

Antonio Marinelli: Cosmic reservoirs: the importance of CTA to understand high-energy neutrino observations

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Star-forming and starburst galaxies, which are well-known cosmic-ray reservoirs, are expected to emit gamma-rays and neutrinos predominantly via hadronic collisions. The link between diffuse gamma rays and diffuse high-energy neutrinos measured by IceCube goes through the knowledge of this abundant class of sources. Moreover the IceCube point-like searches highlight a possible excess in coincidence with NGC1068, a starburst galaxy which contain also a active galactic nuclei. While Fermi-LAT already measured the spectral energy distribution of 13 nearby starburst galaxies, only 4 of them have been observed by imagine Cherenkov telescopes. The future observations of these nearby sources by the incoming CTA telescope will be crucial to understand their spectral features at TeV energies and better predict their contribution to the diffuse and point-like high-energy neutrino observations. Future CTA measurements will also test the hypothesis that the observed gamma-ray fluxes from starburst galaxies are mostly due to star-forming activity, in agreement with the available star formation rates coming from IR and UV observations.