



Contribution ID: 895

Type: **Talk in the parallel session**

Machine Learning based classification of blazar candidates of an unknown type (BCUs)

Wednesday, 7 July 2021 08:50 (20 minutes)

The fourth Fermi Large Area Telescope source catalog contains 5065 gamma-ray sources. Among these sources, 694 are flat-spectrum radio quasars (FSRQs), 1131 are BL Lac-type objects (BL Lacs), and 1312 are blazar candidates of an unknown type (BCUs). Using as a training sample the spectral energy distributions and the light curves of classified blazars, a supervised machine learning method based on an artificial neural network is employed to classify the blazar candidates of an unknown type. Initially using missForest method to fill the missing data in the spectral energy distribution of FSRQs and BLLacs, the model achieved an accuracy of 92% and F1 score of 92%(combines the precision and recall of a classifier into a single metric by taking their harmonic mean) allowing the classification of BCUs.

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Session Classification: Machine Learning in Astronomy: AGN, Transient Events, Cosmology and Others

Track Classification: Active Galactic Nuclei: Machine learning in astronomy: AGN, transient events, cosmology and others