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High-Resolution Radiographs Produced by Single X-Ray ($\lambda 2.9$ Angstroms) Pulses from UV Laser and Xe Cluster Interactions PING ZHANG, Laboratory for X-Ray Microimaging and Bioinformatics, Department of Physics (m/c 273), University of Illinois at Chicago, Chicago, Il 60607, USA, PING ZHANG TEAM, XIANGYANG SONG TEAM, SHAHAB KHAN TEAM, ANGELA M. BRUNO TEAM, RICK DEJONGHE TEAM — The ability to produce high spatial resolution radiographs of tiny objects with short pulse x-rays is of high interest in the fields of x-ray micro-imaging and high field physics. This work reports the taking of radiographs exhibiting a resolution better than 10 microns of fruit flies and ants with a single x-ray (about 4.5 keV) pulse. The x-ray pulse was produced from Xe(L) 3d-2p hollow atom transitions excited by a high power UV laser pulse (180 fs, 248 nm, 600 mJ) interacting with Xe clusters. The emission that contributed to the x-ray imaging is concentrated in the wavelength of 2.9 Angstroms.

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