The kinematic and composition of galaxies is encoded in their spectra. However, disentangling the properties of the underlying stellar populations is a very challenging task, due to the many inherent degeneracies. I will present here an overview of the use of absorption-line spectroscopy as a way to reveal the stellar content of galaxies, and to understand what this content tells us about galaxy formation. We focus the analysis on massive galaxies, ideal laboratories to probe the "baryon physics" of structure formation and galaxy growth. Through detailed analyses of targeted spectral features, it is possible to disentangle the mixture of stellar populations, extracting fundamental properties that reveal substantial differences in the formation mode of massive galaxies, with respect to their lower mass counterparts. More specifically, I will discuss two aspects of the problem that have received special attention over the past few years: The non-universality of the stellar initial mass function, and the two-stage growth mode of galaxies.

Abstract

Unravelling galaxy formation from optical spectra: The most challenging inverse problem in astrophysics

Speaker

Ignacio Ferreras (Instituto de Astrofísica de Canarias, Spain & University College London, UK)

Title

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