Meeting: 1064, Notre Dame, Indiana, SS 11A, Special Session on Computability and Its Applications

Stephen G. Simpson* (simpson@math.psu.edu), Department of Mathematics, McAllister Building, Pollock Road, Pennsylvania State University, State College, PA 16802. *Symbolic dynamics: entropy = Hausdorff dimension = Kolmogorov complexity.*

This talk will be self-contained for both logicians and dynamicists. Let X be a d-dimensional symbolic dynamical system over a finite set of symbols. Note that we impose no computability hypothesis on X. We prove that, with respect to the standard metric on X, the Hausdorff dimension of X coincides with the effective Hausdorff dimension of X and with the topological entropy of X. We obtain a sharp characterization of the Hausdorff dimension of X in terms of the Kolmogorov complexity of the finite configurations of symbols which occur in the orbits of X. (Received September 10, 2010)