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## 2.30 The Dilation Aided Single-Line-of-Sight Camera for the National Ignition Facility, Characterization and Fielding

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Crystal x-ray imaging is frequently used in inertial confinement fusion and laser-plasma interaction applications, as it has advantages compared to pinhole imaging, such as higher signal throughput, better achievable spatial resolution and chromatic selection. However, currently used x-ray detectors are only able to obtain a single time resolved image per crystal. The dilation aided single-line-of-sight x-ray camera described here, designed for the National Ignition Facility (NIF) combines two recent diagnostic developments, the pulse dilation principle used in the dilation x-ray imager (DIXI) and a ns-scale multi-frame camera that uses a hold-and-readout circuit for each pixel (hCMOS). This enables multiple images to be taken from a single-line-of-sight with high spatial and temporal resolution. At the moment, the instrument can record two single-line-of-sight images with spatial and temporal resolution of 35  $\mu\text{m}$  and down to 35 ps, respectively, with a planned upgrade doubling the number of images to four. Here we present the dilation aided single-line-of-sight camera for the NIF, including the x-ray characterization measurements obtained at the COMET laser and the results from the initial timing shot on the NIF. Prepared by LLNL under Contract DE-AC52-07NA27344. LLNL-ABS-7439

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