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Unresolved gamma-ray point sources in the inner Galaxy at $E > 10$ GeV

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The nature of the GeV gamma-ray Galactic center excess (GCE) in the data of Fermi-Large Area Telescope (LAT) is still to be unveiled. While the GCE photon flux is peaked at about few GeV, a high energy tail extending up to tens of GeV has been reported by various studies. If confirmed, such high-energy photons are naturally explained by the inverse Compton emission of electrons and positrons emitted by a population of millisecond pulsars in the Galactic bulge. In this contribution we present preliminary results of our new investigation of the GCE at high energies (> 10 GeV). This is performed combining adaptive template fitting and pixel count statistical methods, in order to assess the role of sub-threshold point sources to the GCE, while minimizing the mis-modelling of Galactic diffuse emission backgrounds. We characterize the properties of the gamma-ray emission in the inner Galaxy by reconstructing the flux distribution of point sources well below the Fermi-LAT detection threshold, and by measuring their radial and longitudinal profiles. The consequences of our results for upcoming surveys of the inner Galaxy with the Cherenkov Telescope Array are also discussed.

Primary author: Dr MANCONI, Silvia (Laboratoire d'Annecy-le-Vieux de Physique Théorique, CNRS)

Co-authors: DONATO, Fiorenza; CALORE, Francesca (LAPTh, CNRS)

Presenter: Dr MANCONI, Silvia (Laboratoire d'Annecy-le-Vieux de Physique Théorique, CNRS)

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