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Simulations of the National Ignition Facility Opacity Sample[1] M. E. MARTIN, R. A. LONDON, R. F. HEETER, Lawrence Livermore National Laboratory, E. S. DODD, B. G. DEVOLDER, Los Alamos National Laboratory, Y. P. OPACHICH, National Security Technologies, D. A. LIEDAHL, Lawrence Livermore National Laboratory, T. S. PERRY, Los Alamos National Laboratory — A platform to study the opacity of high temperature materials at the National Ignition Facility has been developed[1]. Experiments to study the opacity of materials relevant to inertial confinement fusion and stellar astrophysics are being conducted. The initial NIF experiments are focused on reaching the same plasma conditions (T >150 eV and Ne $\geq$ 7 x 10^{21} cm^{-3}), for iron, as those achieved in previous experiments at Sandia National Laboratories' (SNL) Z-facility which have shown discrepancies between opacity theory and experiment. We developed a methodology, using 1D HYDRA simulations, to study the effects of tamper thickness on the conditions of iron-magnesium samples. We heat the sample using an x-ray drive from 2D LASNEX hohlraum simulations. We also use this methodology to predict sample uniformity and expansion for comparison with experimental data. [1] T. S. Perry *et al.*, HEDP 23, 223 (2017)

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Madison Martin
Lawrence Livermore National Laboratory

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