

1096-76-1941 **Matthew Glomski***, School of Computer Science and Mathematics, Marist College, 3399 North Road, Poughkeepsie, NY 12601, and **Matthew A. Johnson**. *Interval analysis computation of the critical Rayleigh number for the asymmetric Rayleigh-Bénard problem.*

The critical Rayleigh number \mathcal{R}_c arises as a threshold constant in the Rayleigh-Bénard problem of classical fluid dynamics. In 1916, Lord Rayleigh found an exact expression for \mathcal{R}_c in the no-stress, or *free-free*, boundary formulation of the problem. In 1999, Jeng and Hassard gave an error-bounded fifty-decimal computation for the constant in the no-slip *rigid-rigid* case. In this talk, we will discuss interval methods used in the first error-bounded computation of the Rayleigh number for the asymmetric *rigid-free* formulation of the problem. (Received September 16, 2013)