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## Statistical analysis of the accelerated H<sub>2</sub>O ions above 1 keV: the comet 67P/Churyumov–Gerasimenko observed by the Rosetta spacecraft.

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The ESA/Rosetta spacecraft has studied the comet 67P/Churyumov-Gerasimenko for two years. Rosetta Plasma Consortium's Ion Composition Analyser (RPC/ICA) detected comet-origin water ions that are accelerated to > 100 eV. Majority of them are interpreted as ordinary pick-up acceleration by the solar wind electric field perpendicular to the magnetic field during low comet activity [1,2]. As the comet approaches the sun, a comet magnetosphere is formed, where solar winds cannot intrude.

However, some water ions are accelerated to > 1 keV even in the magnetosphere [3]. Using RPC/ICA data during two years [4], we investigate the acceleration events > 1 keV where solar winds are not observed, and classify dispersion events with respect to the directions of the sun, the comet, and the magnetic field. Majority of these water ions show reversed energy-angle dispersion. Results of the investigation also show that these ions are flowing along the (enhanced) magnetic field, indicating that the parallel acceleration occurs in the magnetosphere.

In this meeting, we show a statistical analysis and discuss a possible acceleration mechanism.

### References

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