Deep beneath the Amundsen-Scott station, on the geographic South Pole, lurks a telescope in the ice. This observatory hunts for the some of the most elusive particles in our universe, hoping they may answer foundational questions about nature, and glean insight into new physics that the monstrous particle collider situated in Geneva — and its potential successors — may never be able to.

The IceCube Neutrino Observatory was built between 2005 and 2010, but its heritage goes back several decades before. Spanning one cubic kilometer of Antarctic ice, the telescope consists of some 60 strings, hot water drilled into the ice, with each string containing a number of photomultiplier tubes, capable of detecting photons originating from processes involving neutrinos — the aforementioned elusive particles.

Measurements of certain neutrino properties may help us understand