



## **Observational Evidence for Field-Particle Energy Transfer in the Earth's Magnetosheath**

Christopher Chen (1), Kris Klein (2), and Greg Howes (3)

(1) Queen Mary University of London, School of Physics and Astronomy, London, United Kingdom (christopher.chen@qmul.ac.uk), (2) Climate and Space Sciences and Engineering, University of Michigan, Ann Arbor, USA, (3) Department of Physics and Astronomy, University of Iowa, Iowa City, USA

One of the unanswered questions in space plasma turbulence is how the energy is dissipated at the small scale end of the turbulent cascade. To help address this, a technique was recently developed (Klein & Howes 2016 ApJL, Howes et al. 2017 JPP) to allow the field-particle energy transfer to be determined as a function of velocity space, enabling the different heating mechanisms to be distinguished, each of which has a characteristic signature. Here, we present the first application of this technique to data from the MMS mission in and around the Earth's magnetosheath region. The velocity space energy transfer between the electromagnetic fields and plasma particles is measured and compared to theoretical predictions and numerical simulations of the different dissipation mechanisms, to determine which ones are taking place.