

Abstract Submitted
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Short-pulse laser K-alpha conversion efficiency in gas jet targets N.L. KUGLAND, C.G. CONSTANTIN, P. NEUMAYER, A. COLLETTE, A.L. KRITCHER, E.L. DEWALD, J.S. ROSS, S.H. GLENZER, C. NIEMANN, PHYSICS DEPARTMENT, U.C. LOS ANGELES TEAM, LAWRENCE LIVERMORE NATIONAL LABORATORY TEAM, NUCLEAR ENG. DEPARTMENT, U.C. BERKELEY TEAM — We have measured the absolute conversion efficiency of K_α X-rays from short pulse laser irradiation of chlorine and argon gas jet targets, and performed a direct comparison of Cl K_α yield from both gaseous and solid chlorine-containing targets. The K_α conversion efficiencies in a 3.5% Cl gas jet target and a 100% Ar target ($n \approx 10^{19} \text{ cm}^{-3}$) are comparable to the conversion efficiency obtained for 33% Cl solid saran targets ($n \approx 10^{23} \text{ cm}^{-3}$). The conversion efficiency integrated from K_α to K_β is an order of magnitude higher in gas jet targets than in solid targets. This work was performed under the auspices of the U.S. Department of Energy by the University of California Lawrence Livermore National Laboratory, through the Institute for Laser Science and Applications, under contract No. W-7405-Eng-48. This work was also supported by the Lawrence Livermore National Laboratory Student Employee Graduate Research Fellowship program.

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