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IceCube and the Discovery of High-Energy Cosmic Neutrinos

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The IceCube project has transformed one cubic kilometer of natural Antarctic ice into a neutrino detector. The instrument detects 100,000 neutrinos per year in the GeV to PeV energy range. Among those, we have recently isolated a flux of high-energy cosmic neutrinos. I will discuss the instrument, the analysis of the data, and the significance of the discovery of cosmic neutrinos. The observed neutrino flux implies that a significant fraction of the energy in the non-thermal universe, powered by the gravitational energy of compact objects from neutron stars to supermassive black holes, is generated in hadronic accelerators.