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Ultra-High-Energy Cosmic Rays: Recent Results From Auger and HiRes¹ STEFAN WESTERHOFF, Columbia University

Cosmic ray particles were discovered almost one hundred years ago, but still very little is known about the origin of the most energetic particles, above and around $10^{18}\,\mathrm{eV}$. The existence of particles at these energies, the highest energies observed in the Universe, continues to challenge our imagination: where do they come from, how are they accelerated, and how can they travel astronomical distances without substantial loss of energy? We are currently in an exciting new era in cosmic ray physics, with instruments now producing data of unprecedented quality and quantity to tackle the many open questions. Over the last 5 years, the High Resolution Fly's Eye (HiRes) air fluorescence stereo detector has accumulated data characterized by excellent angular resolution. The world's largest detector for cosmic radiation, the Pierre Auger Observatory in Argentina, is nearing completion, and first results have already been published. In this talk, I will review recent results from the Auger and HiRes experiments on the energy spectrum, composition, and arrival directions of ultra-high-energy cosmic rays.

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