

ELECTRON COLLISIONS WITH SMALL MOLECULES

Brendan M McLaughlin

*Centre for Theoretical Atomic Molecular and Optical Physics
School of Mathematics and Physics, The David Bates Building
Queens University of Belfast
Belfast BT7 1NN, UK*

Connor P Ballance

*Department of Physics
Auburn University
Auburn, AL 36840, USA*

Robert C Forrey

*Department of Physics,
Penn State University,
Berks Campus, Reading, Pennsylvania 19610-6009, USA*

ABSTRACT

Electron collisions with small molecules opens the doorway to investigate a variety of collision processes such as vibronic excitation, dissociative electron attachment (DEA), dissociative recombination (DR) and photoionization. On going developments based on R-matrix methods implemented on parallel computing architectures have been used to perform detailed electron collision cross section calculations on a variety of species, such as; BeH, BeH₂, C₂, CH, CO and N₂H and their cations [1- 5]. Where possible we compare our results with previous calculations and experiments. Such comparisons serve as the ultimate benchmark for our work in order to have confidence in the molecular data for applications in ultracold collisions, fusion physics [6-7] and astrophysics [8].

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