Machine learning classification of the ISM in NGC 300.

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Abstract

In this work, we present a machine learning clustering algorithm for the classification of the interstellar medium (ISM) main components (HII regions, supernova remnants and diffuse ionize regions). We study the ISM components of the NGC 300 galaxy from MUSE integral field spectroscopy observations. These observations give us an ISM spatial resolution of a few parsec scales. We apply an unsupervised Bayesian Gaussian Mixture Model algorithm to a data set of spaxel-by-spaxel main strong emission lines. Our method allows an automatic and unbiased detection of the main components of the ISM combining the spatial and spectral information. We compare our catalog with previous studies and measure the main properties of the ISM components.

My poster is available at https://zenodo.org/record/7044152#.Y3NQ-77MIXU