MASS LOADING OF THE SOLAR WIND AT COMET 67P/ CHURYUMOV-GERASIMENKO

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Analyzing data from the ion sensor RPC-ICA flying on the european spacecraft Rosetta, we study the dynamics of a partially ionized atmosphere interacting with the solar wind around a comet, 2.88 AU away from the Sun. Comparing particle data with magnetic field data from RPC-MAG, we highlight through this case study the prime role of the solar wind electric field in the cometary ion dynamics during a period of low nucleus activity, through the mechanism of mass loading.

INSTRUMENT DESCRIPTION

The Ion Composition Analyzer, part of the Rosetta Plasma Consortium **RPC-ICA**:

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10 eV - 40 keV 0.07 eV/eV 96 bins

(δ,θ) Field of View : 90x360 ° 16x16 bins

cadence :192 s

1, 2, 4, 8, 16 and 32 amu/e

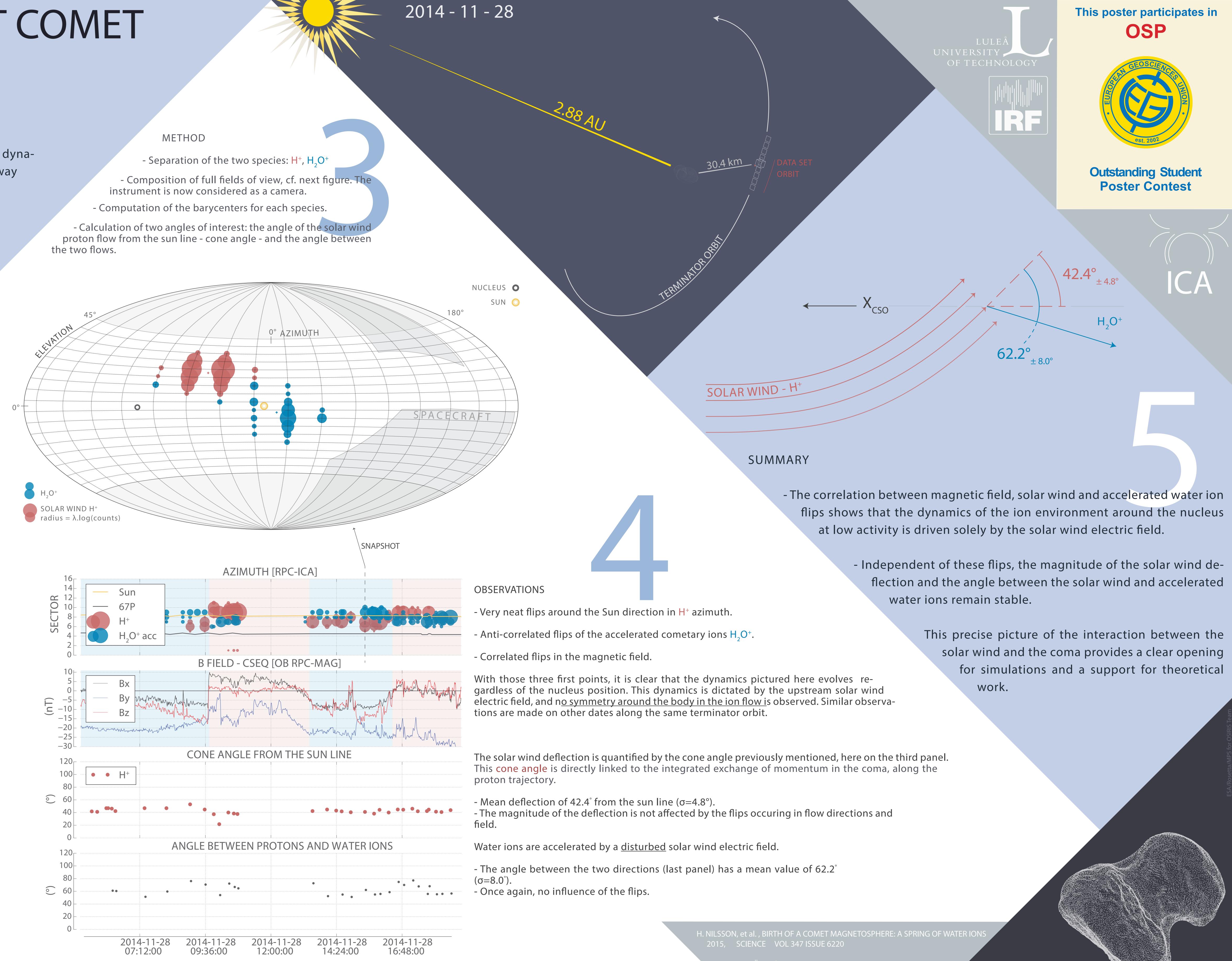
DATA This case study is based on data from the 28th of November 2014. Our goal is to study how the solar wind and newborn comet ions affect each other. Newborn ions are "picked up" by the solar wind, responding to the electric and magnetic environment (gyromotion). This data set presents a large flux of 'cold' and accelerated water ions, and turns out to be particularly enlightening on the ion dynamics. Here under, the integrated counts over the whole set.

