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(e,2e) Experiments on Small Noble Gas Clusters: Search for Multicenter and Interference Effects

ALEXANDER DORN, Max Planck Institute for Nuclear Physics, Heidelberg, Germany

Single ionization of small argon and neon clusters at intermediate energies (i.e. 100 eV and 61 eV, respectively) have been performed. Triple differential cross-sections have been acquired over the complete solid angle of electron emission. 3D emission patterns for dimers and small clusters show significant differences compared to the ionization of the respective atomic target which can be attributed to multiple scattering collisions and molecular wave function symmetry effects. Coincidence measurements of two charged cluster fragments allow to obtain more detailed insight in multiple ionization reactions as well as energy and charge transfer processes between different atoms within the cluster.