Stony Brook University
The Graduate School

Doctoral Defense Announcement

Abstract

Distortion Structure for Renormalization

By

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The attractor of renormalization for the space of C^3 circle maps with a break point lies in the space of Mobius maps. In this thesis, we prove that maps lying in the attractor have additional internal structure. Using the dynamical partition, one can deconstruct a renormalization $R^n f$ of a Mobius map into its composite pieces and measure the distortion on each piece by means of an atomic measure. Under iteration of renormalization, these measures converge to continuous measures, which define Mobius flows through time. We construct renormalization operators for such distortion measures and use contraction techniques to prove that every map in the attractor has an associated invariant limiting distortion measure. We then consider properties of the limiting measures and present sufficient conditions for them to be dyadic doubling.

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