

Abstract Submitted  
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**High speed MHD turbulence in aerospace applications** FOLUSO LADEINDE, SUNY Stony Brook, NY 11794-2300, DATTA GAITONDE, AFRL/VAAC, WPAFB, OH 45433 — A large proportion of the fundamental work on MHD turbulence focused on astrophysical applications, in contrast to aerospace engineering applications that are of primary interest in our work. We examine the turbulence scales of the important phenomena in MHD systems for the two fields of application, in order to motivate the vastly different physics expected and discuss how the knowledge gained in astrophysical MHD turbulence may not be of much help to the aerospace engineer whose objective is to explore the possibility of using MHD to control the flow over space vehicles. We examine the cascade process, with a focus on low magnetic Reynolds numbers, which is the limit of interest in aerospace engineering. The effects of anisotropy in three-dimensional MHD turbulence when a mean magnetic field is imposed will be discussed from the standpoint of scaling and dynamic similarity. Preliminary work on anisotropy in low magnetic Reynolds number, high speed MHD turbulence will be presented.

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