Poster

An Optical Pulser for Precision Characterization of Microcalorimeter Pixels and Pixel Arrays

Felix Jaeckel (University of New Mexico)

Co-Authors: F. T. Jaeckel, L. N. Le, R. Hummatov, S. T. A. Scott, R. J. Lafler, S.T.P. Boyd

We have developed a precision scanning optical pulser for the deposition of tuneable amounts of energy onto microcalorimeter array pixels with controlled timing and micrometer spatial precision. This optical technique offers a complementary approach to standard device testing and calibration with radioactive sources, where spatial control, tunable energy, and precise timing are either hard or impossible to achieve. With these enhanced capabilities, detailed studies of the entire pixel thermal system (absorber, detector, and parasitic elements) can be undertaken, yielding key information for improved device designs. In this talk, we present pulse-testing results obtained on prototype MMC pixels and discuss the scheme used for absolute energy calibration.