



Turbulent processes and boundary layer behavior in the hot diamagnetic cavities based on Cluster measurements

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Discovered nearly 20 years ago near the Earth's bow shock the hot diamagnetic cavities (HDCs) or hot flow anomalies (HFAs), the turbulent processes inside the cavity and the method which build up these phenomena are still under debate. We have little knowledge about the boundary layer (shock) what surrounds the region and its development and extension. The observations of the FGM magnetometer, CIS plasma detector and RAPID suprathermal charged particle detector aboard the four Cluster spacecraft were used to detect and study these phenomena. The different separations of Cluster fleet between 2003 and 2007 helped us to study the microphysics of these processes furthermore general features and acceleration processes of HFAs. Geometrical description of the bulge was performed using triangular techniques for Cluster FGM measurements of bow shock crossing.