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Aula Wataghin, ore 14:30

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Astroparticle Physics with the Fermi Gamma-ray Space Telescope

The Fermi Gamma-ray Space Telescope is an international, multiagency satellite observatory designed to study high energy gamma-rays from the Universe. In three years after its launch in June 2008, Fermi has recorded a remarkable variety of novel observations from the most energetic sources in the sky, like black holes, rapidly-spinning neutron stars, supernova remnants, gamma-ray bursts as well as cosmic-ray interactions with the interstellar gas and radiation fields in the Milky Way and other galaxies. High energy cosmic-ray electrons and positrons up to 1 TeV were also directly measured.

These observations are providing invaluable, new insights into fundamental questions of high energy astrophysics and astro-particle physics, such as, among others, particle acceleration mechanisms, production and propagation of cosmic-rays, constraints to the nature of Dark Matter.

In this talk I will present the mission, review the most interesting science results obtained by the Fermi observatory and offer prospects for future studies and observations.