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Numerical simulation of 3D Kinetic Alfvén Turbulence[1] QIAN XIA, STANISLAV BOLDYREV, University of Wisconsin-Madison, JEAN PEREZ, University of New Hampshire — In our model for strong kinetic Alfvén plasma turbulence, the spectrum of Kinetic-Alfvén waves was found to scale as $k^{-8/3}$ at scales smaller than the ion gyroscale. This was close to the recent magnetic fluctuation observation at sub-proton scales. It also showed that the scaling would be changed with different viscosity setup. It suggested that von Kármán similarity is not valid beyond the inertial range. In this region, the dynamic of the outer scale (MHD) and the smaller scale (electron inertial range) may affect the spectrum. Hyperviscosity results showed that the electron Landau damping was not the reason for the steepening of the spectrum.

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