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**Energy transfers in MHD turbulence** DANIELE CARATI, OLIVIER DEBLIQUY, Université Libre de Bruxelles, Belgium, MAHENDRA VERMA, I. I. T. Kanpur, India — The knowledge of the interactions between resolved and unresolved scales is required to design accurate subgrid-scale models for large-eddy simulations (LES). Although these interactions have been extensively studied for Navier-Stokes turbulence, much less has been done for turbulent conducting fluids. The objective of this study is to analyze the triad interactions in magneto-hydrodynamic (MHD) turbulence and more specifically the shell-to-shell interactions which are more complex in MHD. Indeed, the total energy can be split into the kinetic and the magnetic energy. The characterization of energy fluxes thus requires a detailed analysis of the energy transfers, not only between different length scales but also between the velocity and magnetic fields. Simulations of isotropic decaying and forced MHD turbulence using $512^3$ Fourier modes have been analyzed. The energy transfers appear to be very much local, i.e. the transfers are dominated by exchanges of energy between structures that have similar sizes. Shell-to-shell interactions have also been decomposed into forward and backward energy transfers. Such a decomposition is not unique and two possible strategies to identify the energy backscatter are suggested. They lead to fairly different diagnostics.

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