

Current sheets in kinetic simulations of plasma turbulence between ion and electron scales

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We present 3D PIC simulations of plasma turbulence relevant for turbulence in the solar wind. These are performed by initializing an ensemble of shear Alfvén waves with wavelengths moderately larger than the ion skin depth scale. In earlier work such simulations were performed with ion-positron pair plasmas [1, 2]. Now we use a reduced but non-unity mass ratio between ions and electrons. This allows us to investigate the range of scales between ion and electron skin depth. We present the turbulent spectrum between the ion and electron scales and an analysis of the current sheets that form in this range. This is relevant for observations of current sheets in solar wind turbulence.

References

- [1] K. D. Makwana, V. Zhdankin, H. Li, W. Daughton and F. Cattaneo, *Physics of Plasmas* **22**, 042902 (2015)
- [2] Kirit Makwana, Hui Li, Fan Guo, and Xiaocan Li, *Journal of Physics: Conference Series* **831**, 012004 (2017)