

# Particle-hole excitations in small metal clusters by electron scattering

Spinella, M. R.

Bernath, M.

Dragún, O.

Massmann, H.

A theoretical evaluation of inelastic transition amplitudes corresponding to collisions between low-energy electrons (up to 5 eV) and small metallic clusters is presented. The target is excited into a particle-hole state and the cross section is obtained in the Born approximation. The formalism is applied to the [Formula Presented] cluster. Form factors for the direct and exchange-correlation terms of the residual interaction are shown as well as angle-integrated cross sections as a function of the energy of the incident electron. These cross sections present resonances associated with quasibound states in the outgoing and/or incoming channels at incident energies related to the [Formula Presented] single-particle states through the Q values of the transitions. The results also show the importance of the inclusion of the residual exchange-correlation contribution. © 1996 The American Physical Society.