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X-ray yield enhancement from solid targets coated with wavelength scale spheres. HERNAN SUMERUK, DANIEL SYMES, IRINA CHU-RINA, ALEX BELOLIPETSKI, STEFAN KNEIP, JAMIE LANDRY, TOM DON-NELLY, TODD DITMIRE, University of Texas at Austin, TEXAS HIGH INTEN-SITY LASER TEAM — X-ray yield enhancement from laser solid interactions has previously been demonstrated for a variety of coating and target preparations. We investigate an additional method for enhancing the x-ray yield and possibly temperature relying on the field enhancement around a sphere as calculated using the Mie theory. We deposited uniform sized polystyrene spheres on a glass substrate. We irradiated the target with 15 mJ of 400 nm 100fs laser light focused to an intensity of approximately 10^{17} W/cm². We observed an increase two orders of magnitude in x-ray yield from the sphere covered glass as compared to the plain uncoated glass.

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