

GEC14-2014-000194

Abstract for an Invited Paper
for the GEC14 Meeting of
the American Physical Society

Low energy electron-molecule scattering using the R-matrix method¹

JIMENA GORFINKIEL, The Open University

The study of electron-molecule collisions continues to attract significant interest stimulated, in no small part, by the need for collisional data to model a number of physical environments and applied processes (e.g. the modelling of focused electron beam induced deposition and the description of the interaction of radiation with biological matter). This need for electron scattering data (cross sections but also information on the temporary negative ions, TNI, that can be formed) has motivated the renewed development of theoretical methodology and their computational implementation. I will present the latest developments in the study of low energy electron scattering from molecules and molecular clusters using the R-matrix method. Recent calculations on electron collisions with biologically relevant molecules have shed light on the formation of core-excited TNI these larger targets. The picture that emerges is much more complex than previously thought. I will discuss some examples as well as current and future developments of the methodology and software in order to provide more accurate collisional data (in particular cross sections) for bigger targets.

In collaboration with Zdenek Masin, The Open University.

¹This work was partially supported by EPSRC.