

Analysis/dynamical systems Seminar

Thursday, October 1st, 2015

4:00-4:50 pm in Hume 331

Renormalization and rigidity theory of circle diffeomorphisms with a break

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Rigidity theory of circle diffeomorphisms is a classic topic in dynamical systems which started with the work of Arnol'd and was largely developed by Herman, Yoccoz and others. Rigidity, in this context, refers to a phenomenon that every two maps, within a given topological equivalence class, are smoothly conjugate to each other. A natural approach to Herman's theory involves renormalization, one of the most powerful ideas in mathematics. I will discuss main ideas of renormalization and rigidity theory and give an overview of the recent results on rigidity of circle diffeomorphisms with a break, i.e., circle diffeomorphisms with a single singular point where the derivative has a jump discontinuity. These results can be considered an extension of Herman's theory on the linearization of circle diffeomorphisms.