

Abstract Submitted  
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**Beyond MHD: Hall-MHD turbulence and dynamo action**<sup>1</sup> PABLO MININNI, NCAR — The relevance of two fluid effects has recently been pointed out in several studies of astrophysical and laboratory plasmas. The effect of adding the Hall current to the dynamics of the flow was studied in several scenarios, particularly dynamo action and reconnection. Some of the works in Hall-magnetohydrodynamics (Hall-MHD) present conflicting results, indicating in some cases that the Hall effect can help the growth of a large scale magnetic field or a large scale self-organization process, while in other cases the Hall currents were observed to generate small scales and filamentation. In this talk we will discuss both analytically and numerically three dimensional Hall-MHD turbulence as the result of a dynamo. The dynamo process, believed to be responsible for sustaining the magnetic fields observed in several astrophysical objects, is an example in which the small scale fluctuations can have an impact in the evolution of the fields in the largest scales in the system. The inclusion of the Hall effect in the small scales allows for novel interactions between separated scales dominated by MHD or by two fluid effects.

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