

INELASTIC PROCESSES IN SLOW COLLISIONS OF ANTIPROTONS WITH HYDROGENIC IONS¹

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We present a comprehensive theoretical study of the physical processes which govern inelastic transitions in slow collisions of antiprotons with hydrogenic ions. Two-center—one-electron mechanisms are highlighted. Various channels for ionization and excitation are identified utilizing the theory of hidden crossings. New features of the quasimolecular potentials, caused by the negative charge of the antiproton, are described in detail, with particular attention to the topology of the electronic eigenenergy surface in the plane of complex internuclear distance. The ionization and excitation cross sections are calculated and compared with the results of other theories and recent experiments.

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