

Abstract Submitted
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Particle velocity history of pentaerythritol tetranitrate shocked along the crystal [110] orientation by laser-accelerated miniature flyer impact KUNIIHIKO WAKABAYASHI, TOMOHARU MATSUMURA, YOSHIO NAKAYAMA, National Institute of Advanced Industrial Science and Technology (AIST), MITSUO KOSHI, The University of Tokyo — We performed miniature flyer impact experiments to investigate thermodynamic and optical properties of shocked single-crystal pentaerythritol tetranitrate (PETN). Thin metal plate was accelerated by irradiation of a tabletop pulsed laser and impacted on a single-crystal PETN along the [110] axis. The particle velocity history of laser-accelerated flyer was measured by using an Optically Recording Velocity Interferometer System (ORVIS). The relationship between the actual velocity and the apparent velocity measured by velocity interferometer was obtained by analyzing particle velocities just before and after the flyer impact on the PETN[110]. Particle velocity history and refractive index change of shocked PETN[110] within 10 nanoseconds just after passage of shock wave was also discussed.

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