICAL COLLAPSE



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COSMOL. MODEL

SPHERICAL COLLAPSE

- use an ensemble of independent identically-distributed particles
- find the most likely spatial configuration for the ensemble
- *strictly* separate a structure from its dynamics
- **status-quo of a (cosmic) structure**



How to describe an individual dark matter halo without using these five terms?

NFW PROFILE

UNIVERSAL SHAPE

HEURISTIC FIT

R_{-2} SCALING

CRITICAL DENSITY

M-C-RELATION

- analytic understanding of dark matter halos
improve gravitational lensing results
- scaling radius obtains a physical meaning
improve knowledge about dark matter properties
- description is independent of a (cosmic) assembly history
what are the consequences?

Please help me to check for consistency with simulations & observations!