# Coherency in plasma turbulence

I. Broemstrup[1], W. Dorland[1], K. Schneider[2], M. Farge[3]

(1) Department of Physics, Univ. of Maryland, College Park
Center for Multiscale Plasma Dynamics, (CMPD)
(2) Universités d'Aix - Marseille & CMI, Université de Provence
(3) Laboratorie de Métérologie Dynamique, Ecole Normale Supérieure, Paris

Direct numerical simulations of plasma turbulence have become an important tool for interpreting experimental data from tokamaks. There is, however, relatively little exploration of the fluctuation data that is produced by gyrokinetic simulations in the literature. In preparation for more detailed experimental validation of predictions from gyrokinetic simulations of plasma turbulence, we present studies of turbulence that is well described by a simpler models: Hasegawa-Mima (with and without strong background velocity shear) and a finite Ion-Temperature fluid model. Numerical results from a spectral fluid code will be compared to the results obtained with a gyrokinetic code. To study coherent structures, the data is projected onto an orthogonal wavelet basis and a nonlinear thresholding is applied to the wavelet coefficients. The denoised data is then reconstructed in physical space. Using this procedure we analyze the spatial and frequency spectra and test them against theoretical expectations.