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## Reservoir Sources Contribution to the astrophysical Neutrino Flux

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Starburst Galaxies are known as “reservoirs” of high-energy cosmic rays which potentially could contribute to the astrophysical diffuse neutrino flux measured by IceCube. In this work, we go beyond the standard prototype-based approach, and investigate a model based on a data-driven blending of spectral indexes, thereby capturing the observed changes in the properties of individual emitters. We then perform a multi-messenger analysis considering the extragalactic gamma-ray background (EGB) measured by Fermi-LAT and the IceCube data samples. Remarkably, we find that, the spectral index blending allows starburst galaxies to account for up to 40% of the HESE events at 95.4 % C.L., while satisfying the limit on the non-blazar EGB component. In broad terms, our analysis points out that a better modeling of astrophysical sources could alleviate the tension between neutrino and gamma-ray data interpretation.

### Collaboration name

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