

A Summary of the Optical Target Diagnostics for the National Ignition Facility

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The National Ignition Facility (NIF) is a 192-laser beam facility designed to support the High Energy Density (HED), Stockpile Stewardship and Inertial Confinement Fusion programs. We report on the design and performance of the optical target diagnostic systems implemented on the NIF. Systems include but not limited to Glint Fast Diode (GFD), 3/2w Collection System, shot time photography, Optical Thomson Scattering (OTS), Near Backscatter Imager (NBI), Full Aperture Backscatter (FABS), Velocity Interferometer for Any Reflector (VISAR), and related calibration systems. These diagnostics are fully integrated into the NIF through complex control software, critical alignment systems and automated software data analysis.

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