



Fractal Reconnection and Particle Acceleration in the Solar Corona

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Recent space observations of the Sun such as with Hinode revealed that magnetic reconnection is ubiquitous in the solar corona, ranging from small scale reconnection (nanoflares) to large scale one (CME related flares). These observations imply that the current sheet in these reconnection events consists of self-similar dynamical structure, i.e. fractal structure, which is consistent with basic magnetohydrodynamics (MHD) theory, since MHD does not contain any characteristic length and time scale, and it is natural that MHD structure, dynamics, and reconnection, tend to become fractal in ideal MHD plasmas with large magnetic Reynolds number such as in the solar atmosphere. We would discuss recent observations with Hinode and theories related to fractal reconnection, and discuss possible implication to reconnection physics, coronal heating, and particle acceleration.