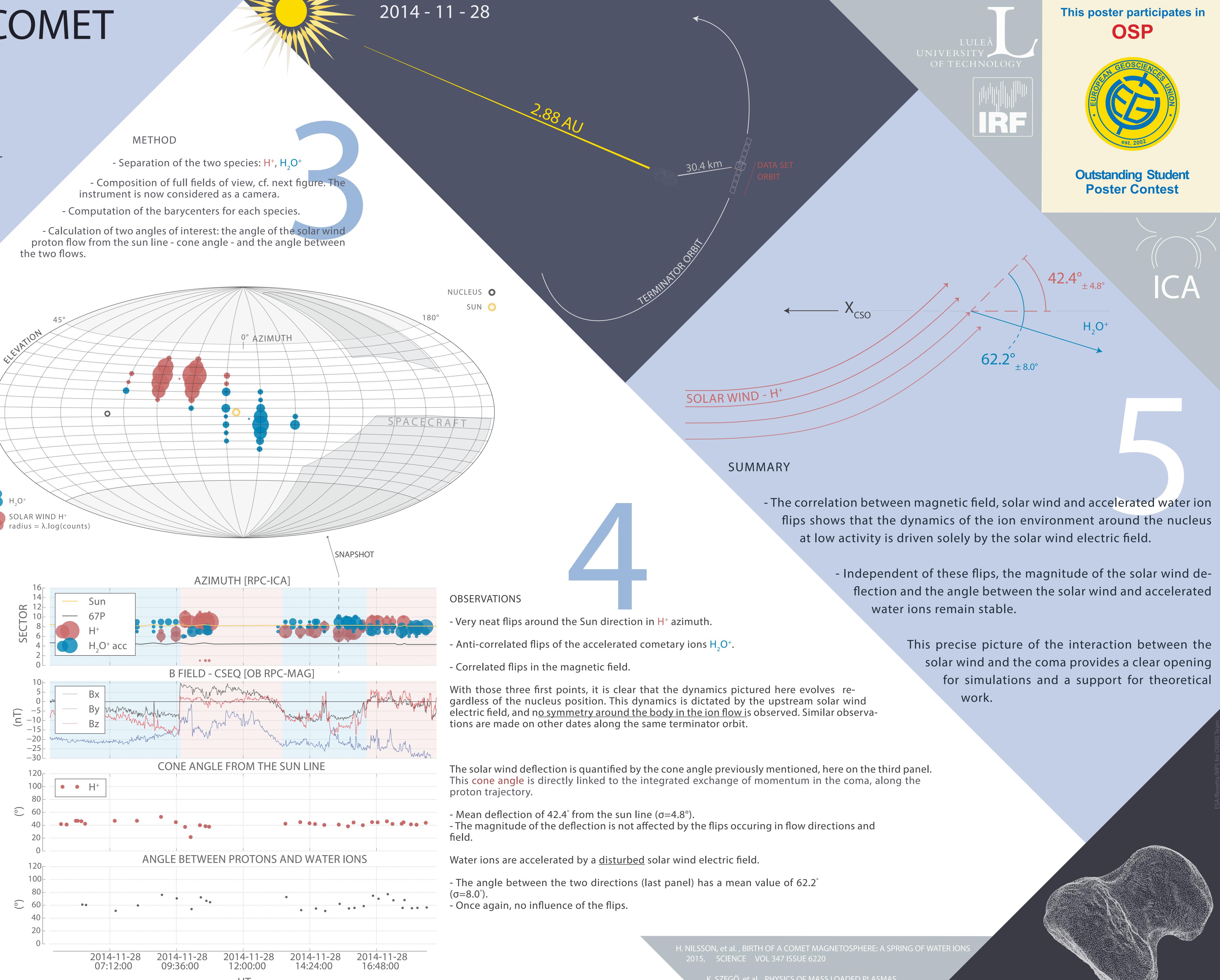
ENERGY/q (eV)

