

Convection in a binary ferrofluid

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We report theoretical and numerical results on convection for a magnetic fluid. The binary mixture effect is taken into account. We focus in the stationary and oscillatory convection for idealized boundary conditions. We obtain explicit expressions of convective thresholds in terms of the control parameters of the system. Close to bifurcation, the coefficients of the corresponding amplitude equations are determined. Finally, the secondary instabilities are performed.