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Testing and Calibration of Novel Detectors for Nuclear and Plasma Physics Diagnostic Applications ZAHEER ALI, National Security Technologies, LLC, MIKE HAUGH, JIM TELLINGHUISEN, VLADIMIR GLEBOV, Lab for Laser Energetics, University of Rochester, SAM ROBERTS, CHRISTIAN STOECKL, CRAIG SANGSTER — Calibrated chemical vapor deposition (CVD) diamond diodes, X-ray diodes (XRDs), and PIN diodes are used in nuclear and plasma physics diagnostic experiments, such as those conducted at the National Ignition Facility at Lawrence Livermore National Laboratory (LLNL). Calibrations of these diodes are conducted at the OMEGA Laser at the Lab for Laser Energetics of the University of Rochester, as well as at the Titan Laser in the Jupiter Laser Facility at LLNL. The OMEGA Laser is a 30-kilojoule one-nanosecond system designed for inertial confinement fusion and nuclear physics research. The Titan Laser is a picosecond system designed for plasma and X-ray studies. In addition, National Security Technologies, LLC, (NSTec) has built a new hard X-ray calibration facility (the “HEX Laboratory”), where X-ray detector systems are also calibrated. In this paper we will present our methods of absolute and relative calibration, results of calibration, and the capabilities of the HEX Laboratory.

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