

Abstract Submitted
for the GEC18 Meeting of
The American Physical Society

Calculation of electron emission cross sections in proton-biomolecule collisions¹ TOM KIRCHNER, MARKO HORBATSCH, York University, HANS JURGEN LUEDDE, Goethe University Frankfurt — Ion collisions with biologically relevant molecules have received considerable attention in recent years, in large parts because of their relevance in biomedical and other applications. We have developed an independent-atom-model (IAM) based description of ion-molecule and ion-cluster collisions that can be applied to these problems [1,2]. The model improves on the simple Bragg additivity rule by taking geometric screening corrections due to overlapping atomic cross sections into account. A pixel counting method (PCM) is used for the (exact) calculation of the screening corrections and the method is referred to as IAM-PCM. We have used the IAM-PCM to study the proton-impact induced net ionization of a variety of target systems, including DNA/RNA nucleobases and a number of amino acids. At the conference we will present an overview of our results and specifically discuss cross section scaling relations. [1] H. J. Lüdde *et al.*, *Eur. Phys. J. D* **70**, 82 (2016). [2] H. J. Lüdde *et al.*, *Eur. Phys. J. B* **91**, 99 (2018).

¹Work supported in part by NSERC, Canada.

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Date submitted: 19 Jun 2018

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