Resonant Transfer Excitation of Fluorine-Like Mo^{33+} Ion

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Dielectronic recombination (DR) cross sections ($\overline{\sigma}^{DR}$) and rate coefficients (α^{DR}) for Mo^{33+} are calculated using the angular momentum average scheme (AMA). Moreover, the resonant transfer excitation followed by X-ray emission (RTEX) cross sections (σ^{RTEX}) for the collision of Mo^{33+} with H$_2$ and He targets are calculated and studied. The calculations of the cross sections are performed for both K- and L-shell excitations. A smooth change with the temperatures for α^{DR} is found for all kinds of excitations. The rates for K-shell excitation are very small in comparison with the rates for L-shell excitation. The RTEX cross sections for Mo^{33+} ions are obtained from their corresponding DR cross sections by the method of folding in the impulse approximation (IMA). σ^{RTEX} for the K-shell excitation shows two overlapped peaks which may be attributed to the two groups in this excitation process. The present calculations are considered as a database for future comparison with theoretical and experimental data using other coupling schemes. Multiple Auger channels are complicating the dependence of the cross sections on principal quantum numbers.

Key words: Atomic Data; Atomic Processes.