SPALLATIVE-CAVITATIVE ABLATION OF METALS, SEMICONDUCTORS, DIELECTRICS BY ULTRASHORT LASER PULSE

N.A. Inogamov, V.V. Zhakhovskii, V.A. Khokhlov, V.V. Shepelev, Yu.V. Petrov, S.I. Anisimov, M.B. Agranat, S.I. Ashitkov, P.S. Komarov, A.V. Ovchinnikov, D.S. Sitnikov, V.E. Fortov, A.Ya. Faenov, I.Y. Skobelev, T.A. Pikuz

We present results concerning action of IR and visible lasers on metals and X-ray lasers on metals, semiconductors, and dielectrics. It is found that ultrashort pulse creates tensile stresses in the irradiated matter and above sharp threshold produce spallative ablation if matter remain solid and cavitative ablation in case of molten matter.