Spectral study of anisotropic magnetohydrodynamic turbulence
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— A spectral analysis of anisotropic magneto-hydrodynamic turbulence, in presence of a constant magnetic field, is presented using direct numerical simulations. A method of decomposing the spectral space into ring structures is presented and the energy transfers between such rings are studied. This decomposition method takes into account the angular dependency of transfer functions in anisotropic systems, while it allows to recover easily the known shell-to-shell transfers in the limit of isotropic turbulence. For large values of the constant magnetic field, the dominant energy transfers appear to be in the direction perpendicular to the mean magnetic field. The linear transfer due to the constant magnetic also appear to be important in redistributing the energy between the velocity and the magnetic fields.