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W.K.H. Panofsky Prize in Experimental Particle Physics (2021): When Signal Becomes Background[1]

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he last three letters of Super-Kamiokande famously allow interpretation as either Neutrino Detection Experiment or Nucleon Decay Experiment. When Super-Kamiokande began in 1996, it was surely going to observe atmospheric neutrino oscillation if nature kindly provided it (as well as solar neutrino mixing or a galactic supernova). Likewise, Super-Kamiokande was poised to quickly outstrip the previous generation of underground experiments in the search for proton decay and related baryon number violating processes. In this talk I will review how we have sifted through more than 20 years and 50000 events of atmospheric neutrinos looking for the tell-tale signs of Grand Unification or other new physics.

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