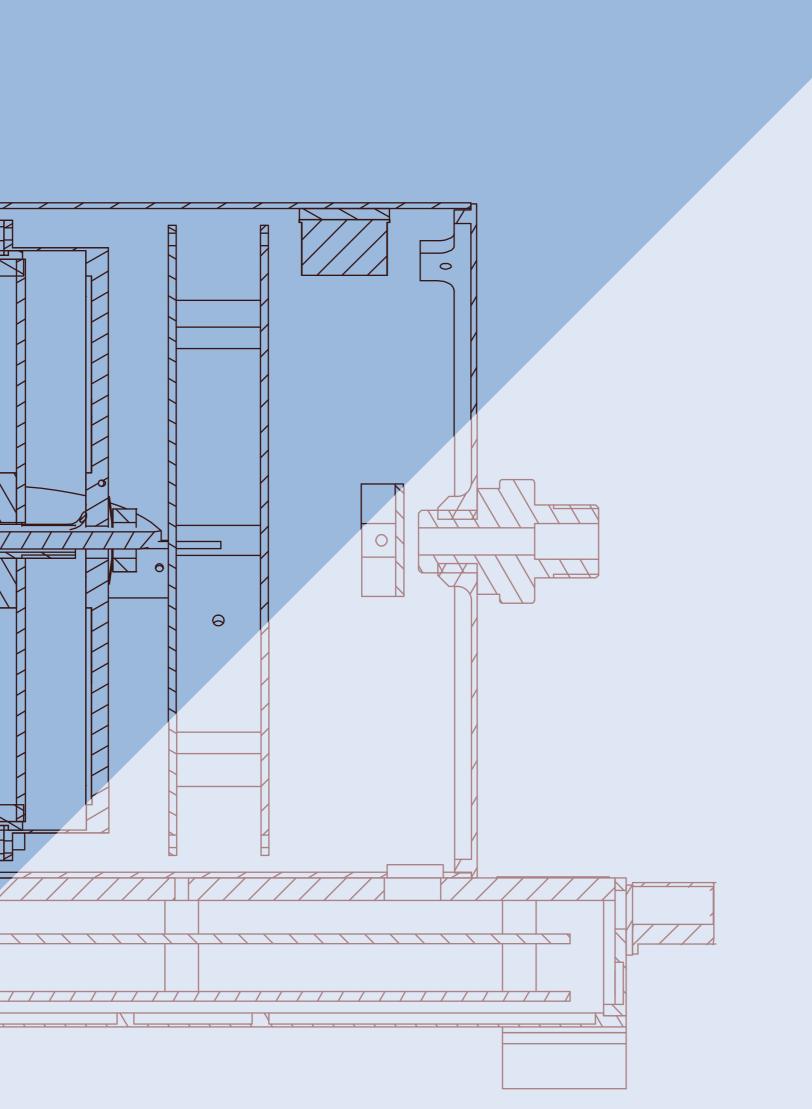
Accelerated

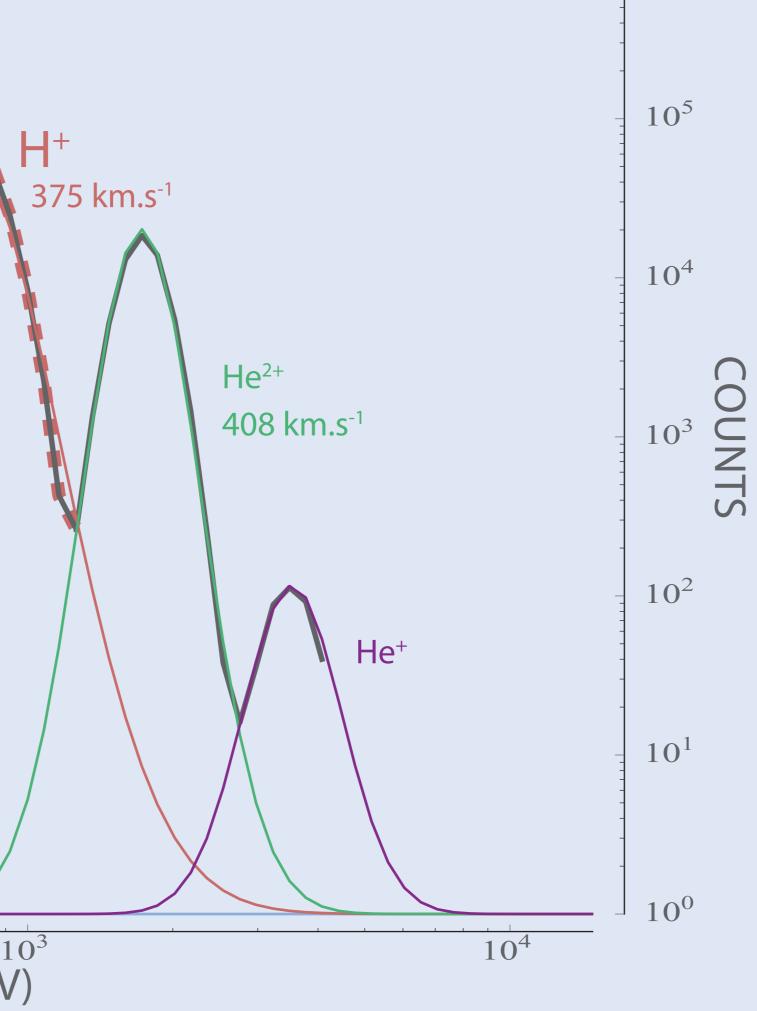
 H_2O^+

 10^{1}









K. SZEGÖ, et al. , PHYSICS OF MASS LOADED PLASMAS 2000, SPACE SCIENCE REVIEWS 94: 429–671