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Potassium ion impact excitation of helium atoms at moderate energies RAMAZ LOMSADZE, MALKHAZ GOCHITASHVILI, NUGZAR MOSULISHVILI, Exact and Natural Science Department, Tbilisi State University — In this work we present absolute differential and total cross sections for charge exchange, ionization, stripping and mutual excitation processes for K^+-He colliding pairs at the laboratory energies 0.5-10 kev. Experimental techniques include: condenser plate method, collision and optical spectroscopy. It is revealed that in many cases the information extracted from complicated coincidence experiments can also be obtained using a simple method by measuring the energy loss spectrum of incident particles. Obtained results of these inelastic processes show distinctive features: small magnitudes of cross sections; complex structures and sharp differences in the energy dependence of total cross sections of charge exchange, ionization and excitation processes; structural feature in the resonance line of helium atoms. The data obtained in this study is used to explain differences in cross section features and understand mechanisms of above mentioned processes.

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