

Abstract Submitted  
for the DFD07 Meeting of  
The American Physical Society

**Patterns in rotating Rayleigh-Benard convection at high rotation rates** PATRICIA MUTYABA, TERRI KIMMEL, JANET SCHEEL, California Lutheran University — We present the results from numerical investigations of rotating Rayleigh-Benard convection for relatively large rotation rates, well above the Koppers-Lortz instability. Unexpected square patterns were found experimentally by Bajaj, et al., in this parameter regime. These square patterns have not yet been understood theoretically. Sanchez-Alvarez, et al., have found square patterns in numerical simulations for similar parameters when only the Coriolis force is included. We present detailed numerical studies of rotating Rayleigh-Benard convection for the same parameters as the experiments. To better understand the square patterns, we compare the effects of the Coriolis force as well as the centrifugal force. We also investigate the influence of the travelling wave on the patterns.

Patricia Mutyaba  
California Lutheran University

Date submitted: 03 Aug 2007

Electronic form version 1.4