Abstract Submitted
for the DPP09 Meeting of
The American Physical Society

X-ray emission measurements from implosion experiments with Fe doped glass capsules[1] FRED WYSOCKI, JOHN BENAGE, GEORGE KYRALA, EVAN DODD, DOUG WILSON, Los Alamos National Lab — Recent results obtained for glass capsule implosions at the Omega laser indicate that when the gas contains a high z dopant gas, simulations do not match the compression and yield of the capsule, even when using a mix model. A critical time for when the experiments deviate from predictions occurs when the reflected shock hits the imploding shell. We have identified two possible issues that the codes may have incorrect, the density of the shell at this critical time and the density and temperature profile in the gas. To address these questions, we are attempting two new measurements in these experiments. These are x-ray radiography of the shell and temporally and spatially resolved temperature and density measurements in the gas. In this poster, we present our plan for the time and space resolved gas measurements utilizing a new multiframe monochromatic imager (MMI) diagnostic. This diagnostic will utilize emission from Fe ions that have been mixed into the gas from the shell. We will present data from some recent measurements that determine the K-shell Fe emission from the gas as a function of Fe dopant levels in the glass. We will also give results for the impact such mixing has on the performance of the capsules. The implications to obtaining the desired temperature and density profiles will be discussed.

[1]Work supported by US DOE/NNSA under Contract DE-AC52-06NA25396.

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Date submitted: 18 Jul 2009 Electronic form version 1.4