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Introduction to Astroparticle Physics

This lecture provides an introduction to astroparticle physics, with a focus on cosmic rays and astrophysical neutrinos. Topics include the cosmic speed limit (the Greisen–Zatsepin–Kuzmin cutoff), gigantic cascades of elementary particles in the atmosphere (air showers), the operation of particle detectors covering more than 3000 km^2 (such as the Pierre Auger Observatory), the search for cosmic neutrinos, and astrophysical accelerators that reach beam energies over ten million times greater than those of the Large Hadron Collider at CERN.