Nonlinear evolution of parallel propagating MHD wave turbulence

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Nonlinear evolution of parallel propagating MHD wave turbulence is discussed within the contexts of the Hall-MHD and the derivative
nonlinear Schroedinger equation (DNLS), a subset of the hall-MHD equation set, which includes quasi-parallel propagating right- and left-hand polarized Alfven wave modes. Via numerical time integration of the equations under periodic boundary conditions, we discuss generation and evolution of soliton turbulence, cnchronization of the wave phases, among others. Furthermore, we discuss possible plasma heating and acceleration when dissipation at small scales is taken into account.