Abstract Submitted
for the DPP12 Meeting of
The American Physical Society

Anomalous Photoionization in Xe[1] MARCEL KLAPISCH, MICHEL BUSQUET, ARTEP, Inc., Ellicott City, MD 21042 — Photoionization (PI) cross sections are important components of the opacities that are necessary for the simulation of astrophysical and ICF plasmas. Most of PI cross sections (i) start abruptly at threshold and (ii) decrease as an inverse power (e.g.3^{rd}) of the photon energy. In the framework of the CRASH project [1] we computed Xe opacities with the STA code [2]. We observed that the PI cross section for the 4d shell has neither of these 2 characteristics. We explain this result as interference between the bound 4d wavefunction (wf), the photon, and the free electron wf. Similar, but less pronounced effects are seen for the 5d and 5p shells. Simplified models of PI not involving the actual wf would not show this effect and would probably be inaccurate.

[1] Doss, F. W., Drake, R. P., and Kuranz, C. C., *High Ener. Dens. Phys.* **6**, 157-61.
[2] Busquet, M., Klapisch, M., Bar-Shalom, A.*, et al.*, *Bull. Am. Phys. Soc.* **55**, 225 (2010).

[1]We thank CRASH of University of Michigan for partial support under a cooperation agreement No. DE-FC52-08NA28616.

Marcel Klapisch
ARTEP, Inc., Ellicott City, MD 21042

Date submitted: 09 Jul 2012 Electronic form version 1.4