

1067-92-570

Paul Leonard Salceanu* (salceanu@louisiana.edu), 217 Maxim D. Doucet Hall, P.O.Box 41010, Lafayette, LA 70504. *Uniform Persistence in Discrete and Continuous Non-autonomous Dynamical Systems with Application to an Epidemic Model of an Amphibian Population*. Preliminary report.

This is an extension of the work of Salceanu and Smith (2009), where boundary attractors for autonomous dynamical systems on the positive orthant of \mathbb{R}^m , generated by maps, were characterized as *uniformly weak repellers*, in order to obtain conditions for uniform persistence. Here we take a unified approach, for both discrete and continuous time non-autonomous systems. The main assumption is that a nontrivial compact positively invariant set M exists on a bounding hyperplane. We show that when this boundary set has certain repelling properties, uniform persistence for the complementary dynamics is obtained. When the system is periodic, and every solution on M is attracted to a periodic orbit, the repelling properties of M are expressed in terms of spectral radii. We apply these results to an SI model of an amphibian population, with periodic coefficients, and obtain conditions for uniform persistence of the disease. (Received September 09, 2010)