

Abstract Submitted  
for the DPP20 Meeting of  
The American Physical Society

**Reconnection observed at Earth's bow shock**<sup>1</sup> SHAN WANG, University of Maryland, College Park, LI-JEN CHEN, GSFC, NAOKI BESSHO, University of Maryland at College Park, MICHAEL HESSE, University of Bergen, LYNN WILSON, GSFC, RICHARD DENTON, Dartmouth College, JONATHAN NG, University of Maryland at College Park, BARBARA GILES, GSFC, ROY TORBERT, University of New Hampshire, JAMES BURCH, Southwest Research Institute — We study magnetic reconnection at the Earth's bow shock using observations by the Magnetospheric Multiscale (MMS) mission. The reconnecting current sheets exist both in the foreshock and in the deep shock transition region. The current sheets may contain the electron outflow jet, Hall fields and Hall currents, and show energy conversion between the fields and particles, while ions do not have response. There also exists reconnecting current sheets where the ion exhaust is observed with ion acceleration and heating. The compression of the current sheets originated from the foreshock waves appears to be one mechanism of generating thin current sheets subject to reconnection.

<sup>1</sup>The research at UMCP and GSFC is supported in part by DOE grant DESC0016278, DESC0020058, NSF grants AGS-1619584, NASA 80NSSC18K1369, and the NASA MMS mission. Work at Dartmouth College is supported by NASA 80NSSC19K0254. The work is also supported by the International Space Science Institute's (ISSI) International Teams programme.

Shan Wang  
University of Maryland, College Park

Date submitted: 28 Jun 2020

Electronic form version 1.4