Abstract Submitted
for the DFD16 Meeting of
The American Physical Society

Experimental container shape dependence and heat transport scaling of Rayleigh-Bénard convection of high-Prandtl-number fluids STEPHEN JOHNSTON, Georgia Institute of Technology, ENRICO FONDA, KATEPALLI R. SREENIVASAN, New York University, DEVESH RANJAN, Georgia Institute of Technology — Both experiments and simulations on Rayleigh-Benard convection with fluids of Prandtl numbers 5 and below have shown that the container shape influences the flow structure. Here, we investigate similar dependences of convection of fluids with Prandtl numbers of up to 10^4. The convection cells have aspect ratio of order unity, and we use cubic and cylindrical shapes. Visual analysis using a noninvasive photochromic dye technique indicates the distinct large-scale flow patterns in both square and cylindrical test cells. The stability of these flow patterns is explored. Also presented are results on the Nusselt-Rayleigh scaling for moderate Rayleigh numbers. References: Z. A. Daya and R. E. Ecke, Phys. Rev. Lett. 87, 184501 (2001) N Foroozani, JJ Niemela, V Armenio, KR Sreenivasan, Phys. Rev. E 90, 063003 (2014)

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Date submitted: 01 Aug 2016 Electronic form version 1.4