1023-86-1510 **Chun-Hsiung Hsia**, Department of Math., Stat. and Comput., University of Illinois at Chicago, Chicago, IL 60607, **Tian Ma**, Department of Mathematics, Sichuan University, Chengdu, Peoples Rep of China, and **Shouhong Wang*** (`showang@indiana.edu`), Department of Mathematics, Indiana University, Bloomington, IN 47405. *Stability and transitions for the double-diffusive convections.*

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 double-diffusive convection problem in both the physical and phase spaces. (Received September 26, 2006)