



## **Suprathermal electron acceleration within flux tube at magnetic flux pile-up front**

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The acceleration of energetic electrons inside magnetic pile-up regions of plasma jets in the Earth magnetotail is studied in details for one case observed by Cluster. The case has been selected based on high observed fluxes of electrons, Cluster being in the burst mode and Cluster separation being around 1000 km that is optimal for studies of ion scale physics. We show that during this event there are present two characteristic acceleration mechanisms. First, significant acceleration is achieved due to magnetic flux pile-up, consistent with betatron acceleration. Secondly, in this case magnetic island like 3D structures are forming in front of the pile-up region and we observe strong electron acceleration inside those. Energetic electrons inside magnetic island have more parallel anisotropy and thus can escape along the magnetic field from the acceleration place and can generate low altitude radio emissions as observed.