

X-ray conversion on gold targets relevant to ICF from OMEGA experiments.

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As LMJ and NIF ICF hohlraum walls will be made of high-Z materials, X-ray conversion efficiency measurement experiments with gold spheres [1] are relevant since direct uniform irradiation on spheres produces one dimension plasmas without magnetic fields. In addition to spheres, different target geometries (spherical cavity and planar foil) have been used to test the influence of magnetic field on the gold plasma behavior and compare with simulations.

The goals of these series of experiments are to have data sets for plasma characterization, soft x-ray conversion efficiencies and estimate M-band proportion. These experiments have been held on the OMEGA laser facility with up to 59 beams of direct drive on spheres (1 beam used for Thomson scattering measurements at 4ω) on 1 mm gold spheres giving 10^{15} W/cm² laser intensities on target with 1 ns square pulse shapes. X-ray power and spectra obtained by the broadband spectrometer DMX are shown to discuss soft x-ray conversion and M-band flux. Time and spectrally resolved X-ray imaging are presented as well as time evolution of plasma heating from Thomson scattering technique.

[1] E.L. Dewald et al., *Physics of Plasmas* **15**, 072706 (2008)