

APR18-2018-020060

Abstract for an Invited Paper
for the APR18 Meeting of
the American Physical Society

W.K. Panofsky Prize Talk: Directional Cherenkov Calorimetry: Birth Pangs, Adolescence, Maturity
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Oracular dreams of grand-unification and cosmological theories foretold that neutrinos cannot be massless, that those elusive particles powered supernova explosions, and that protons die after 10^{29} years. Indeed, the nucleons in our bones proved that they live longer than 10^{26} years – and the light in the sky proves our universe is 10^{10} years old.

Testing the early hypotheses demanded a new detector technology, optimized to search for rare interactions. It demanded fast, isochronous, single photoelectron photomultiplier tubes, N_2 calibration lasers, reverse osmosis purification of water, fast waveform digitizers ushering in an era of massive, totally-active, Cherenkov ring-imaging calorimeters. Now the target medium, water, of the pioneering detector has morphed into ice, heavy water, seawater, and clear and scintillating oil. The sources of neutrinos in the seminal experiment - atmosphere and a supernova - have evolved to include accelerators, the sun, nuclear reactors, and cosmic rays.

I will recall the death of the simplest unifying theories and trace the tortuous path from an atmospheric muon-neutrino deficit, to a definitive measurement of neutrino mass difference and the dream of unraveling CP violation.