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**Session FM1 - Mini-Conference on Turbulence in the Interstellar Medium and Solar Wind III.**  
*ORAL session, Tuesday morning, November 16*  
*Grand Crescent, The Westin Seattle*

## **[FM1.03] Anisotropic MHD Turbulence Spectra Due to the Weak Interaction of Shear-Alfvén Wave Packets**

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The collision between shear-Alfvén wave packets propagating in opposite directions parallel to a uniform magnetic field provides a mechanism for generating anisotropic small scales. A model of weak magnetohydrodynamic turbulence is developed based on exact analytic expressions of the three-wave interactions, derived from the reduced magnetohydrodynamic equations by perturbation theory. The time-evolution of the anisotropic turbulence spectrum in the direction perpendicular to the magnetic field is simulated numerically using the three-wave formulae. The relationship between the two spectral indexes of the two oppositely propagating waves is found to be consistent with recent results based on wave kinetic equations. In particular, a forward wave packet that interacts with a sequence of random backward wave packets, each with energy spectrum set to a  $k_{\perp}^{-2}$  dependence, is shown to evolve numerically to a  $k_{\perp}^{-2}$  energy spectrum.

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