ID de Contribution: **12** Type: **Non spécifié**

Search for dark matter annihilation signals from unidentified Fermi-LAT objects with H.E.S.S.

mardi 6 juillet 2021 11:44 (18 minutes)

Cosmological N-body simulations show that Milky Way-sized galaxies harbor a population of unmerged dark matter subhalos. These subhalos could shine in gamma-rays and be eventually detected as unidentified sources in gamma-ray surveys. From a thorough selection of unidentified Fermi-LAT Objects (UFOs), we observe four UFOs with H.E.S.S. and we search for very high-energy (VHE, E ≥ 100 GeV) gamma-ray emission. Considering dark matter masses above a few hundred GeV, the observed UFOs could be identified as dark matter subhalos, given their hard gamma-ray spectra in the few-ten-to-hundred GeV energy range. Since no significant very-high-energy gamma-ray emission is detected in any of the four UFOs dataset nor in the combined one, we derive constraints on the product of the velocity-weighted annihilation cross section <sigma v> by the J-factor for the dark matter models. We derive 95% CL upper limits on <sigma v>J in W+W- and tau+tau- annihilation channels for the TeV dark matter particles. Focusing on thermal WIMPs, we derive constraints on the J-factors from the H.E.S.S. observations. The dark matter models with masses greater than 0.3 TeV for the UFO emissions can be ruled out at high confidence level when assuming model-dependent predictions from cosmological N-body simulations on the J-factor distribution for Milky Way-sized galaxies.

Orateur: MONTANARI, Alessandro

Classification de Session: Dark Universe