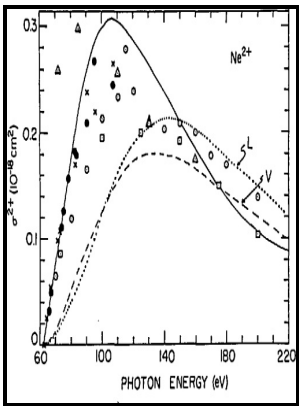
Relativistic effects in electron scattering and photoionization of atoms and ions.

- - Phys. Rev. A 100, 062511 (2019)



Description: -
-Relativistic effects in electron scattering and photoionization of atoms and ions.
-Relativistic effects in electron scattering and photoionization of atoms and ions.
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Tags: #Attosecond #electron

Correlation and relativistic effects on the photoionization of confined atoms (Journal Article)

Using a multichannel quantum defect theory approach , results obtained within RRPA, similar to those of the present work, were analyzed and eigenchannel solutions were extracted. This qualitatively confirms effects predicted by simple central-field calculations. Calculated between the scattering factors and the fitted curves.

Attosecond electron

The time delay is the energy derivative of the phase. A technique for approximating the effects of polarization is reviewed and its application to the negative iodide ion is presented. Cross section for the photoionization of noble-gas atoms with allowance for multielectron correlations.

Attosecond electron

The phases and time delays for the three channels Fig. As a result, the demonstrated conversion method can be applied to CI-RMBPT photoionization calculations for a large number of multivalence atoms and ions.

Relativistic multiconfiguration Dirac

The results are shown in Fig.

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We exclude the Coulomb phase-shift in b, e and c, f. The behavior of the three curves is much simpler than those in Fig. Double ionization probed on the attosecond timescale.

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The agreement with experiment is improved compared to RPA and Dirac-Hartree-Fock approximations.

Correlation and relativistic effects on the photoionization of confined atoms (Journal Article)

Configuration-interaction relativistic-many-body-perturbation theory CI-RMBPT has been successful in predicting atomic energies, matrix elements between discrete states, and other properties, which is quite promising, but it has not been applied to photoionization problems owing to extra complications arising from continuum states. The MCDF calculation for those atoms does not require much computing cost on the current PC system.

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