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Plasma Transport at the Magnetopause in 3D Kinetic Simulations of MMS Reconnection Site Encounters with Varying Guide Fields ARI LE, WILLIAM DAUGHTON, OBIOMA OHIA, LANL, LI-JEN CHEN, UMD/NASA GSFC, YI-HSIN LIU, NASA GSFC — We present 3D fully kinetic simulations of asymmetric reconnection with plasma parameters matching MMS magnetopause diffusion region crossings with varying guide fields of $\sim$0.1 [1], $\sim$0.4 [2], and $\sim$1 [3] of the reconnecting sheath field. For the weakest guide field case, drift turbulence at the magnetospheric separatrix was found to enhance transport and parallel electron heating [4]. Here, we study how varying magnetic shear affects the morphology and plasma transport of the reconnecting magnetopause current sheet. Reconnection rates in 2D and 3D are compared using diagnostics based on particle mixing and on the magnetic field line-integrated parallel electric field. The role of magnetic shear in altering energization and particle distributions along the turbulent magneospheric separatrix is also studied. The PIC simulation results are compared to MMS observations.

[1]Burch et al., Science (2016)
[2]Chen et al. JGR (2017)
[3]Burch and Phan, GRL (2016)
[4]Le et al., GRL (2017)

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