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Cosmic Interacting Matters
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From Source to Signal

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Looking at VHE neutrino sky: the importance of AGN-starburst coexistence

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Starburst galaxies (SBGs) and more in general star forming galaxies represent a class of galaxies with a high star formation rate (up to 100 Mo/year). Despite their low luminosity, they can be considered as guaranteed “factories” of high energy neutrinos, being “reservoirs” of accelerated cosmic rays and hosting a high density target gas in the central region. The estimation of their point-like and diffuse contributions to the neutrino astrophysical flux measured by IceCube can be crucial to describe the diffuse neutrino spectral features as well as the peculiar point-like excesses. To this aim we used the most updated gamma-ray catalog of this class of objects to perform a multimessenger study and describe their gamma-ray emission through a calorimetric scenario. On the other hand the 79 neutrinos at tera–electron volt energies observed by IceCube in coincidence with NCG1068 are hardly described considering only the starburst emission and additional emission components, related to the hosted active galactic nucleus (AGN), should be comprised. A comprehensive AGN-starburst scenario will be discussed for this special case taking into account the last observations of ALMA.

All that are interested are very welcome!