Testing high energy neutrino emission from the Fermi Gamma-ray Space Telescope Large Area Telescope (4LAC) sources.

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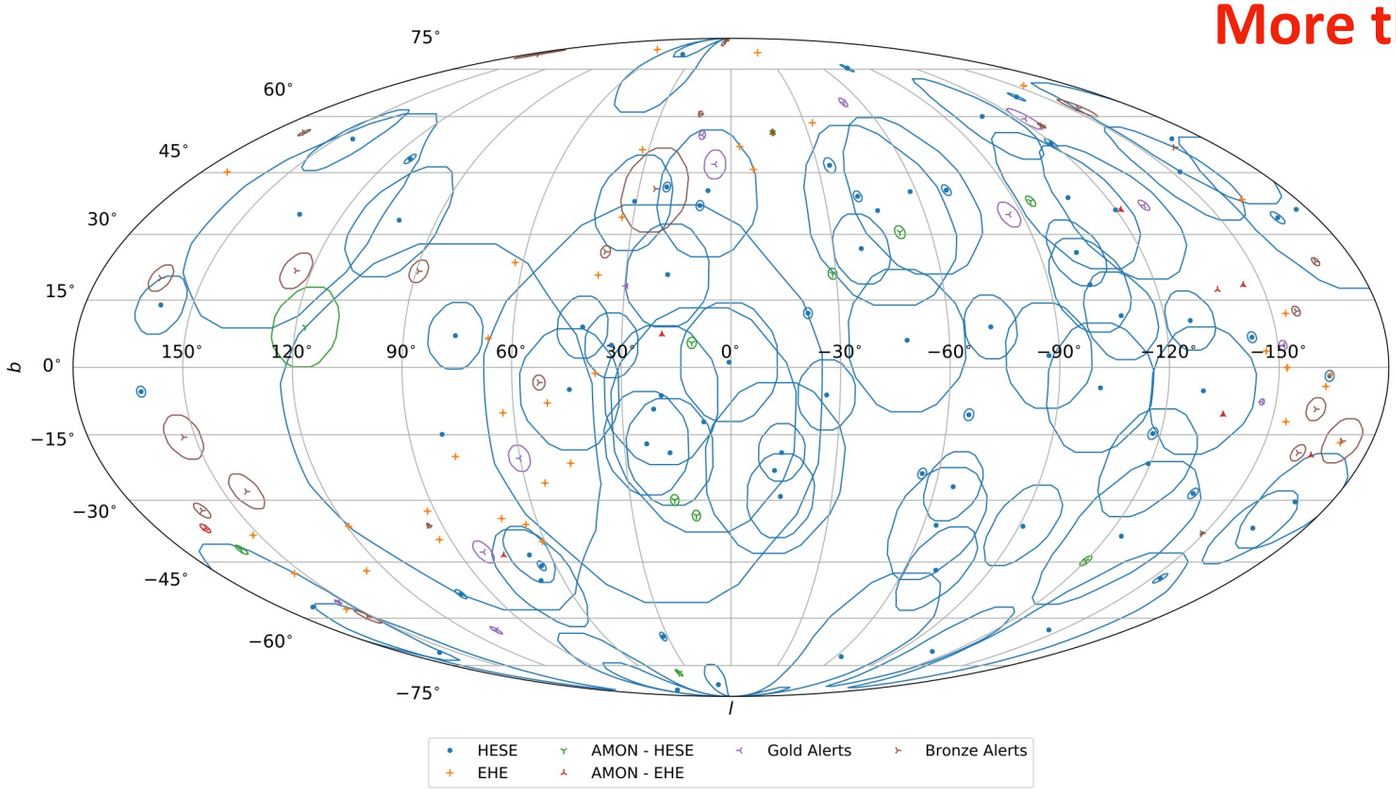
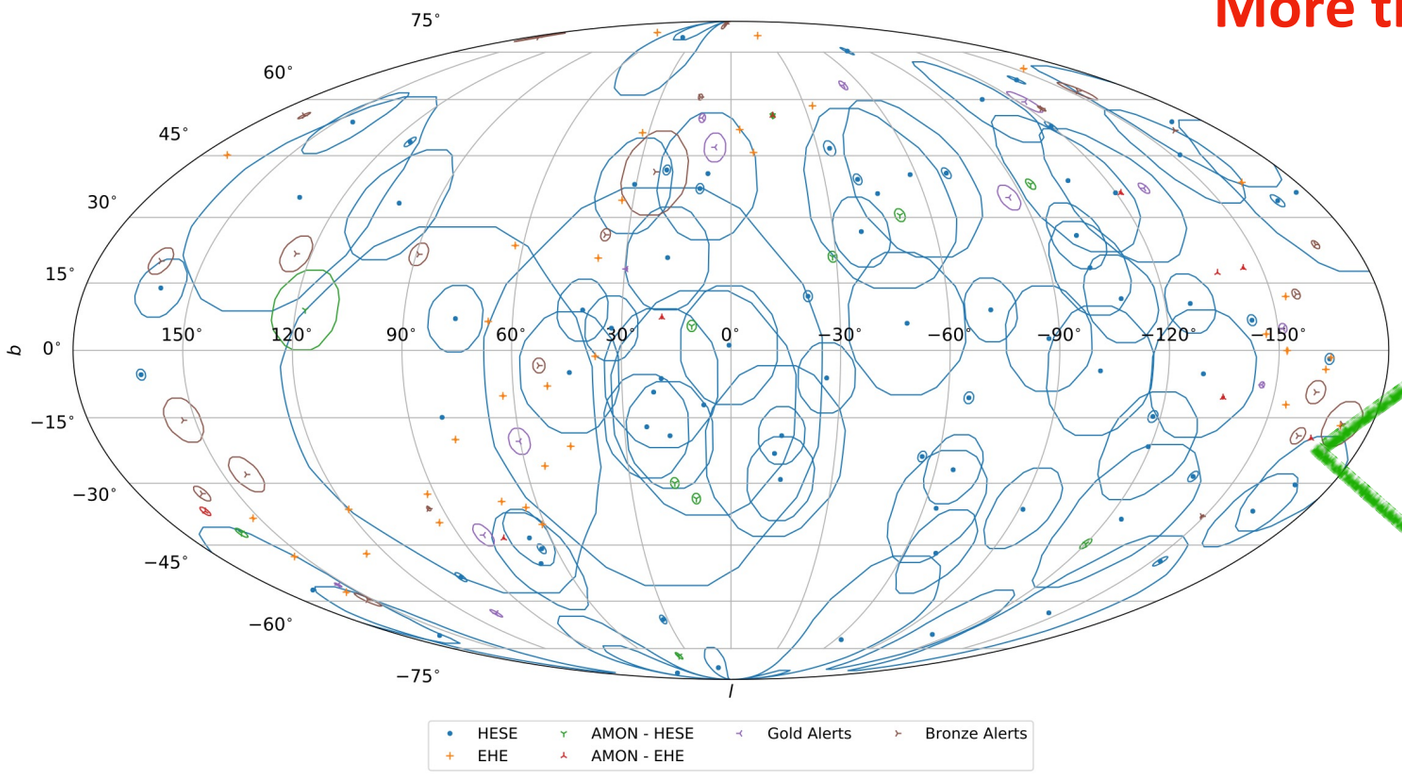
Motivation



