



PHYSICS AND ASTRONOMY SEMINAR

Dr. Isabel Santos-Santos

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**“Dwarf galaxies in LCDM: internal structure,
dust emission and distribution around hosts”**

Abstract

"I will review the most important results from my PhD thesis, the goals of which were to explain some of the puzzles regarding dwarf galaxy properties through hydrodynamical simulations of galaxy formation in a LCDM cosmological context. In particular, I studied simulated dwarf galaxies' internal structure (i.e., mass distribution, total mass content and rotational velocities), focusing on the low-mass end of the baryonic Tully-Fisher and addressing the so-called 'cusp-core' and 'diversity of dwarf galaxy rotation curve shapes' problems. I also studied simulated dwarf galaxy infrared emission making use of the GRASIL-3D radiative transfer code that includes a sophisticated two-component dust model. In this way we provided a physical explanation to the diverse spectral energy distribution features recently observed in low mass- low metallicity galaxies. Finally, I explored the 'planes of satellites' problem in two zoom-in disc galaxy simulations, developing methods based on the position of satellites as well as their orbital angular momentum. We find kinematically-coherent planes of satellites, whose persistence during long periods of cosmic time suggests that the satellites have gained a common dynamics at high redshift, probably inheriting local large-scale structures."

Friday, March 01, 2019

10:30 a.m.

HSD Building – Room A264