

Abstract Submitted
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Simulating Wall-Mode Convection: Numerical Techniques and First Results KEATON BURNS, MIT, GEOFFREY VASIL, University of Sydney
— We present simulations of strongly nonlinear wall-mode convection in rapidly rotating containers. Using an asymptotically reduced model developed by G. Vasil & K. Julien, we examine the instability and subsequent pattern formation of a confined rotating system heated from below, in a regime where the system is stable against bulk convection but strongly unstable to precessing modes localized to the container sidewalls. The model includes nonlinear and nonlocal boundary conditions which feedback onto the interior dynamics, and separate prognostic equations governing the barotropic and baroclinic components of the flow. We implement these equations in channel and cylindrical geometries using Dedalus, a new open-source pseudospectral code.

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