STEVENS Institute of Technology

Arthur E. Imperatore School of Sciences & Arts

Department of Mathematical Sciences

Seminar in Nonlinear Systems

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Regularity of critical objects in dynamical systems: Numerical methods and results

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1:00 pm
Burchard 124

Abstract: We briefly review the origin and importance of some critical objects in theory of dynamical systems: conjugacies between circle maps, critical invariant circles of area-preserving maps, and boundaries of Siegel disks. These objects and the associated invariant measures exhibit rich self-similarity properties. The Holder regularity of some functions related to the critical objects is very low (often smaller than 1). We have implemented numerical methods for computing their regularities using Fourier and wavelet techniques. We will report our results on regularity as well as some other intriguing observations, and will outline some future directions of research.

Refreshments provided