

INVESTIGATION OF PECULIARITIES
OF THE ELECTRON-IMPACT EXCITATION
FUNCTIONS FOR LINES OF THE PRINCIPAL
SERIES OF MAGNESIUM ATOM

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S u m m a r y

The excitation functions (EF) for spectral lines of magnesium atom originating from the $3snp\ ^1P_1^o$ levels ($n = 4 \div 7$) are investigated in the case of electron-atom collisions in the energy range from the thresholds to ~ 25 eV and at an energy dispersion of ~ 0.7 eV. A number of structural features related to autoionizing and autodetaching states are revealed in the EFs above the ionization potential. The most prominent features (the maxima lying close to the position of the $3p4s\ ^1P_1^o$ autoionizing state) have specific shifts toward higher energies. The magnitude of the shifts grows with increasing n , which is explained by the mechanism of the population of the initial levels of lines with the involvement of this state due to the post-collision interaction. Based on the classical model, a theoretical analysis of the experimental results is performed. The energies of the autodetaching states that manifest themselves in the EFs are estimated.