SEMINARIO DE ANÁLISIS Y APLICACIONES

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11:30 h., ONLINE - URL: https://zoom.us/j/97431429382

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Blow-ups of caloric measure and applications to two-phase problems

Resumen:

Let Ω^+ and Ω^- be disjoint time-varying domains in $\mathbb{R}^n_x \times \mathbb{R}_t$, $n \ge 2$, and let ω^{\pm} denote their associated caloric measures. Under appropriate mild nondegeneracy and regularity hypotheses on Ω^{\pm} , mutual absolute continuity of ω^+ and ω^- on $E \subset \partial \Omega^+ \cap \partial \Omega^- \cap \operatorname{supp} \omega^+$ implies that the parabolic Hausdorff dimension of $\omega^+|_E$ is n+1 and the parabolic blow-ups of ω^+ at ω^+ -a.e. point of E are equal to a constant multiple of the parabolic (n+1)-Hausdorff measure restricted to hyperplanes containing a line parallel to the time-axis.

This is a parabolic analogue of a result of Kenig, Preiss and Toro, and its proof involves a set of techniques based on parabolic tangent measures. These methods, which I am going to discuss in my talk, also have other geometric applications, amongst which a caloric version of a theorem of Tsirelson about triple-points.

This is a joint work with Mihalis Mourgoglou.

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