

Abstract Submitted
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Dynamo “ α effect” in the MHD plasma due to noise CHANG-BAE KIM, Soongsil University — Response is studied in the long-time and- large-scale limit of a magnetohydrodynamic plasma driven by a noise that depends on a selective direction \hat{s} , which may be due to the rotation about an axis or to the strong magnetic field. The noise is assumed to represent the short-scale turbulence that is often observed in the experiments and the numerical simulations. In addition to enhanced dissipation (that is, the so-called “ β effect”) of the magnetic field contributed from the diagonal part of the noise spectrum, it is found that it also yields the so-called “ α effect,” the curl of the magnetic field in Ohm’s law. It is interesting to note that the term is independent of \hat{s} although \hat{s} is a necessity to begin with. Comparisons to the gyrotropic noise model will be discussed at the presentation.

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