



The role of waves and DC electric fields for electron heating and acceleration in the diffusion region

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Magnetic reconnection is a fundamental process in solar and astrophysical plasmas. The processes operating at electron spatial-scales, which enable magnetic field lines to reconnect, are generally difficult to resolve and identify. However, the recently launched Magnetospheric Multiscale (MMS) mission is specifically designed to resolve electron spatial scales. We use the MMS spacecraft to investigate the process operating within the diffusion region to determine the causes of electron heating and acceleration. In particular, we investigate the type of electrostatic and electromagnetic waves that develop and how they affect the electron distributions. We also compare the roles of wave-particle interactions with DC electric fields to determine which is responsible for the electron heating observed in diffusion regions.