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NONLINEAR STABILITY AND INSTABILITY THEOREMS FOR INCOMPRESSIBLE MAGNETOHYDRODYNAMIC FLOWS

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Abstract

Using semigroup theory for linear operators and a bootstrap argument, we prove that linear instability implies nonlinear instability for solutions of incompressible magnetohydrodynamic equations in three dimensions. We also prove a stability theorem for these solutions under different assumptions on the spectrum of a certain linear operator.

Key Words : *Magnetohydrodynamic equations, (Non)linear instability, Analytic semigroup.*

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