



## **Magnetic Field Topology of the Plasma Sheet Boundary Layer**

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Magnetic field topology of the plasma sheet boundary layer (PSBL) is examined using ideal MHD reconstruction technique [Sonnerup and Teh, JGR, 2008]. We produce a steady, two-dimensional (2-D) magnetic field map for two PSBL events observed by Cluster in the Earth's magnetotail. Results from the reconstruction maps are in good agreement with the observations. From 3-D illustration, magnetic field lines within the PSBL are found to be perturbed in the GSM  $y$ - $z$  plane, while unperturbed magnetic fields are mainly oriented along the GSM  $x$  direction. We demonstrate that the perturbed magnetic fields observed by the spacecraft within the PSBL are well described by field-aligned current loops derived from the reconstruction.