

1145-37-1436

**Katherine Meyer\*** (meyer2098@umn.edu) and **Richard McGehee**. *Quantifying intensity of dynamic attractors using bounded, non-autonomous control*. Preliminary report.

A topological definition of an attractor leaves out metric information relevant to modeling real-world systems, particularly how far the attractor persists against perturbations and error. This talk will review some existing approaches to measuring the strength of an attractor in metric terms and will introduce the quantity “intensity” to generalize basin steepness to systems of autonomous ODEs in arbitrary dimension. One can compute an attractor’s intensity by probing a domain of attraction with bounded, non-autonomous control and tracking the sets reachable from the attractor. A connection between reachable sets and isolating blocks implies that an attractor’s intensity not only reflects its capacity to retain solutions under time-varying perturbations, but also gives a lower bound on the distance the attractor continues in the space of vector fields. (Received September 21, 2018)