

**LASER ABLATION IN LIQUID, PHASE TRANSITIONS,
AND NUCLEATION OF CLUSTERS AND
NANOPARTICLES**

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Numerical modeling of ablation into a liquid has been performed. Molecular dynamics and hydrodynamics codes have been applied. Laser radiation passes through a transparent liquid and illuminates a metal target. Absorption and reflection of light from the target surface takes place.

The range of absorbed energies F_{abs} about 1 J/cm², of interest for technology is considered: below these values few nanoparticles (NPs) are formed per laser pulse, above - optical breakdown of the liquid takes place. A theory has been developed which, using simulation data and thermodynamic information (equations of state of matter), makes it possible to estimate the mass and composition of NPs formed by laser impact.