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**Particle Physics Beyond Laboratory Energies**

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The highest energy interactions of hadrons, photons and neutrinos have been observed exploiting cosmic rather than terrestrial particle beams. We will review what we have learned recently about Standard Model physics and beyond from cosmic ray detectors covering surface areas of many thousands of square kilometers, arrays of air Cherenkov telescopes, and kilometer-scale neutrino detectors. We will also speculate on the science reach of next-generation experiments.