Abstract Submitted
for the DFD06 Meeting of
The American Physical Society

Marangoni-Bénard convection in circular and elliptical cylinders[1]
PAULINE ASSEMAT, ALAIN BERGEON, IMFT UMR CNRS 5502 / Universite Paul Sabatier, Toulouse, France, EDGAR KNOBLOCH, Department of Physics, UC Berkeley — The spatial organization of single-fluid Marangoni-Bénard convection in vertical cylinders with circular and elliptical horizontal cross-section is described. The convection is driven by an imposed heat flux from above and the Marangoni stresses that arise at the free but undeformed surface due to temperature-dependent surface tension. The solutions and their stability characteristics are obtained using branch-following techniques together with direct numerical simulations. The effect of the ellipticity and the symmetries of the grid are discussed.

[1]This work was supported by NSF under grant DMS-0305968 and by a CNRS PICS.

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Date submitted: 03 Aug 2006 Electronic form version 1.4