



Contribution ID: 16

Type: **not specified**

## Gamma-ray and neutrino emissions from star-forming and starburst galaxies

*Thursday, 8 September 2022 14:30 (20 minutes)*

Experimental observations have demonstrated a strong correlation between star-forming processes and gamma-ray luminosities. However, the very nature of these emissions is still under debate. Certainly, Star-forming and Starburst Galaxies (SFGs and SBGs) are well-motivated astrophysical candidates to emit gamma-rays and neutrinos, through hadronic collisions. In this talk, I will present several updates on their non-thermal radiations, revisiting both their point-like and cumulative (diffuse) emission properties. From the point-like side, I will discuss the potentialities of future gamma-ray (CTA, SWGO) and neutrino (KM3NeT/ARCA, IceCube-gen2) telescopes to quantitatively scrutinize their gamma-ray and neutrino expectations from different cosmic-ray transport models. From the diffuse perspective, I will investigate a model based on a data-driven blending of spectral indexes, thereby capturing the observed changes in the properties of individual emitters. Strikingly, SFGs and SBGs can explain up to 40% of the diffuse HESE data, while remaining consistent with gamma-ray limits on non-blazar sources.

### Summary

**Primary author:** AMBROSONE, Antonio (Istituto Nazionale di Fisica Nucleare)

**Co-authors:** Dr CHIANESE, Marco (University of Naples "Federico II" and Istituto Nazionale di Fisica Nucleare (INFN) sezione di Napoli); FIORILLO, Damiano (Istituto Nazionale di Fisica Nucleare); Dr MARINELLI, Antonio (Istituto Nazionale di Fisica Nucleare (INFN) sezione di Napoli); Prof. MIELE, Gennaro (University of Naples "Federico II", Istituto Nazionale di Fisica Nucleare (INFN) sezione di Napoli, Scuola Superiore Meridionale (SSM))

**Presenter:** AMBROSONE, Antonio (Istituto Nazionale di Fisica Nucleare)

**Session Classification:** Extra-Galactic sources