The Transition from Purely Temporal Chaos to Spatio-Temporal Chaos in the Reaction-Diffusion Model[1] THOMAS OLSEN, YU HOU, Lewis & Clark College, Portland, OR, RICHARD WIENER, Pacific University, Forest Grove, OR — We apply the Reaction-Diffusion model[2] to Taylor- Couette flow with hourglass geometry[3]. Previous authors have reported the model's successful prediction of a period doubling cascade to chaos in this physical system. We present the results of a series of such simulations, varying the length of the system. We report a transition from purely temporal chaotic formation of new pairs of Taylor Vortices at the waist of the hourglass, to spatio-temporal chaos of vortex pair formation across a range of locations. These results inform a program of experiments on physical systems of comparable lengths.

[2]H. Riecke and H.- G. Paap, Europhys. Lett. **14**, 1235 (1991).
[3]Richard J. Wiener *et al*, Phys. Rev. E **55**, 5489 (1997).

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