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Estimating explosive performance from laser-induced shock waves JENNIFER GOTTFRIED, US Army Research Laboratory — A laboratory-scale method for predicting explosive performance (e.g., detonation velocity and pressure) based on milligram quantities of material is currently being developed. This technique is based on schlieren imaging of the shock wave generated in air by the formation of a laser-induced plasma on the surface of an energetic material. A large suite of pure and composite conventional energetic materials has been tested. Based on the observed linear correlation between the laser-induced shock velocity and the measured performance from full-scale detonation testing, this method is a potential screening tool for the development of new energetic materials and formulations prior to detonation testing. Recent results on the extension of this method to metal-containing energetic materials will be presented.

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