Very High Energy blazar as candidates for Cherenkov telescope observations

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We used the artificial neural network technique (ANN), based on B-FlaP algorithm developed in http://adsabs.harvard.edu/abs/2016MNRAS.462.3180C, to select Very High Energy candidates for Imaging Atmospheric Cherenkov Telescopes (IACTs) observation, from unclassified blazars listed in the LAT 4-year Point Source *Catalog* (3FGL)

We apply, as modification in the original B-FlaP algorithm, the value of the lower classification threshold (LHSP > 0.8), in order to increase the number of candidates, although decreasing a bit the precision (75%). However in this way, we improved the final result because the sensitivity increases to ~ 15% and the misclassified fraction of non-HSP remains very low (~ 2%).

Applying the algorithm to BCU, we selected 52 sources as the most promising HSP candidates.

In order to obtain a cleaner selection of VHE candidates for direct IACTs observation we refined the HSP selection through additional parameters that reproduce some peculiar characteristics of VHE sources as gamma-ray candidates: spectral photon index < 1.6 and average significance over the 100 MeV to 300 GeV energy band larger than 4.0.

For each source of this clean list we compute the expected energy flux using the relation derived from fit model parameters included in the public XML Model File for LAT 4-year Point Source Catalog.

Paper is in progress and here we enclose a draft. This is likely to be only a conference proceeding.

In Paper/ Tab.1 we report the full list of HSP candidates.

Paper/Tab.2 shows the clean list of HSP object identified as VHE candidates for IACTs.

Table 2 data have been cross matched with 2WHSP http://www.asdc.asi.it/2whsp/ and 2FHL http://www.asdc.asi.it/fermi2fhl/ catalogs. 2FHL results confirm some, but not all, of these VHE candidates. 6 of 16 listed sources in Tab.2 are in 2FHL too.

In Table 2 we marked these sources as VHT. However we consider the remaining sources as interesting candidates that deserve particular attention in future IACT observing campaigns.

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