



## **The Non-ideal Electric Field Observed in the Separatrix Region of a Magnetotail Reconnection Event**

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Recent studies confirm that the microphysics in the separatrix region play an important role in energy dissipation and transfer during magnetic reconnection. We presented a magnetic reconnection event encountered by MMS in the magnetotail, the four satellites of MMS crossed the reconnection earthward outflowing region from southern hemisphere to northern hemisphere. In the northern separatrix region, a non-ideal electric field with an obvious reversal from negative to positive was observed in the N component. Analyzing the terms of ohm's law, the abnormal reversed electric field is mainly contributed by the electron pressure gradient term. Simultaneously, a net positive parallel electric field generated primarily by gradient of the electron pressure tensor was evident in this region and it caused to the acceleration of the electrons with energy between 2 to 8keV. The density cavity and lower hybrid waves are observed near the northern separatrix region. In addition, the north separatrix region is more active than the south separatrix region in this magnetic reconnection event, it might be at different reconnection moments when the spacecraft crosses the southern and northern separatrix regions.