

X-Ray Opacity Uniformity Validation of NIF Cryo-Ignition Shells*

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The x-ray opacity of NIF cryo-ignition shells at $\sim 1\text{keV}$ are required to be $\sim 1:10^4$ for lateral scale lengths $\sim 100\mu\text{m}$. We proposed, at the previous TFSM, a single-channel photon-counting concept that could perform such a measurement. In the last year we built a single-channel device that demonstrated the principle and showed reproducibility of $\sim 1:10^5$ in measurements of a $200\mu\text{m}$ thick flat Be:Cu foil. We are currently building a multi-channel device that will be capable of characterizing a full shell with a spatial resolution of $\sim 100\mu\text{m}$, and statistical sampling at $\sim 50\mu\text{m}$.

*Work supported by the U.S. Department of Energy under Contract No. DE-AC03-01SF22260.