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Jim Wiseman* (jwiseman@agnesscott.edu), Agnes Scott College, Department of Mathematics, Decatur, GA 30030. *Recurrence and chain-recurrence dimension.*

Let $f : X \rightarrow X$ be a homeomorphism of a compact metric space. The Hausdorff dimension of X is defined as the critical exponent for sums of powers of the diameters of elements of a partition of X . The Afraimovich-Pesin (or recurrence) dimension is a dynamical invariant defined similarly, but using, instead of the diameter, a decreasing function of the Poincare return time of each set. We discuss a variation, the chain recurrence dimension, which uses return times under ϵ -chains instead of Poincare return time. (Received September 24, 2006)