

Abstract Submitted
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Compilation of cross sections for kinetic models of low pressure hydrogen discharges A.V. PHELPS, JILA, University of Colorado and NIST — We report an initial compilation of cross sections that have been used to model^{1,2} the collisional kinetics of low-pressure discharges in H₂. Processes that are considered include electron momentum transfer, excitation, and ionization collisions with H₂; momentum transfer, H_α excitation, ionization, and charged pair formation in collisions of H⁺, H₂⁺, H₃⁺, H, H₂, and H⁻ with H₂; collisions of electrons, H⁺, H₂⁺, H₃⁺, H, H₂, and H⁻ with graphite and Cu surfaces resulting in secondary electrons, particle reflection, and negative ion formation. For each major category, the compilation includes a section reviewing data sources. The recommendations are expressed as analytic formulas expected to be good to ±10%. This compilation is expected to be refined from time to time. As part of the Plasma Data Exchange Project, the compilation will be made available at <http://www.lxcat.laplace.univ-tlse.fr/> and/or <http://www.icecat.laplace.univ-tlse.fr/>.

¹A. V. Phelps, *Phys. Rev. E* **79**, 066401 (2009).

²A. V. Phelps, *Plasma Sources Sci Technol.* **20**, 043001 (2011).

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