

The novel ABALONE photosensor

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January 23rd 2020 at 14:00

Gernot-Gräff Room, Staudingerweg 7

Building 2412, Room 05.431 (5th floor – West)

The conventional photomultipliers design ubiquitous in particle- and astro-particle physics requires a considerable amount of manual work in the production process. The ABALONE Photosensor Technology (U.S. Pat. 9064678) developed by Daniel Ferenc (UC Davis) is a modern, scalable technology specifically invented for cost effective mass production, robustness, and high performance. I will present first performance studies of advanced fused silica ABALONE Photosensors after stress testing for 120 days. Among the key features of this concept are intrinsic gain in the high 100 million range, total after-pulsing rate of only 0.005 ions per photoelectron, subnanosecond timing resolution, single photon sensitivity, and unique radiopurity and UV sensitivity, at no additional cost to the assembly process. I will also show-case one of the ABALONE photosensor developed specifically for the potential extension of the IceCube neutrino experiment.