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Abstract for an Invited Paper
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Low energy differential angle electron impact scattering from molecular hydrogen and carbon monoxide¹
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The electron impact elastic scattering and electronic excitation of molecular hydrogen and excitation of carbon monoxide at low incident energies using both conventional electrostatic electron spectrometry [1,2] and time-of-flight electron spectrometry [3] will be presented. The differential scattering data will be compared with close-coupling theoretical work, which has shown very good to excellent agreement with the present work. In the case of H₂, this is the convergent close-coupling work of the Curtin University group [4] and for CO this is the molecular *R*-matrix of Tennyson and co-workers [5]. Recent progress in this area of electron- molecule differential scattering will also be presented.

In collaboration with: Leigh Hargreaves and Mateusz Zawadzki, Gdansk University of Technology

[1] Low energy elastic scattering of electrons from H₂ and N₂, J. Muse, H. Silva, M. C. A. Lopes and M. A. Khakoo, J. Phys. B 41 095203 (2008).

[2] Differential cross sections for excitation of H₂ by low-energy electrons, L. R. Hargreaves, S. Bhari, B. Ajdari, X. Liu, R. Laher, M. Zammit, J. S. Savage, D. V. Fursa, I. Bray and M. A. Khakoo, J. Phys. B, 50 225203 (2017).

[3] Time-of-flight electron scattering from molecular hydrogen: Benchmark cross sections for excitation of the $X^1\Sigma_g^+ \rightarrow b^3\Sigma_u^+$ transition, M. Zawadzki, R. Wright, G. Dolmat, M. F. Martin, L. Hargreaves, D. V. Fursa, M. C. Zammit, L. H. Scarlett, J. K. Tapley, J. S. Savage, I. Bray and M. A. Khakoo, Phys. Rev. A 97 050702(R) (2018).

[4] Complete Solution of Electronic Excitation and Ionization in Electron-Hydrogen Molecule Scattering, M. C. Zammit, J. S. Savage, D. V. Fursa, and I. Bray, Phys. Rev. Lett. 116, 233201 (2016).

[5] On-going collaboration with Professor Jonathan Tennyson (University College London, UK), Dr. Amar Dora (North Orissa University, India), Dr. Zdenek Masin (Charles University, Prague, Czech Republic) (2018-).

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