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An Assessment of the X-Ray Preheat of Fast-Ignition Cones¹ R.P.J. TOWN, N. IZUMI, D.S. CLARK, A.J. MACKINNON, P.A. AMENDT, M.H. KEY, P.K. PATEL, E. STORM, M. TABAK, Lawrence Livermore National Laboratory — In the Fast Ignition (FI) approach to inertial confinement fusion a short-pulse high intensity laser is used to generate relativistic electrons that subsequently deposit their energy into the compressed DT fuel to initiate a propagating burn wave. A gold cone is normally inserted into the cryogenic DT capsule to allow a clear path for the ignition laser to the fuel. In the FI coupling experiments on the National Ignition Facility (NIF), the compressed fuel will be assembled using indirect drive. The cone will be subject to preheat from the hard x-rays (> 2keV) generated by the interaction of the compression lasers with the high-Z hohlraum wall and the coronal plasma. The latter source could also be important for direct drive designs. This paper will assess the cone preheat, describe mitigation strategies, and review some recent designs to quantify the effect on the OMEGA laser facility.

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> R. P. J. Town Lawrence Livermore National Laboratory

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