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High-resolution 2D3V simulations of forced hybrid-kinetic turbulence[1] SILVIO SERGIO CERRI, FRANCESCO CALIFANO, University of Pisa, Italy, FRANCOIS RINCON, Universite de Toulouse; UPS-OMP; CNRS; IRAP, France, DANIEL TOLD, FRANK JENKO, Department of Physics and Astronomy, University of California, Los Angeles, USA, FRANCESCO PEGORARO, University of Pisa, Italy — The understanding of the kinetic processes at play in plasma turbulence is a frontier problem in plasma physics and among the topics currently of most interest in space plasma research. Here we investigate the properties of turbulence from the end of the magnetohydrodynamic (MHD) cascade to scales well below the ion gyroradius (i.e., the so-called "dissipation" or "dispersion" range) by means of unprecedented high-resolution simulations of forced hybrid-kinetic turbulence in a 2D3V phase-space (two real-space and three velocity-space dimensions). Different values of the plasma beta parameter typical of the solar wind (SW) are investigated. Several aspects of turbulence at small-scales emerging from the simulations are presented and discussed. Even within the limitations of the hybrid approach in 2D3V, a reasonable agreement with SW observations and with theory is found. Finally, we identify possible implications and questions related to SW turbulence which arise from this study.

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