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FLUID DYNAMICAL MODELING OF LASER ABLATION

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Laser ablation is increasingly important in science and technology, in applications ranging from chemical analysis via mass spectroscopy, to pulsed laser deposition and nanoparticle manufacturing. A fluid dynamics model for laser ablation of a solid target is outlined, which accounts for melting and vaporization of the target, expansion of the vapor plume in ambient gas, and ionization into plasma. We also present 1-D numerical simulations for ablation of copper target in helium background gas at 1 atm with a 15 nanosecond laser pulse.

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