

CMOS pixel charge sensor development

Yuan Mei

Lawrence Berkeley National Lab

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The charge is one of the few signal channels available for radiation detection. The ever-increasing demand for higher channel density, faster speed, and lower material budget pushes for the making and adaptation of CMOS-based charge sensors and integrated circuitry in innovative ways. In this talk, I'll present recent development in making CMOS pixel sensors that are both charge collectors and amplifier/signal processors. Their use in TPC readout, the operations in cryogenic environments, and the coupling to atypical detector materials will also be discussed. The applications are generally in the context of direct dark matter search and neutrinoless double-beta decay.