

Table-top X-pinch for x-ray radiography

F. N. Beg,^{a)} K. Krushelnick, P. Lichtsteiner, A. Meakins, A. Kennedy, N. Kajumba, G. Burt, and A. E. Dangor

Plasma Physics Group, Blackett Laboratory, Imperial College, Prince Consort Road, London SW7 2BZ, United Kingdom

(Received 21 January 2003; accepted 1 May 2003)

Measurements of the optical and x-ray emission from a small 40-kA, 30-ns (10%–90%) rise-time X-pinch plasma discharge are reported. This device is truly “table-top,” having a laboratory footprint of less than 1 m^2 . With tungsten wires, the total energy ($h\nu > 800 \text{ eV}$) is 60 mJ in a pulse of less than 10 ns. The size of the emitting region is less than $10 \mu\text{m}$. The emission is reproducible with a jitter relative to the current pulse less than 5 ns. Initial experiments demonstrating the use of this X-pinch for applications in x-ray radiography are presented. © 2003 American Institute of Physics. [DOI: 10.1063/1.1584782]