

Baryons in SPH simulation of structure formation and evolution; approaching the end of the dark era

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I will describe the results of state of the art SPH simulations in two major areas of structure formation and evolution; the formation of disk galaxies and the orbital and morphological evolution of satellite galaxies. I will focus on our current ability to model the hydrodynamical processes involved stressing the limits and uncertainties imposed by the SPH technique and the current limitations in resolution. I will also focus on the importance of baryons in the evolution and survival of substructure in a CDM Universe showing why and where pure dark matter simulations will inevitably fail in giving the correct physical answer.

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