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Agyrotropy patterns in 3D small-scall turbulent reconnection

Jeffersson Andres Agudelo Rueda[1], Daniel Verscharen[1], Robert T. Wicks[2], Christopher J. Owen[1], Andrew P. Walsh[3], and Kai Germaschewski[4]

[1]Mullard Space Science Laboratory, UCL, Holmbury St. Mary, Dorking, Surrey, RH5 6NT, UK
[2]Department of Mathematics, Physics and Electrical Engineering, Northumbria University, Newcastle upon Tyne, NE1 8ST, UK
[3]European Space Astronomy Centre, Urb. Villafranca del Castillo, E-28692 Villanueva de la Cañada, Madrid, Spain
[4]Space Science Center, University of New Hampshire, Durham NH 03824, USA

Turbulence and magnetic reconnection are at the core of the long-standing problem of energy dissipation in collisionless plasmas. More than two decades of research on magnetic reconnection have led us to understand the characteristic plasma flows and particle agyrotropy patterns present in collisionless reconnection events. However, it is still not clear what the agyrotropy patterns associated with reconnection events are that form in a turbulent cascade. In this work, we use an explicit fully kinetic particle-in-cell code to study the plasma particles' agyrotropy associated with three-dimensional small-scale magnetic reconnection events generated by anisotropic and Alfvénic decaying turbulence. We select one reconnection event involving two reconnecting flux ropes. Although we observe similarities with agyrotropy patterns known from two-dimensional steady-state reconnection events, the agyrotropy patterns in our event are more complex. This has further implications for the energy transfer channels available in three-dimensional turbulent reconnection.