STATE AND ANGULAR RESOLVED ELECTRON CAPTURE IN A MERGED-BEAMS APPARATUS[1]

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An important feature of the merged-beams technique is that the heat of a reaction in the center-of-mass frame is kinematically amplified when transformed to the laboratory frame. A multi-grid energy analyzer is used in a merged-beams apparatus to study state-selective cross sections and angular distributions for electron capture between multicharged ions and atomic D at eV/u collision energies. Product D^+ energy spectra are measured for Si^{4+} + D at collision energies 3.6 eV/u to 98.6 eV/u, and for O^{5+} + D at 17.1 eV/u. Comparison is made to state-selective and angular scattering calculations where possible.

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