Detector Lab's

Technical Seminars

PRISMA+ DETECTOR LAB

The Development Path to a Hybrid Optical Detector

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Medienraum, Staudingerweg 7

Building 2412, Room 03.431 (3rd floor – West)

Neutrino physics and astrophysics has made extensive use of optical detectors due to their fast timing response, low energy threshold, and low cost. Large Cherenkov detectors can reconstruct neutrino events in the energy range from about 5 MeV to many GeV, but they suffer from relatively poor energy resolution and the fact that particles below the Cherenkov threshold give no signal whatsoever. Large organic liquid scintillator detectors offer low threshold and good energy resolution, but tracking capabilities are limited, fire safety is often an issue, and costs are high. I will discuss the international R&D effort that is underway to develop the photosensors and target liquids necessary to make a safe, low-cost detector that can see both scintillation and Cherenkov light simultaneously.

Robert Svoboda is a Distinguished Professor at the University of California, Davis, working mainly in the field of neutrino physics. He obtained the Ph.D. in Physics from the University of Hawai'i at Mānoa in 1985 and achieved several awards and scientific leadership positions since then. For example, he has been Co-Spokesperson (US) of the experiments Double Chooz and LBNE (DUNE) and, since 2018, PI or Co-PI (US) of ARTIE and ANNIE. During his career, he has developed or proposed several novel technologies like the 16-N in situ calibration for the Super-Kamiokande water Cherenkov detector, the pulsed neutron source calibration for DUNE, and the in situ purification of water-based liquid scintillators.