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Studying Neutrinos with a Desktop Detector

The miniTimeCube (mTC) is the world's smallest neutrino detector. The two liter plastic scintillator target is viewed by 24 Photonis 64 anode PMTs (1536 pixels in total), has a single pulse resolution of $<100\text{ps}$ with waveform recording up to 12 microseconds. Analysis of data from the UH manufactured PMT mounted digitization electronics will provide critical event discrimination. Tests at NIST, Gaithersburg, MD are underway. The detector's special characteristics include studies of neutron scatters via elastic scattering and electron anti-neutrino detection via inverse beta decay. Applications range from reactor monitoring to sterile neutrino searches. We will report the latest results and prospects for further development.

Primary author: Prof. LEARNED, John Gregory (University of Hawaii)

Co-authors: Mr CARPENTER, Andrew (University of Hawaii); Prof. VARNER, Gary (University of Hawaii); Mr JOCHER, Glenn (Integrity Applications Incorporated); Dr MUMM, Hans-Pieter (NIST, Gaithersburg); Ms RITTER, Lisa (University of Hawaii); Dr MACCHIARULO, Luca (University of Hawaii); Mr ROSEN, Marc (University of Hawaii); Mr DUVALL, Mark (University of Hawaii); Mr ANDREW, Matt (University of Hawaii); Mr SAKAI, Michinari (University of Hawaii); Mr DORRILL, Ryan (University of Hawaii); Mr NEGRASHOV, Serge (University of Hawaii); Mr USMAN, Shawn (Johns Hopkins University); Dr MATSUNO, Shigenobu (University of Hawaii); Ms SMITH, Stefanie (University of Hawaii); Prof. DYE, Stephen (Hawaii Pacific University); Mr LI, Viacheslav (University of Hawaii); Prof. MCDONOUGH, William (University of Maryland)

Presenter: Prof. LEARNED, John Gregory (University of Hawaii)

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