



Properties of the Diamagnetic Cavity at Comet 67P/Churyumov-Gerasimenko

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After the detection of a diamagnetic cavity at comet 1P/Halley, it was predicted that the cavity at the weaker comet 67P/Churyumov-Gerasimenko would only extend a few tens of kilometers. However in the summer of 2015, the signatures of a cavity were detected at distances of up to 480 km. Up until January 2016 a total of ~700 intervals when Rosetta was situated in the diamagnetic cavity have been detected. This opens up the possibility of a statistical analysis of the diamagnetic cavity properties. With the help of a Minimum Variance Analysis the boundary normal may be estimated and used to determine a general structure of the diamagnetic cavity, revealing that the cavity is by no means describable by a simple paraboloid model. The large number of data points is also used to estimate a boundary velocity and verify the existence of Kelvin-Helmholtz instabilities at the cavity boundary.