Contribution ID: **120** Type: **Poster**

Fermi Source Classification with Machine Learning Methods

Tuesday, 22 January 2019 17:30 (1h 30m)

We report our study on the classification of the unassociated sources in 3FGL with Ensemble Machine Learning (EML) method. The two main objectives of our research are: 1)to categorize the unknown sources into AGN and PSR, 2)to identify BCUs to be BL Lacs and FSRQs. Our final purpose is to take advantage of the EML method to obtain a more complete category of the Fermi sources. The experiments demonstrate that our algorithms can effectively predict the 1010 unknown sources to be 867 AGNs and 143 PSRs, with an accuracy of 99.48%. The original 573 BCUs are clarified to be 341 BL Lacs and 232 FSRQs, the accuracy is 89.80%.

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Session Classification: Poster session and welcome spritz

Track Classification: Main track