

Oscillations of a metal film on a substrate under the action of USLP with intensity under the melting threshold

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The effect of UCLI on metal films was investigated. Due to the fact that the repetition rate of heating pulses was reduced, it was possible to reach temperatures near the melting point while using the accumulation of a useful signal on the background noise [1, 2]. Nonlinear effects and the effects of $2T$ on the post- $2T$ -stage are observed. Our experiments with Au showed that in the range of fluences with peak temperatures T_e above 10 kK and up to 20 kK, the measured values of α and κ are significantly lower than those values, that the theories give. Below this range of fluences, i.e., when the peak T_e is less than 10 kK, our measured values are in agreement with previous data. In addition, it is shown that at a one-temperature stage, when in our conditions the thermal energy stored in the electrons is very small, there is a significant influence of the fundamentally two-temperature coefficient *alpha* on the heat transfer from the skin layer.

[1] Khokhlov V A, Romashevskiy S A, Ashitkov S I and Inogamov N A *JETP Letters* **120** 531–539 URL <https://link.springer.com/article/10.1134/S0021364024603208>

[2] Inogamov N A, Khokhlova V A, Romashevskiy S A, and M A Ovchinnikov Y V P and Ashitkov S I *JETP* **165** 165–190