ID contributo: **26** Tipo: **Theoretical Models: Halo classification and mechanisms**

Gamma-ray halos in the HE and VHE Galactic landscape

The recent discovery of long-lived and large-size gamma-ray emission structures around a handful of middle-aged pulsars raised the question of their actual place in the high-energy and very-high-energy landscape, first and foremost in the Milky Way but more generally in all star-forming galaxies. If most pulsars develop such gamma-ray halos over several 100kyr, harnessing the gamma-ray observations of our Galaxy might become challenging, especially at the highest energies: source confusion along the plane, observational strategy to allow safe background estimates, disentangling halo from larger-scale interstellar emission,⋯
In this work, we aim at assessing the possible contribution of halos to the gamma-ray emission of the Milky Way. We have developed a galactic halo population model calibrated on existing observations, in order to address several questions: What are the best targets for study in GeV and TeV range ? How many halos may already be in reach of existing instruments ? How many will be in reach of future instruments, and under which conditions ? How do halos compare to the galactic interstellar diffuse emission ? In this poster, we present our population model together with a subset of preliminary results from the study.

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