Non-dimensionalization of Helmholtz equation and the nature of the Alfvénic turbulence

AHMAD REZA ESTAKHR, Independent — I redefined Reynold number in a different situation, the Helmholtz equation which represents the time-independent wave equation, \( \nabla^2 A + k^2 A = 0 \) Now i consider wave number as Reynold number per linear dimension, \( L^2 \nabla^2 A + R_{e}^2 A = 0 \) the important non-dimensional parameters for MHD are Reynold, Magnetic Reynold and Prandtl numbers, \( R_e.P_m = R_{em} \) then we find, \( P^2_m L^2 \nabla^2 A + R^2_{em} A = 0 \) where the \( \nabla^2 \) is laplacian and \( A \) is the Amplitude.

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Date submitted: 01 Jul 2013

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