

PYTHON TOOL (MIFSA) FOR ANALYSIS OF INTEGRAL FIELD SPECTRA

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Introduction

We developed the code named MIFSA (Map Integral Field Spectroscopy Analysis) in Python, which makes the extraction of the data-cubes of the galaxies contained in the database CALIFA (Calar Alto Legacy Integral Field Spectroscopy Area Survey). The code allows to represent the image of the galaxy, calculating the total flux associated to each pixel, normalizing all fluxes and making a spectral colormap with the normalized values corresponding to each pixel. The program uses the library PyFits (from Astropy) to read datacubes, Tkinter for graphic interface, Matplotlib to show the galaxy and its spectra, and Numpy to work with arrays. Despite that there are some tools in some languages, MIFSA is a free Python alternative for the analysis of integral field spectra. In order to analyze datacube’s information, MIFSA can extract and show the spectra associated to each pixel and identify its absorption and emission lines.

Aim

There are plenty of tools developed (or under development) that do the basics of an analysis integral field spectra. The most developed (PINGSOFT) was written in IDL, so is necessary to buy the license to use it. Other ones are