Abstract Submitted
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Basis-generator-method study of ionization and fragmentation of water molecules by multiply-charged ion impact[1] TOM KIRCHNER, M. HORBATSCH, Department of Physics and Astronomy, York University, Toronto, ON M3J1P3, Canada, M. MURAKAMI, Department of Physics, National Taiwan University, Taipei 10617, Taiwan, T. PAUSZ, H.J. LÜDDE, Institut für Theoretische Physik, Goethe-Universität, D-60438 Frankfurt, Germany — In a recent series of publications we have described the adaptation of the basis generator method (BGM), originally developed for ion-atom collisions, to molecular targets and have reported on results for proton and He^+-ion impact on H_2O molecules [1]. The microscopic collision calculations were complemented with a semi-phenomenological fragmentation model [2], which in contrast to previous models takes multiple electron removal processes into account. This turned out to be crucial for obtaining reasonable agreement with experimental data for the production of singly charged fragment ions. In this contribution, we report on results obtained from using the same methodology for bare helium, lithium, and carbon ion impact on H_2O in the 20–5000 keV/amu regime and compare them with experimental data and previous calculations where available. In addition, we will discuss the usefulness of ternary plots [3] to provide a somewhat more general view on fragmentation in ion-water-molecule collisions.

[1] M. Murakami *at al*, Phys. Rev. A **85**, 052704 (2012); **86** 022719 (2012).
[2] M. Murakami *at al*, Phys. Rev. A **85**, 052713 (2013). [3] E. C. Montenegro, J. Phys.: Conf. Ser. **194**, 012049 (2009).

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