

Lecturers: Yuri Lima + Mauricio Poletti

Title: Partially hyperbolic diffeomorphisms with zero center exponent: An invariance Principle

Abstract:

The goal of this minicourse is to present a proof and some applications of what is known as an Invariance Principle for partially hyperbolic dynamics. The invariance principle says that if a partially hyperbolic diffeomorphism has an invariant measure with all center exponents equal to zero, then the disintegration of the measure is invariant by holonomies. This was first proved by Ledrappier for linear cocycles, then by Avila-Viana for smooth cocycles and more recently by Crovisier-Poletti for partially hyperbolic maps with quasi isometric center bundle.

This invariance gives a rigidity for diffeomorphisms with zero exponents and has useful applications, such as the usage of perturbative techniques to break zero exponents and recovery of smoothness of the center foliation.

In this minicourse, we begin with a broad introduction to hyperbolic dynamics, with emphasis on examples. We then present the basic notions of entropy, Lyapunov exponents, and partial hyperbolicity. Finally, if time allows, we present a self-contained proof of the Invariance Principle.