

Abstract Submitted  
for the DPP20 Meeting of  
The American Physical Society

**Magnetic Reconnection in Earth's Magnetosphere with MMS**

JAMES BURCH, Southwest Research Institute — Advances in magnetic reconnection in the Earth's magnetosphere over the past five years result in large part from the implementation of electron-scale measurements from four closely-spaced probes by the NASA Magnetospheric Multiscale (MMS) mission. These new capabilities are focused primarily on magnetic reconnection in the boundary regions of the magnetosphere, most notably the dayside magnetopause and the neutral sheet in the magnetic tail. On the day side the predictions of asymmetric reconnection and effects of guide fields have been tested and, in many cases, resolved. Tail events provide detailed studies of symmetric reconnection and energetic particle acceleration. Various plasma wave modes have been identified within reconnection events and their importance determined both as results and drivers of reconnection. In addition to providing our first look at reconnection in space at the electron scale, MMS reveals a much more ubiquitous nature of reconnection than was previously supposed as reconnection is being found in many new places, including bow shocks, Kelvin-Helmholtz vortices, magnetic flux ropes, flux transfer events, and near-tail dipolarization fronts.

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Date submitted: 30 Jul 2020

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