

## Lucio Mayer

**Title:** Formation and evolution of dwarf galaxies in the LCDM model; from the origin of cores to morphological transformations via environmental effects

**Abstract:** *I will review the latest results of numerical simulations shedding light on the origin and evolution of dwarf galaxies in a hierarchical Universe. In the last few years significant progress has been made in understanding how baryonic feedback shapes the mass distribution of galaxies at the low mass end. In particular, it has become clear that stellar and supernovae feedback can trigger the formation of large cores in otherwise cuspy CDM halos, explaining observed rotation curves of dwarfs and at the same time producing naturally pure exponential stellar profile with no bulge component. This solves long standing issues that have been plaguing the CDM model for more than two decades. However the details of the mechanism are still uncertain since modeling of star formation and feedback is uncertain at the same time. Yet, even if feedback effects may be overestimated in some of the current models, the combination of core formation and environmental effects such as tidal stirring and ram pressure stripping can potentially explain the properties of the population of dSph galaxy satellites. This implies solving the too-big-to-fail problem and recovering the transition between dIrrs and dSphs in a quantitatively more robust way than in previous works assuming cuspy halos. Star formation histories and metallicities of dwarfs that undergo core formation also seem to reproduce the observed ones. A coherent picture is thus emerging, but new challenges may emerge from the field dwarfs population.*