RADIATIVE TRANSITIONS BETWEEN THE $4d^{10}5p^2(^3P_j)nl$ AND $4d^{10}5s5p(^3P_1^o)nl$ AUTOIONIZING STATES OF In ATOM IN COLLISIONS OF SLOW ELECTRONS WITH In^+ IONS

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S u m m a r y

The radiative transitions between the $4d^{10}5p^2(^3P_{0,1,2})nl$ and $4d^{10}5s5p(^3P_1^o)nl$ autoionizing states of an indium atom that represent dielectronic satellites of the $4d^{10}5p^2\ ^3P_0 \rightarrow 4d^{10}5s5p\ ^3P_1$ ($\lambda = 171.7$ nm), $4d^{10}5p^2\ ^3P_1 \rightarrow 4d^{10}5s5p\ ^3P_1$ ($\lambda = 166.7$ nm), and $4d^{10}5p^2\ ^3P_2 \rightarrow 4d^{10}5s5p\ ^3P_1$ ($\lambda = 160.7$ nm) spectral lines of an In^+ ion have been observed for the first time. The energy dependences of the effective excitation cross sections of dielectronic satellites, as well as near-threshold regions of these spectral lines, were investigated in the range of electron energies 9÷15 eV with the help of the spectroscopic method using crossed beams of electrons and In^+ ions. The absolute excitation cross sections of dielectronic satellites amount to $(0.7 \div 2) \times 10^{-16}$ cm^2 and are of the same order of magnitude as the effective excitation cross sections of the corresponding ionic lines. It is found that a considerable increase of the probability of radiation decay of the $4d^{10}5p^2(^3P_{0,1,2})nl$ autoionizing states of the In atom is related to strong relativistic and correlation effects, in particular to the configuration interaction of the $5p^2nl$ levels both with one another and with the levels of the $5s5dnl$ and $4d^95s^25p^2$ configurations.