



Collisionless current sheets, reconnection and particle acceleration – observations and simulations

Jörg Büchner (1,2) and Masahiro Hoshino (3)

(1) Technical University Berlin, Center for Astronomy and Astrophysics, Berlin, Germany (buechner@tu-berlin.de), (2) Max-Planck-Institut für Sonnensystemforschung, Göttingen, Germany (buechner@mps.mpg.de), (3) University of Tokyo, Department of Earth and Planetary Science, Tokyo, Japan (hoshino@eps.s.u-tokyo.ac.jp)

In hot and dilute solar system plasmas magnetic energy is released via current sheets (CSs) by reconnection, causing plasma heating, plasma-bulk-flow- and particle acceleration. Recent in-situ investigations of electron scale CSs, reconnection and particle acceleration by the MMS mission have revealed details of these processes including the role of turbulence.

In order to better understand these observations various theoretical investigations and numerical simulations have been carried out.

Over the last two years ISSI team 395 on plasma heating and particle acceleration by collisionless magnetic reconnection compared their results with current space observations.

We will review the main results, obtained by the team.