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Observations and Simulations of nonlionear energtic signatures in reconnection GIOVANNI LAPENTA, KU Leuven, STEFANO MARKDIS, KTH, DAVID NEWMAN, MARTIN GOLDMAN, LAILA ANDRESSON, STEFAN ERIKSSON, University of Colorado — The solar wind and magnetospheric plasmas provide great information about non-linear processes and feedbacks among different waves. Microinstabilities can lead to turbulence that affect reconneciton. We focus here on understanding: 1) The triggering of turbulence at the fluid and kinetic level in regions where reconnection develops at the macroscopic level. Recent results from the study of the lower hybrid instability and the plasmoid instability will out in context of observational data. How do these processes affect reconnection? 2) Reconnection itself produces changes in its environment, promoting flows and anisotropies that in turn produce instabilities, in the inflowing plasma entering the reconnection region and in the outflowing plasma. How does this feedbacks then on reconnection and what impacts it has on the global evolution. 3D massively parallel simulations of kinetic processes and of fluid processes will be shown to demonstrate the different non-linear interplay of small and large scales in the two models.

Giovanni Lapenta
KU Leuven

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