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**Recent Progress on Laser-Driven 10.3 keV X-Ray Sources** K.B. FOURNIER, M.T. TOBIN, Lawrence Livermore National Laboratory, J.F. DAVIS, Alme & Associates, F. GIRARD, B. VILLETTE, CEA, DAM, Bruyères le Châtel, C. SORCE, Lawrence Livermore National Laboratory, D.E. BEUTLER, C.A. COVERDALE, Sandia National Laboratory — Underdense, laser-driven targets have been shown to be efficient converters of laser light into X rays. We report on recent experiments at the OMEGA laser carried out in order to optimize the X-ray yield from Ge-doped $SiO_2$ aerogel targets. We have varied the aerogel-target density from 3.6 to 6.5 mg/cm$^3$ keeping the fraction of Ge atoms fixed at 20%. Laser intensity on target varied from $2\times10^{15}$ – $7\times10^{16}$ W/cm$^2$ and laser-pulse lengths from 1 to 6 ns; the total energy delivered to the targets is nearly 20 kJ. The X-ray output from the targets has been measured with absolutely calibrated crystal spectrometers and photo-conductive devices (PCDs) and X-ray diodes, which also provide a temporal history of the X-ray output. Target performance in the 10.3 keV X-ray band is presented as a function of these parameters. We find ≈1% of the laser energy is converted into X rays in the 9–15 keV band. Work performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract No. W-7405ENG-48. Sandia is a multi-program laboratory operated by Sandia Corporation, a Lockheed Martin Company, for the U.S. Department of Energy under Contract DE-AC04-94AL8500.

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