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### **Cosmic Neutrinos in the IceCube Detector**

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High-energy neutrinos are thought to be emitted by astronomical objects such as active galactic nuclei, gamma-ray bursts, and supernova remnants. However, due to their small predicted flux and large backgrounds from neutrinos and muons made in the Earth's atmosphere, they had not been observed until now. The IceCube Neutrino Observatory instruments a cubic kilometer of ice at the South Pole to detect neutrinos mostly above 100 GeV. In a dataset from the first couple of years of the completed detector, a new veto technique was employed to find a pure sample of very high energy neutrinos (above 30 TeV). An excess is observed above atmosphere-created backgrounds that is incompatible in energy spectrum and arrival direction, leading to the first observation of astrophysical neutrinos. Studies on the arrival direction were performed to search for clustering of events that would indicate individual sources, signaling the birth of neutrino astronomy.