Abstract Submitted
for the NWS06 Meeting of
The American Physical Society

Modified Taylor-Couette Flow in Multiply-Waisted Hourglass Geometries Simulations based upon Reaction-Diffusion Models[1] THOMAS OLSEN, YU HOU, ADAM KOWALSKI, Lewis & Clark College, Portland, OR, RICHARD WIENER, Pacific University, Forest Grove, OR — The Reaction-Diffusion model [2] predicted a period doubling cascade to chaos in a situation analagous Taylor- Couette flow with hourglass geometry. This cascade to chaos was discovered in the actual fluid flow experiments[3]. We model Taylor-Couette flow in a cylindrical geometry with multiple waists of super-critical flow connected by regions of barely super-critical flow by corresponding Reaction-Diffusion models. We compare our results to the findings of an ongoing experimental program.

[1]Research Corp., NSF DMR-0241814 & DMR-0241890, & Rogers Science Research Program
[2]H. Riecke and H.-G. Paap, Europhys. Lett. **14**, 1235 (1991).
[3]Richard J. Wiener *et al*, Phys. Rev. E **55**, 5489 (1997).

Thomas Olsen
Lewis & Clark College

Date submitted: 21 Apr 2006 Electronic form version 1.4