The Galaxy Viewed in Very High Energy Gamma Rays

Prof. Dr. Werner Hofmann

Max-Planck Institut für Kernphysik, Heidelberg

Very high energy (VHE) gamma ray astronomy - at photon energies of 100 GeV and beyond - has developed in giant steps, with the number of known cosmic VHE gamma ray sources approaching 200. Systems of large imaging atmospheric Cherenkov telescopes have played a key role in this development. VHE gamma rays cannot be produced in thermal processes; they are created in interactions of high energy particles. Gamma rays trace populations of such particles and allow imaging of the cosmic particle accelerators. VHE gamma ray emitters are ubiquitous in the Galaxy and beyond; they include supernova remnants, pulsars and pulsar wind nebulae and binary systems, as well as starburst galaxies, radio galaxies and blazars. The presentation will introduce the Cherenkov technique, and then discuss some of the key results, concentrating mostly on sources in our Galaxy. The talk will conclude with an outlook towards the Cherenkov Telescope Array CTA, as the next-generation facility for ground-based gamma-ray astronomy.