FORMATION OF EXCITED STATES OF SILVER AND COPPER ATOMS IN LASER PLASMA

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S u m m a r y

The temporal dependences of the populations of excited atomic states in the laser erosive plasma of silver and copper are investigated at the 1-mm and 7-mm distances from targets. The presence of the inverse population of the excited states of copper (silver) with the $4d$, $5d$, $5p$ ($5d$, $6d$) electron configurations with respect to the $4p$ ($5p$) states is discovered in various spatial regions of the plasma moving through the extraction zone of radiation. The long-term observation of the inversion of the population of CuI and AgI excited states (about 1 μs) is explained by the formation of autoionization atomic states in the laser plasma. It is proposed to use the discovered phenomenon in short-wave radiation sources.