More than 185 high-energy neutrinos reported (Up to November 2020)

82 neutrinos from HESE catalog
(Aartsen et. al. 2013)
32 neutrinos from EHE catalog
(Aartsen et. al. 2016)
23 neutrinos HESE (AMON)
11 neutrinos EHE (AMON)
24 Bronze alert (AMON)
13 Gold alert (AMON)

Motivation



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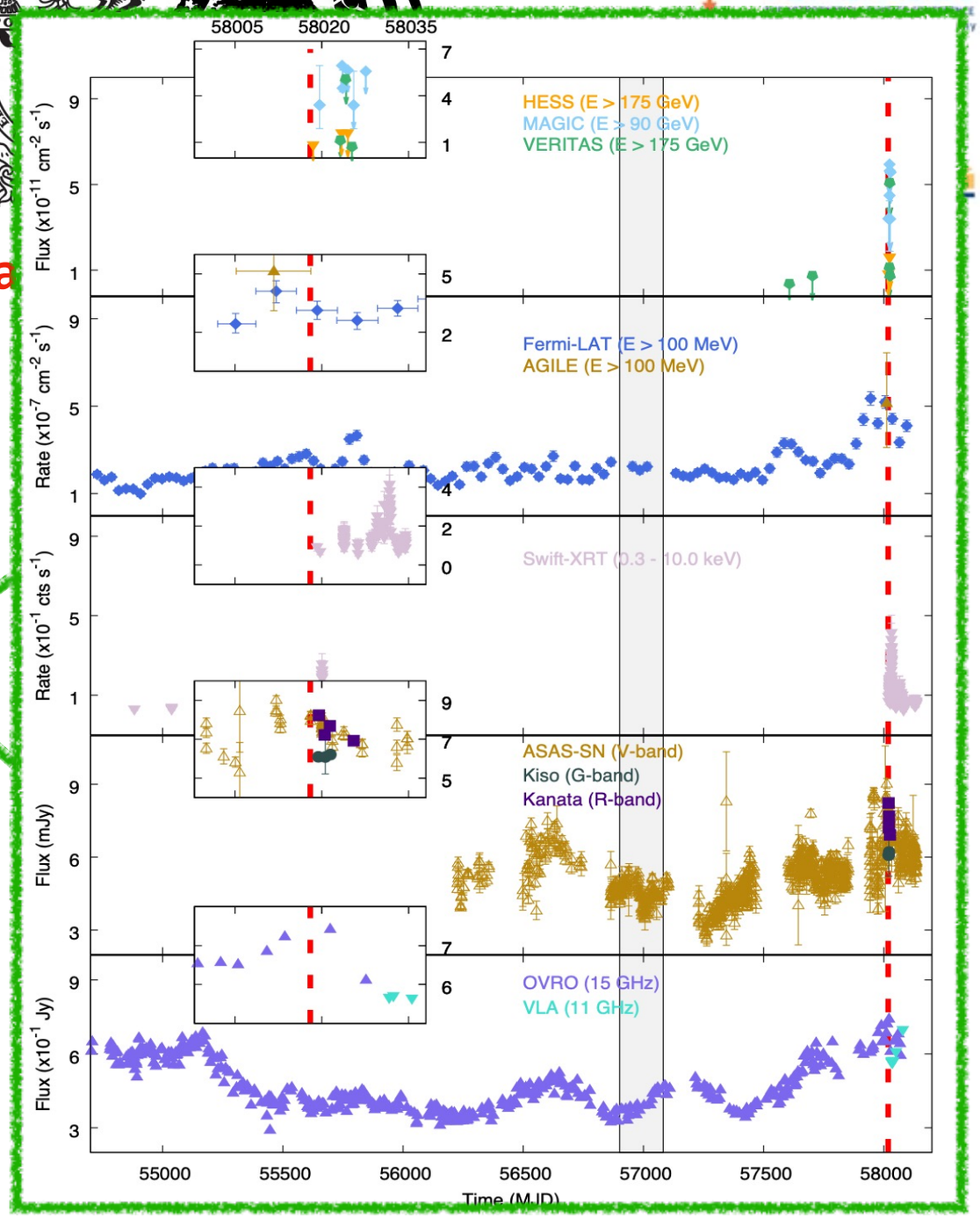
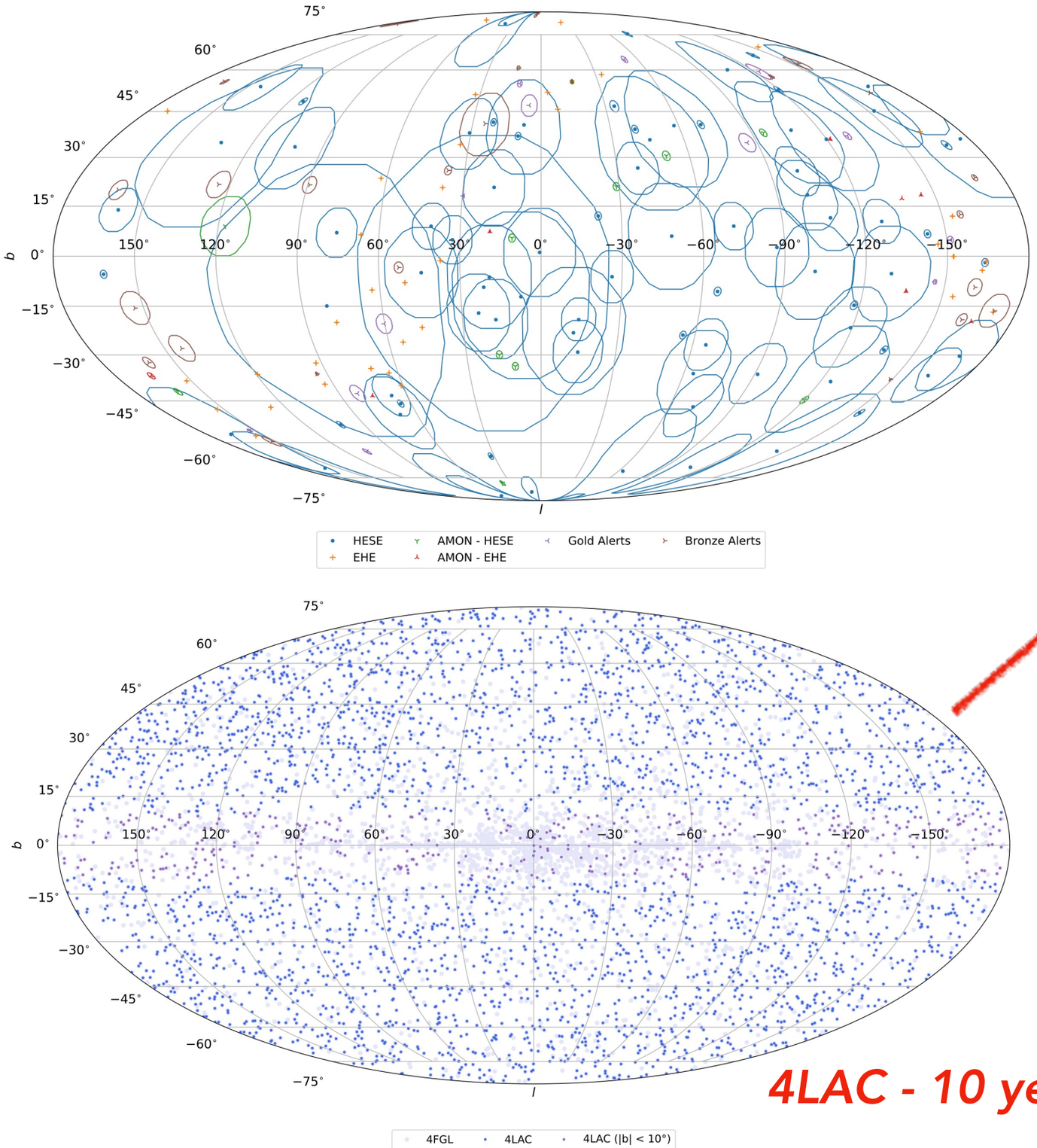
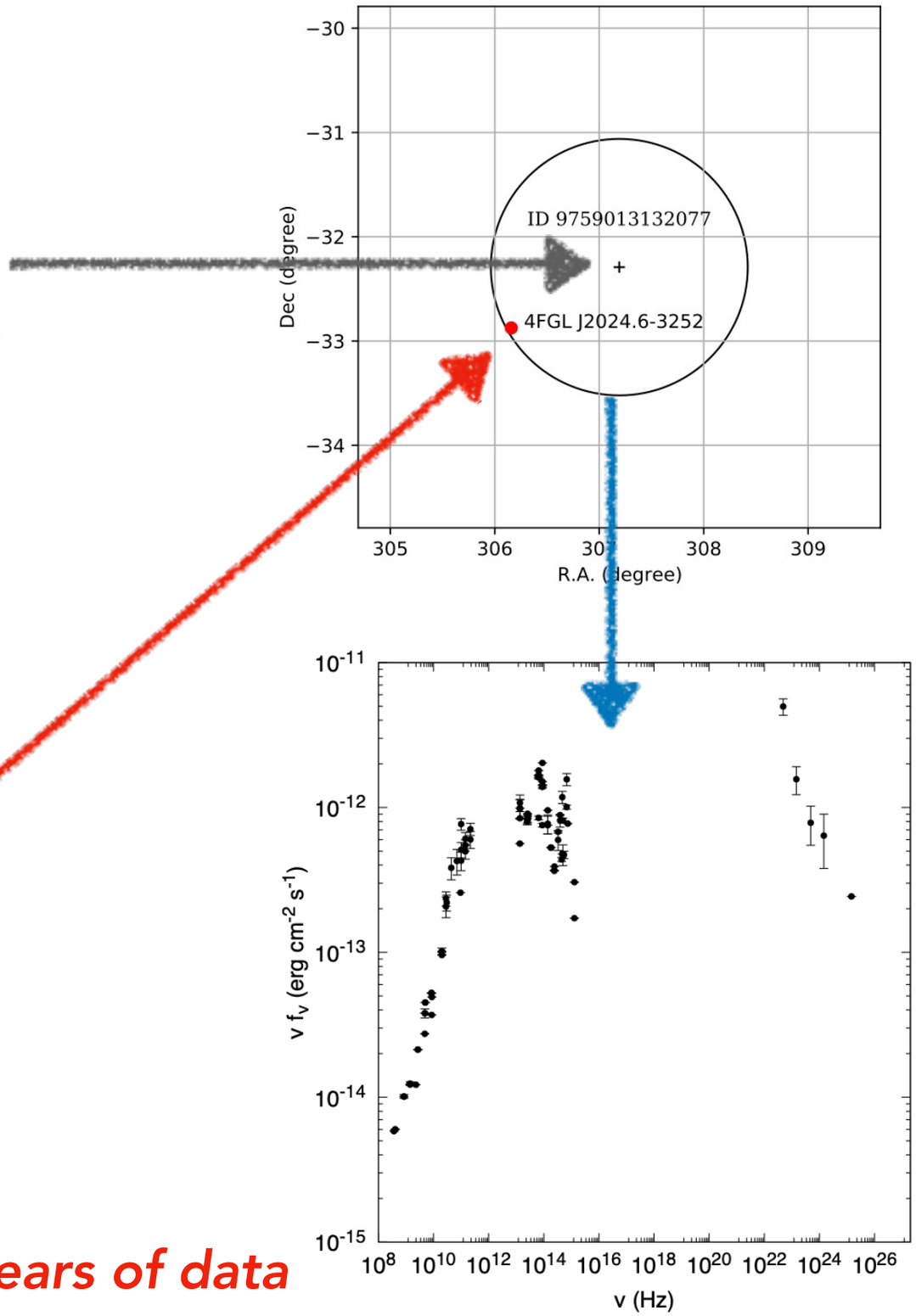


