

Título/Title:

A spectral fitting analysis of SDSS galaxies

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Descrição/Description:

Galaxy evolution is one of the biggest open questions in Astrophysics but, despite the huge effort of scientists, there are still large uncertainties in the observations and oversimplification in the models. As an example, one of the biggest and largest surveys ever made, the Sloan Digital Sky Survey (SDSS), extracted photometry for more than 500 million objects, providing one of the most complete databases for studies of galaxy evolution known. Large and deep surveys at higher redshift are still missing, although different projects have pushed our knowledge of galaxy evolution to older epochs, despite the luminosity bias. The resulting information have led to the idea that galaxies evolved more rapidly in the past, and the peak of this evolution occurred approximatively between $1 < z < 3$ (about 7-11 Gyrs ago, Madau & Dickinson 2014).

With these scientific problems in mind, and considering the expertise developed on behalf of the IA, the node of Porto has performed a full analysis of the SDSS spectra, building a huge amount of data to investigate galaxy evolution.

In this project we propose an analysis of this data-set, in order to investigate the physical processes that determine galaxy morphologies in the redshift range covered by SDSS, and to accurately determine the scaling relations between the stellar mass and the star formation, and the stellar mass and the metallicity.