

Abstract Submitted
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Non-strange chaotic attractors equivalent to their templates

JOHN STARRETT, New Mexico Institute of Mining and Technology — We construct systems of three autonomous first order differential equations with bounded two dimensional attracting sets M . The flows on M are chaotic and have one dimensional Poincaré sections diffeomorphic to unimodal maps of the interval. Because the attractors are two dimensional rather than fractal, they are topologically equivalent to the templates of suspended horseshoes. These systems and their attractors are useful as simplified models of solutions to chaotic systems – for instance, the attractor of the cubic system is equivalent to the template of the parametrically forced pendulum. Thus, we are able to relate the well known dynamics of, say, the cubic map to the periodic orbit set of the forced pendulum.

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