
Pressure-Strain Interaction Producing Parallel Electric Fields in a Magnetotail Reconnection Region

Jim Burch*^{†1}

¹Southwest Research Institute – United States

Abstract

Owing to the different responses of electrons and ions, the compressive component of the pressure-strain interaction, p_{θ} , can possibly lead to the formation of parallel electric fields. We investigated this possibility during the 10 August 2017 magnetotail reconnection event observed by MMS. We found good correlation between p_{θ} and E_{\parallel} near the X line. PIC simulations also show this correlation but only if done in 3D, which may result from the presence of a weak guide field.

*Speaker

[†]Corresponding author: jburch@swri.edu