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**Sarah Day\*** ([sday@math.wm.edu](mailto:sday@math.wm.edu)), Department of Mathematics, College of William & Mary, P.O. Box 8795, Williamsburg, VA 23187, and **Rafael Frongillo** ([raf@colorado.edu](mailto:raf@colorado.edu)), 430 UCB, Boulder, CO 80309. *Sofic shifts via Conley index theory: computing lower bounds on recurrent dynamics for maps.*

Recent work has demonstrated the effectiveness of computational Conley index techniques in extracting dynamics from discrete-time systems governed by maps. I will discuss an automated approach that builds on earlier work and uses Conley index information to construct sofic shifts that are topologically semi-conjugate to the system under study. This allows for the uncovering and recording of increasingly complicated dynamics in chaotic systems. As illustration, we present results for the two-dimensional Hénon map and the infinite-dimensional Kot-Schaffer map. (Received September 13, 2016)