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SEMINARIO DE SISTEMAS DINÁMICOS DE SANTIAGO

SPEAKER: Snir Ben Ovadia (Weizmann Institute of Science), Israel.

TITLE: Invariant Family of Leaf measures and The Ledrappier-Young Property for Hyperbolic Equilibrium States.

ABSTRACT: Let M be a Riemannian, boundaryless, and compact manifold with $\dim M \geq 2$, let f be a $C^{1+\beta}(\beta > 0)$ diffeomorphism of M, and let φ be a Hölder continuous potential on M. We construct an invariant and absolutely continuous family of measures (with transformation relations defined by φ), which sit on local unstable leaves.

We present two main applications. First, given an ergodic homoclinic class $H_\chi(p)$, we prove that φ admits a local equilibrium state on $H_\chi(p)$ if and only if φ is "recurrent on $H_\chi(p)$" (a condition tested by counting periodic points), and one of the leaf measures gives a positive measure to a set of positively recurrent hyperbolic points; and if an equilibrium measure exists, the said invariant and absolutely continuous family of measures constitutes as its conditional measures. Second, we prove a Ledrappier-Young property for hyperbolic equilibrium states- if φ admits a conformal family of leaf measures, and a hyperbolic local equilibrium state, then the leaf measures of the invariant family (respective to φ) are equivalent to the conformal measures (on a full measure set). This extends the celebrated result by Ledrappier and Young for hyperbolic SRB measures, which states that a hyperbolic equilibrium state of the geometric potential (with pressure) has conditional measures on local unstable leaves which are absolutely continuous w.r.t the Riemannian volume of these leaves.

Monday April 12th, 2021 / 4:30 PM - 5:30 PM (Santiago Time, GMT-4)

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