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Tian Ma and **Shouhong Wang*** (showang@indiana.edu), Department of Mathematics, Indiana University, Bloomington, IN 47405. *Stability and transitions for the Taylor problem.*

We use the newly developed bifurcation theory for nonlinear evolution equations and the geometric theory for 2D incompressible flows to address the stability and transitions of solutions for the Taylor problem in both the physical and phase spaces. (Received September 12, 2006)