

RESEARCH OF OPTICAL CHARACTERISTICS
AND PARAMETERS OF LASER PLASMA
OF CuInS₂ POLYCRYSTALLINE FUSION
MIXTURE AND ITS COMPONENTS

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S u m m a r y

Research of the spectra and oscillograms of spectral lines of an erosive plasma plume, which is formed under the influence of the focused pulse laser radiation ($\lambda = 1,06 \mu\text{m}$; $\tau = 20 \text{ ns}$; $f = 12 \text{ Hz}$; $W = (3 \div 5) \cdot 10^8 \text{ W/cm}^2$) on the CuInS₂ polycrystalline fusion mixture and its components (Cu, In) in the pure state, is conducted. Being based on optical characteristics, the change of laser plasma parameters with time for various distances to a target r is presented. It is revealed that the structure of laser plasma is rather complicated, changes at scattering, and depends on the specificity of destruction and a target material. At the transition from $r = 1$ up to 7 mm, the recombination time increases by three orders; the average electron concentration decreases in the limits of one order (10^{16} cm^{-3}); the mean temperature changes slowly and is non-uniform from several tenths up to several eV. Research of the evolution of processes in a laser plume enables one to judge about a quality of thin films which are derived on laser deposition.