

Abstract Submitted
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Absolute Charge Exchange Cross Sections for $C^{3,4,5,6+}$, $N^{4,5+}$, $O^{5,6,7+}$, and $Ne^{7,8+}$ Collisions with H_2O , CH_4 , CO , and CO_2 RICHARD MAWHORTER, Pomona College & JPL/Caltech, NADA DJURIC, SABBIR HOS-SAIN, JOHN MACASKILL, STEVEN J. SMITH, ARA CHUTJIAN, JPL/Caltech — The success of the Deep Impact and Stardust missions is advancing our understanding of the structure and composition of comets. This information drives and enhances ongoing cometary EUV and X-ray studies. In turn, our experimental absolute charge exchange cross sections for collisions of highly-charged solar wind ions with cometary gases are necessary for detailed modeling and analysis of these studies. For systems studied earlier, these data agree with the previous measurements made with smaller apertures [1], demonstrating reproducibility and complete angular collection. The ion beam accelerating potential was typically 7 kV, which yields ion velocities consistent with the fast component of the solar wind. Slow solar wind velocity data for O^{6+} on CO and CO_2 will also be presented. This work was carried out at JPL/Caltech, and was supported through contract with NASA. N. Djuric and S. Hossain also acknowledge support through the NASA-NRC program. [1] J.B. Greenwood, et al., Phys. Rev A **63**, 062707 (2001).

Richard Mawhorter
Pomona College & JPL/Caltech

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