Contribution ID : **10**   Type : **Talk**

Characteristic sky background features around galaxy mergers

Friday, 11 September 2026 11:15 (25)

Galaxy merger identification in large-scale surveys is one of the main areas of Astronomy that are benefitting from the development of Machine Learning (ML), especially for galaxy classification. In this talk, I will focus on the combination of ML, clustering, and dimensionality reduction techniques, with astronomical images and measurements. The goal of this methodology is to discern galaxy mergers from the rest of galaxies in the sky. An initial Neural Network was applied to the flux measurements from the images, and the iteration on multiple combinations of these parameters led us to find how one parameter traced galaxy mergers with a test-set accuracy of up to 91 %. This parameter is the error in the sky background measurement, which we interpret to trace low signal-to-noise features around observed galaxies. With this work, I want to stress the benefits of interpreting the results of ML models and how it led us to unveil a completely new path for galaxy morphology classification.

Primary author(s) :   SUELVES, Luis Eduardo (National Centre for Nuclear Research)

Presenter(s) :   SUELVES, Luis Eduardo (National Centre for Nuclear Research)

Session Classification :   Machine learning in astrophysics