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Reactor antineutrinos with SNO+ TANNER KAPTANOGLU, University of Pennsylvania, SNO+ COLLABORATION — Historically, the detection of antineutrinos produced in nuclear reactors has been instrumental in confirming neutrino oscillations and measuring neutrino mixing parameters. These reactor antineutrinos have never been observed in a pure water Cherenkov detector, where they interact primarily through inverse beta decay. In this talk, I present a search for reactor antineutrinos using data taken with the SNO+ detector while it was filled with ultra pure water. Importantly, as a water Cherenkov detector, SNO+ achieved unprecedentedly low trigger thresholds and low levels of radioactive backgrounds, which together enable this search. The method I will outline is the lowest-energy analysis of water Cherenkov neutrino detectors ever performed.

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