Announcing
A Computational Science Seminar
Friday, October 5th at 2:00 pm
Southern Hall 303
at The University of Southern Mississippi

Speaker: Jiu Ding
Department of Mathematics
University of Southern Mississippi

Title: Approximations of Frobenius-Perron Operators - an Introduction to Computational Ergodic Theory

Abstract:
Iterations of mappings lead to the study of chaos from two viewpoints, the deterministic one and the probabilistic one. The former constitutes the subject of discrete dynamical systems and the latter is called ergodic theory. In this elementary talk, we first look at chaos from the both points of view, and then focus on the second one by introducing the concept of Frobenius-Perron operators. We shall present Ulam’s original idea of approximating this operator with piecewise constant functions, and then we touch its higher order extension a little bit, called the piecewise linear Markov finite approximation, which was developed by the speaker in his PhD dissertation.

One purpose of this talk is to attract graduate students with a strong analysis background to the research area of computational ergodic theory, initiated with Ulam’s above method and Li’s solution to Ulam’s conjecture for piecewise monotonic mappings of the interval.

Further Information
Further details and information about this and other departmental activities is available online at http://www.usm.edu/math.