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Yogesh Joshi* (yogesh.joshi@kbcc.cuny.edu), 2001 ORIENTAL BOULEVARD, BROOKLYN, NY 11235, and **Denis Blackmore** (denis.1.blackmore@njit.edu), University Heights, Newark, NJ 07102. *Two Types of Strange Attractors in Exponentially Decaying Dynamics*. Preliminary report.

An exponentially decaying discrete dynamical system in \mathbb{R}^m comprises the forward iterates of a smooth map $F : \mathbb{R}^m \rightarrow \mathbb{R}^m$ such that there exists an $M > 0$ for which $|F(x)| \leq Me^{|x|}$ for all $x \in \mathbb{R}^m$. These dynamical systems, which have numerous applications, clearly possess a compact globally attracting set A . It turns out that in many instances A or one of its components is actually a strange attractor. Proving that (positively) invariant sets of discrete dynamical systems are actually strange attractors is typically quite difficult, as for example in applying Rank 1 theory. However, we are able to provide relatively simple proofs of the existence of two types of strange attractors (which we call *radial* and *multi-modular* attractors) for exponentially decaying systems under rather mild additional hypotheses that are satisfied for several well-known dynamical models of physical and biological phenomena. (Received August 14, 2013)