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ON THE MECHANISM OF INSTABILITIES IN NONLINEAR SYSTEMS

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CONCEPTS IN HYDRODYNAMIC STABILITY THEORY

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Abstract

The present state of hydrodynamic stability theory is reviewed, and is illustrated principally by one of its clearest examples, Bénard convection.

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SOME REMARKS ON VARIATIONAL METHODS, THE LOCAL POTENTIAL, AND FINITE ELEMENT METHODS WITH APPLICATION TO CERTAIN CONTINUUM MECHANICS PROBLEMS

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THE EFFECT OF PRANDTL NUMBER ON FINITE AMPLITUDE BÉNARD CONVECTION

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LIGHT SCATTERING FROM NONEQUILIBRIUM FLUID SYSTEMS

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MAGNETIC FIELDS AND CONVECTION

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Abstract

The nonlinear equations governing convection in the presence of a magnetic field have been integrated numerically for two-dimensional flow in a Boussinesq fluid confined between free boundaries. Small disturbances are described by the linearized equations, which allow overstable solutions. Some nonlinear solutions show finite amplitude oscillations even for monotonically growing linear modes.

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STABILITY OF SUPERCRITICAL BÉNARD CONVECTION AND TAYLOR VORTEX FLOW

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CYLINDRICAL COUETTE FLOW INSTABILITIES IN NEMATIC LIQUID CRYSTALS

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STELLAR ATMOSPHERES, NONEQUILIBRIUM THERMODYNAMICS, AND IRREVERSIBILITY

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FINITE AMPLITUDE INSTABILITY IN THE TWO- COMPONENT BÉNARD PROBLEM

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