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Matthew J Glomski* (matthew.glomski@marist.edu), School of Computer Science and Mathematics, Marist College, 3399 North Road, Poughkeepsie, NY 12601, and **Matthew Adam Johnson** (matthew.johnson1@marist.edu), School of Computer Science and Mathematics, Marist College, 3399 North Road, Poughkeepsie, NY 12601. *A precise calculation of the critical Rayleigh and Wave Numbers for the Inhomogeneous Planar Bénard Problem.*

Rayleigh-Bénard convection is a much researched thermodynamical phenomenon, yet significant questions remain. In this talk, we will present one new result: a verified calculation of the critical Rayleigh number R_* and critical wave number k_* for the inhomogeneous planar Bénard problem. Our methods draw on both error-bounded interval computations, as well as more traditional analytic techniques of classical fluid dynamics. (Received September 21, 2010)