

Abstract Submitted
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Computational Modeling of Ablation on an Irradiated Target¹

IGBAL MEHMEDAGIC, U. S. Army ARDEC, Picatinny Arsenal, NJ, SIVA THANGAM, Stevens Institute of Technology, NJ — Computational modeling of pulsed nanosecond laser interaction with an irradiated metallic target is presented. The model formulation involves ablation of the metallic target irradiated by pulsed high intensity laser at normal atmospheric conditions. Computational findings based on effective representation and prediction of the heat transfer, melting and vaporization of the targeting material as well as plume formation and expansion are presented along with its relevance for the development of protective shields. In this context, the available results for a representative irradiation from 1064 nm laser pulse is used to analyze various ablation mechanisms, variable thermo-physical and optical properties, plume expansion and surface geometry.

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