

Abstract Submitted
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Electron-hydrogen cross section computation for astrophysical applications JAKUB BENDA, KAREL HOUFÉK, Institute of Theoretical Physics, Faculty of Mathematics and Physics, Charles University in Prague — Our contribution focuses on the electron-hydrogen scattering and is intended as an extension of available atomic databases (e.g [1]) used by the astronomers and stellar/solar physicists. These databases often lack required precision and sometimes even major resonances, which are essential for correct transition rates extraction and thus for the description of astrophysical phenomena. Our aim is to obtain a controlled approximation of scattering cross section energy dependence for all relevant energies and (de)excitational transitions. The poster summarises results computed by freely available (e.g. [2], [3]) computer codes and compares them with our original results. Low energy cross sections – up to this time a domain of R-matrix packages – have been recomputed using exterior complex scaling implemented in B-splines (see [4]), whereas higher energies using different types of Born approximation.

[1] The Aladdin database at <http://www-amdis.iaea.org/ALADDIN/>

[2] UK RmaX at http://amdpp.phys.strath.ac.uk/UK_RmaX/

[3] Scott et al., *Comp. Phys. Comm.* 180 (2009) 2424–2449.

[4] McCurdy, Rescigno, *J. Phys. B: At. Mol. Opt. Phys.* 37 (2004) 917–936.

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