Multiple convective regimes in filtration convection

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It was found recently by V. Yudovich [1,2] that nontrivial cosymmetry leads to onset of a continuous family of stationary regimes (equilibria). Such a cosymmetric family differs from the symmetric one because the equilibria have variable spectrum. A number of cosymmetric families and interesting dynamics were observed for the filtration convection problem when a viscous fluid saturated the porous medium. We apply the finite-difference method [3,4] to the planar problem of filtration convection in porous media (Darcy law). The transformation of families of equilibria and corresponding flow structures are studied as well as the onset of nonstationary regimes.

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