

Abstract Submitted  
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**Simulations of Marshak Wave Through Iron Oxide Foam** KYLE MCLEAN, STEVE ROSE, Imperial College London — Past experiments carried out in Sandia National Laboratory have shown severe discrepancies between opacity models and experimentally measured opacity, particularly in Iron under conditions similar to those found in the solar tachocline. To provide further investigation into existing models, an experiment was performed on the National Ignition Facility whereby a Marshak wave, formed from the interaction of an X-ray blackbody drive with an iron oxide ( $\text{Fe}_2\text{O}_3$ ) foam, was allowed to propagate through the material until emerging as a measurable flux from the far end of the foam. By measuring this flux, one can deduce information about the inner opacity profile of Iron. In this talk, I will discuss the work carried out using a bespoke multigroup diffusion solver designed to simulate this experiment, probing specific sensitivity to properties such as equation of state and underlying opacity models.

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