Abstract Submitted
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Taylor-Couette Flow with Hourglass Geometry of Varying Lengths Simulated by Reaction-Diffusion[1] YUNJIE ZHAO, ANDREW HALMSTAD, THOMAS OLSEN, Lewis & Clark College, Portland, OR, RICHARD WIENER[2], Research Corporation — Previously, we have observed chaotic formation of Taylor-Vortex pairs in Modified Taylor- Couette Flow with Hourglass Geometry.[3] In the experiment, the chaotic formation in a shorter system has been restricted to a narrow band about the waist of the hourglass. Such behavior has been modeled by The Reaction-Diffusion equation,[4] which has been previously studied, by Riecke and Paap. Their calculation suggested that quadrupling length of the system would lead to spatial chaos in the vortex formation. We present a careful recreation of this result and consider an intermediate length. We demonstrate that doubling the length should be sufficient to observe spatially chaotic behavior.

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[2]Formerly of Pacific University, Forest Grove, OR
[3]Richard J. Wiener *et al*, Phys. Rev. E **55**, 5489 (1997).
[4]H. Riecke and H.-G. Paap, Europhys. Lett. **14**, 1235 (1991).

Thomas Olsen
Lewis & Clark College

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