1024-37-95 **Sarah Day*** (sday@math.wm.edu), The College of William and Mary, Department of Mathematics, P.O. Box 8795, Williamsburg, VA 23187, and **Rafael Frongillo** and **Rodrigo Trevino**. *Computational tools for measuring topological entropy.*

With recent advances in computing power, numerical studies of nonlinear dynamical systems have become increasing more popular. However, errors inherent to such studies may obscure the dynamics or, in the very least, raise doubts about the existence of numerically observed structures. Furthermore, unstable behavior, an intrinsic element of complicated systems, may be difficult to track even with very careful numerical work. I will discuss topological techniques which allow for the rigorous detection of dynamical structures of various stability types. In particular, I will focus on recent work on expanding these techniques that led to the computation of a rigorous lower bound on the topological entropy (one measurement of complexity) for the (chaotic) Henon map. (Received January 02, 2007)