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Electron-impact ionization of neon at 100 eV: a benchmark comparison between experiment and theory for a complex target[1] OLEG ZATSARINNY, KLAUS BARTSCHAT, Drake University, THOMAS PFLÜGER, ARNE SENFTLEBEN, XUEGUANG REN, JOACHIM ULLRICH, ALEXANDER DORN, Max-Planck-Institut für Kernphysik, Heidelberg — As a fundamental test for state-of-the-art theoretical approaches, we have studied the single ionization ($2p$) of neon at a projectile energy of 100 eV. The experimental data were acquired using an advanced reaction microscope that benefits from a high efficiency and a large solid-angle acceptance of almost 4π [1]. We put special emphasis on the ability to measure internormalized triple-differential cross-sections over a large part of the phase space. The data are compared to predictions from a second-order hybrid distorted-wave plus R-matrix model and a fully nonperturbative B-spline R-matrix with pseudo-states approach [2]. For a target of this complexity and the low-energy regime, unprecedented agreement between experiment and the BSR model is found. This represents a significant step forward in the investigation of (e,2e) processes involving complex targets.

[1] J. Ullrich, R. Moshammer, A. Dorn, R. Dörner, L. Schmidt, and H. Schmidt-Böcking, Rep. Prog. Phys. **66** (2003) 1463.
[2] O. Zatsarinny and K. Bartschat, Phys. Rev. A **86** (2012) 022717.

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