(Fraija,N. et. al. 2020)

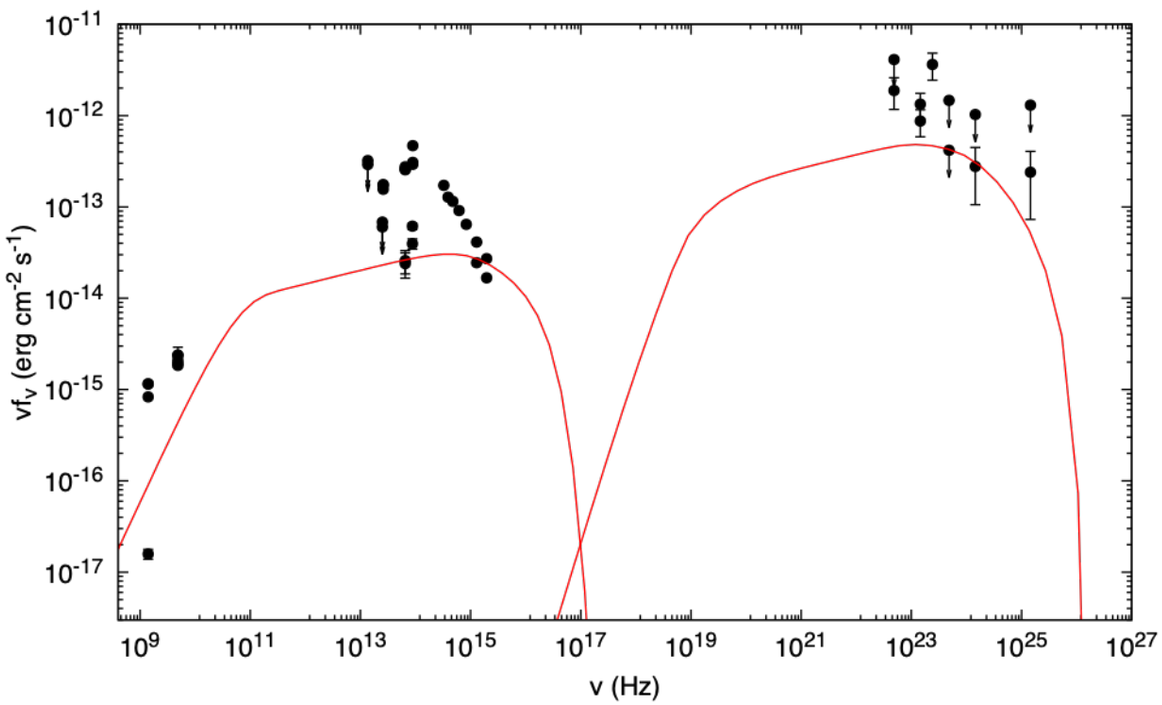
Our goal





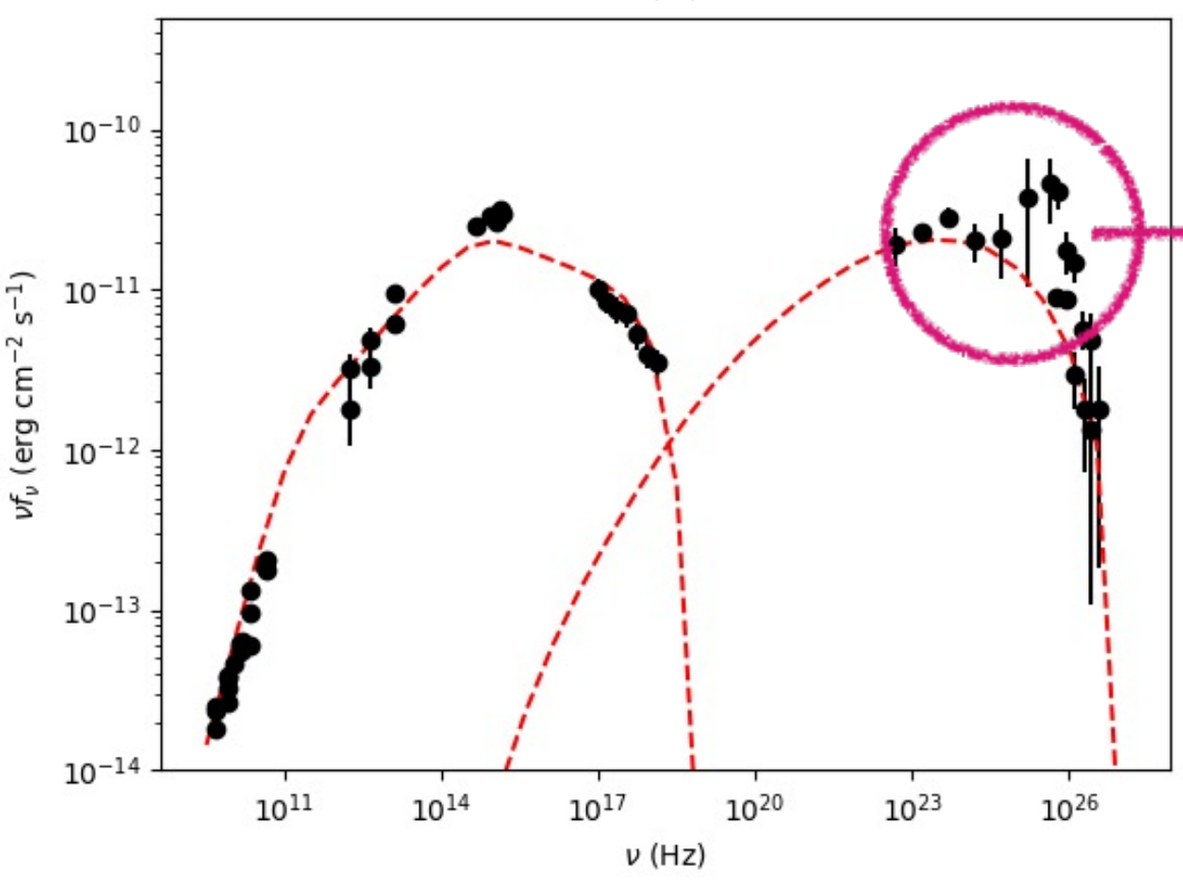
4LAC - 10 years of data

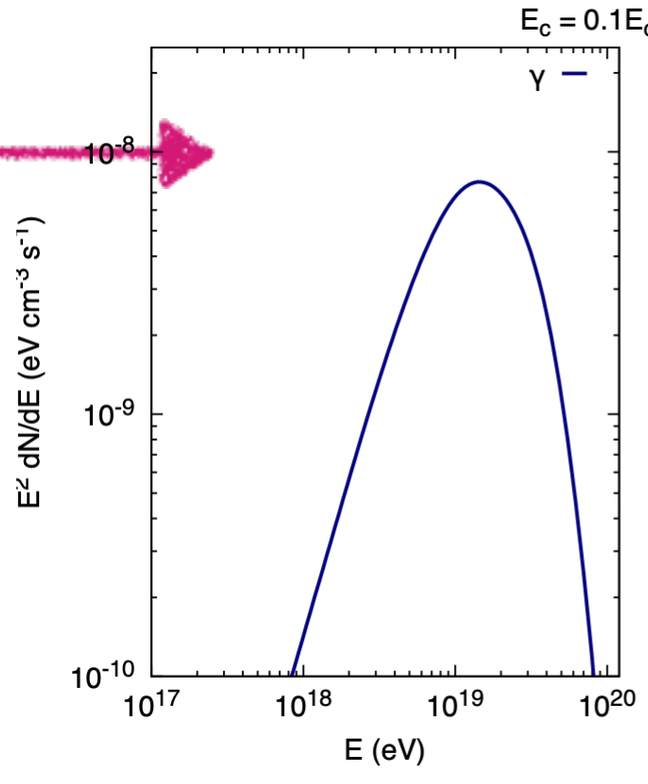
Our goal

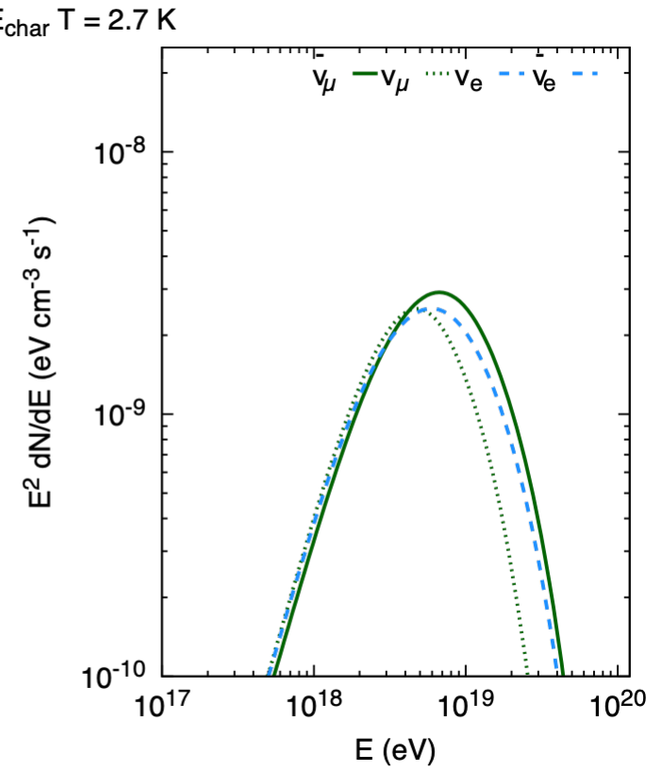


A neutrino flux is not expected if the broadband spectra energy distribution is well described with a leptonic scenario (***Finke et. al. 2008***).

But with a hadronic component, a neutrino flux is expected under some conditions (**Kelner & Aharonian 2008**).







Finally

We are looking from 4LAC sources that are inside of the 90% error region of track events detected by IceCube.

Building the broadband SED for those sources (quasi simultaneous at the neutrino time arrive), we pretend to model the spectra assuming a leptonic scenario.

For those sources that doesn't fit well with only an electron population, a lepto-hadronic model is proposed and a neutrino flux it's predicted.

Additionally a study on the gamma-ray light curve in scale of months is performed in order to find possible flare activity near of the arrival time of the neutrino.