

Abstract Submitted  
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**Shell to shell energy transfer in turbulent MHD flows** ALEXANDROS ALEXAKIS, PABLO MININNI, ANNICK POUQUET, NCAR — We investigate the transfer of energy from large scales to small scales in fully developed forced three-dimensional MHD-turbulence by analyzing the results of direct numerical simulations in the absence of an externally imposed uniform magnetic field. Our results show that the transfer of kinetic energy from the large scales to kinetic energy at smaller scales, and the transfer of magnetic energy from the large scales to magnetic energy at smaller scales, are local, as is also found in the case of neutral fluids, and in a way that is compatible with Kolmogorov (1941) theory of turbulence. However, the transfer of energy from the velocity field to the magnetic field is a highly non-local process in Fourier space. Energy from the velocity field at large scales can be transferred directly into small scale magnetic fields without the participation of intermediate scales. Some implications of our results to MHD turbulence modeling are also discussed.

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