

Abstract Submitted
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Near-threshold absolute angle-differential cross sections for electron-impact excitation of argon and xenon.¹ MICHAEL ALLAN, University of Fribourg, Switzerland, OLEG ZATSARINNY, KLAUS BARTSCHAT, Drake University — Following up on our recent work on e–Ne collisions [1], absolute angle-differential cross sections for electron-impact excitation of argon and xenon atoms to the lowest four $np^5(n+1)s$ levels, and the $5p^55d[\frac{7}{2}]_3$ level in xenon, have been measured and calculated as a function of electron energy up to a few eV above threshold. For argon, excellent agreement is observed between the experimental data and predictions from a Breit-Pauli B -spline R -matrix (BSR) method, in which non-orthogonal orbital sets are used to optimize the target description [2,3]. The agreement is still satisfactory for the more complex xenon target, suggesting that predictions from the BSR model should already be sufficiently accurate for many modelling applications. Nevertheless, the remaining discrepancies indicate the need for further refinement of the theoretical model.

[1] M. Allan, K. Franz, H. Hotop, O. Zatsarinny and K. Bartschat, J. Phys. B **39** L139, 2006.

[2] O. Zatsarinny and K. Bartschat, J. Phys. B **37** (2004) 4693.

[3] O. Zatsarinny, Comp. Phys. Commun. **174** (2006) 274.

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