

Abstract Submitted
for the SHOCK15 Meeting of
The American Physical Society

Fluorescence anisotropy measurements under shock compression

JUE WANG, WILL BASSETT, ALEXANDR BANISHEV, DANA DLOTT, University of Illinois at Urbana-Champaign — Fluorescence anisotropy measurements, where the parallel and perpendicular polarized emissions from probe molecules are acquired simultaneously, provide direct measurement of molecular rotational dynamics. In our experiments, the fluorescence from rhodamine 6G dye in various materials under GPa shocks produced by laser-driven flyer plates is collected, separated into two orthogonally-polarized beams using a Wollaston prism and detected with a streak camera. In liquids, the molecular rotations result from rotational diffusion and in solids from shear flow. The rotation rates can be used to determine the viscosity of the shocked medium.

Jue Wang
University of Illinois at Urbana-Champaign

Date submitted: 27 Jan 2015

Electronic form version 1.4