

M13a Nature of Magnetic Reconnection in Solar Chromosphere: Steady or Time-Dependent

K. Alkendra, P. Singh (Kyoto University), Hiroaki Isobe (Kyoto City University of Arts), T. Sakaue, Akito D. Kawamura, K. Shibata (Kyoto University)

The solar chromosphere is fully collisional, gravitationally stratified and partially ionized plasma. There are numerous, inverse-Y shaped jets that are observed in the high-resolution observations of Solar Optical Telescope (SOT) onboard Hinode. Such chromospheric anemone jets are supposed to be formed in the solar chromosphere as a result of the magnetic reconnection between an emerging bipole and the ambient magnetic field. Since magnetic reconnection could occur in the solar chromosphere, the question arises whether and how the magnetic reconnection would occur in the solar chromosphere? How does the interplay between the magnetic field and the neutrals affect the reconnection scenario in the solar chromosphere? Based upon the observations and the simulations based understanding on the magnetic reconnection in solar chromosphere, we have developed a time-dependent, plasmoid-mediated, fractal-like reconnection scenario. In the talk, I would like to present my works on the magnetic reconnection in the solar chromosphere using the physics of partially ionized plasmas under the Magnetohydrodynamic (or MHD) framework.