

Abstract Submitted
for the MAS16 Meeting of
The American Physical Society

Simulating x-ray diffraction of laser driven atomic diffusion¹

JACQUES SAMAHA, MATTHEW DECAMP, University of Delaware — Atomic diffusion in multi-metallic systems plays a very important role in the growth and development of novel metallic alloys and magnetic materials. Therefore, understanding the atomic scale dynamics that drive this diffusion is of fundamental importance. An x-ray diffraction simulation for the diffusion process in a metallic multi-layered system under picosecond laser excitation is presented. A simple one-dimensional atomic diffusion model was numerically simulated to describe the time-dependent concentration profile. X-ray diffraction patterns from the simulated concentration profiles were then directly compared to experimental data, to reconstruct the concentration profile of laser driven diffusion.

¹NSF Grant No. DMR140076

Matthew DeCamp
University of Delaware

Date submitted: 16 Sep 2016

Electronic form version 1.4