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Particle acceleration in the high-energy Universe

Tuesday 8 October 2024 15:35 (30 minutes)

The acceleration of charged particles to very high energies in powerful astrophysical sources such as pulsar winds, active galactic nuclei, gamma-ray bursts etc., represents a central question in modern high-energy astrophysics, astroparticle physics and nowadays, multi-messenger astronomy. Accelerated particles can interact with and radiate in ambient fields to produce secondary photon or neutrino fluxes, or escape the source to become part of the cosmic ray spectrum. This seminar will discuss the physics of (Fermi-type) acceleration scenarios from first principles and present some applications in concrete astrophysical phenomena.

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