

1) Cosmic Rays and Astrophysics 2) Cosmic Rays and Gamma-Ray astronomy

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Recent development of the gamma-ray astronomy is remarkable in both on-board and the ground-based observations, for instance FERMI and HESS respectively. I concentrate my talk upon the diffuse emission induced by the interactions between CRs and interstellar gas (ISM), mostly with hydrogen, and the interstellar radiation field (ISRF) with (virtual) photon gas. I first touch briefly upon the elementary processes to produce gamma-rays in these interactions, namely π^0 in proton-ISM, bremsstrahlung in electron-ISM, inverse Compton in electron-photon, and synchrotron in electron-magnetic field, and then compare the diffusion-halo model with the observational data including most recent ones from FERMI.