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**Convergent close-coupling calculations of atomic double ionization**

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Convergent close-coupling (CCC) theory, originally developed to describe electron-atom collisions [1], was applied, with a great success, to atomic double photoionization (DPI). DPI from He and its isoelectronic sequence had been studied extensively and prediction of the theory in most cases had been confirmed experimentally [2]. Here we present latest applications of the CCC method to DPI which go beyond simple helium-like targets. The frozen-core approximation is used to describe DPI from the valence shell of Be and heavier alkaline-earth atoms as well as the outermost $np^6$ subshell of noble gases. A "hybrid" model combining a target-specific ground state and a He-like final state is employed to describe DPI from subvalent $2s^2$ shell of Ar and the $H_2$ molecule. Extension of the theory to describe DPI in strong laser fields is discussed.

## References

[1] I. Bray and A. T. Stelbovics, Adv. Atom. Mol. Phys. **35**, 209 (1995).

[2] A. S. Kheifets and I. Bray, Phys. Rev. A **58**, 4501 (1998).