ALPEN-ADRIA UNIVERSITÄT KLAGENFURT

INVITATION TO THE DEFENSE

Attractors of Nonautonomous Integrodifference Equations and Discretizations

Pham Minh Huy Huynh | Universität Klagenfurt

Chaired by Elena Resmerita | Department of Mathematics

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HS6 and https://classroom.aau.at/b/vel-gsv-znq-zgn

ABSTRACT

In theoretical ecology, models describing the spatial dispersal and the temporal evolution of species having non-overlapping generations are often based on integrodifference equations. For various such applications, the environment has an aperiodic influence on the models leading to nonautonomous integrodifference equations. In order to capture their long-term behavior comprehensively, both pullback and forward attractors as well as forward limit sets are of interest. As a result, this dissertation covers the following topics: (i) We construct pullback and forward attractors as well as forward limit sets for general infinite-dimensional nonautonomous dynamical systems in discrete time. (ii) We apply the above abstract theory into nonautonomous integrodifference equations. Examples and illustrations are shown as well to understand such results. (iii) We study the pullback attractors and forward dynamics of nonautonomous integrodifference equations under perturbation as well as spatial discretization of collocation type as concrete applications. Examples and illustrations for some generalized equations are undoubtedly displayed with several numbers of nodes and parameters.

We hope to see you there!