

EXCITATION AND IONIZATION OF Ba  
ATOMS AT SIMULTANEOUS ACTION OF TWO  
LASER FIELDS UNDER CONDITIONS  
OF STRONG PERTURBATION

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S u m m a r y

The investigation of the processes of excitation and ionization of Ba atoms at the simultaneous action of two laser fields under conditions of strong perturbation is performed. We used the radiation of a dye laser with fixed frequency and a laser on colour centers with tunable frequency. We discovered that excitation of the same  $5d6p\ ^1F_3^0$  state is manifested in the  $Ba^+$  yield by two resonant maxima - in the vicinity of the frequency corresponding to excitation of the unperturbed state and in the vicinity of the frequency corresponding to the one-photon transition from this state to the higher  $6p^2\ ^1D_2$  state - and is caused by excitation of the strongly perturbed  $5d6p\ ^1F_3^0$  state. The values of dynamic polarizabilities of  $5d6p\ ^1F_3^0$  and  $6p^2\ ^1D_2$  state are measured.