

Observational Tests Of Chromospheric Magnetic Reconnection

채종철^{1,2}, 문용재^{2,3}, 박소영¹

¹충남대학교 천문우주학과

²*Big Bear Solar Observatory*

³한국천문연구원

Observations have indicated that magnetic reconnection may occur frequently in the photosphere and chromosphere as well as in the solar corona. The observed features include cancelling magnetic features seen in photospheric magnetograms, and different kinds of small-scale activities such as UV explosive events and EUV jets. By integrating the observed parameters of these features with the Sweet-Parker reconnection theory, an attempt is made to clarify the nature of chromospheric magnetic reconnection. Our results suggest that magnetic reconnection may be occurring at many different levels of the photosphere and chromosphere without a preferred height and at a faster speed than is predicted by the Sweet-Parker reconnection model using the classical value of electric conductivity. Introducing an anomalous magnetic diffusivity 10-100 times the classical value is one of the possible ways of explaining the fast reconnection as inferred from observations.