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DAP Young Star: What PeV neutrinos teach us about Cosmic Rays

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The origin of high-energy cosmic rays is one of the most persistent mysteries in physics. Neutrinos, as unambiguous tracers of hadronic acceleration, may offer a new and unique window into this problem and others in high-energy astrophysics. As neutral particles, they travel from their sources undeflected by magnetic fields, and as weakly interacting particles, they travel undisturbed out of dense environments. I will discuss recent results from the antarctic IceCube neutrino observatory, the first operating gigaton-scale neutrino detector, showing strong evidence for a population of extremely high energy neutrinos (100+ TeV) that cannot easily be explained by processes occurring in cosmic ray showers in the Earth's atmosphere, and the implications of neutrino astronomy for our understanding of cosmic rays.