THE ROLE OF AUTOIONIZING STATES IN ELECTRON-IMPACT EXCITATION OF THE λ230.6 nm INTERCOMBINATION LINE OF AN INDIUM ION

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S u m m a r y

The electronic excitation function of the intercombination line λ 230.6 nm of an In^+ ion is first investigated by the spectroscopic method in the energy range from the threshold to 100 eV using ion and electron beams crossing at the right angle. It is established that the defining mechanism of the excitation of this line is a resonant excitation of the "electron + ion" system accompanied with the generation of atomic autoionizing states and their following electron decay into the $^3P_1^0$ level of an In^+ ion. It is determined that, in the energy region of the spin-orbit splitting of excited levels, the dominant contribution to the resonance excitation is made by the Coster–Kronig process. It is discovered that, at the electron energies higher than the fivefold threshold, a decrease of the excitation function does not correspond to the law E^{-3} characteristic of intercombination transitions.