

Abstract Submitted  
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**Coincidence studies of electron impact ionization over the full in-plane angular range.**<sup>1</sup> BIRGIT LOHMANN, MARK STEVENSON, ANTHONY KEEHN, Centre for Antimatter-Matter Studies, Griffith University — Electron impact ionization is a fundamental collision process which plays a significant role in plasma physics, discharge physics and radiobiology. For example, modelling the interaction of electrons with matter in biological systems requires reliable data on electron impact ionization cross sections. Detailed information on the energy and angular distributions of the emitted electrons produced in electron impact ionization processes is obtained from coincidence measurements of the outgoing species [1]. However, experiments using conventional electron coincidence spectrometers usually are unable to measure the full angular distribution of ejected electrons, due to mechanical constraints. We present fully differential cross sections for electron impact ionization of argon which have been obtained using a magnetic-angle-changer [2] in a conventional coincidence spectrometer, which has enabled us to measure the full 360 degree ejected electron distribution in the scattering plane. [1] D. S. Milne-Brownlie, S. J. Cavanagh, Birgit Lohmann, C. Champion, P.-A. Hervieux and J. Hanssen, *Phys. Rev. A*, **69** (2004) 032701. [2] F. H. Read and J. M. Channing, *Rev. Sci. Instrum.* **67** (1996) 2372

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