CONGRESO DE JÓVENES INVESTIGADORES
Real Sociedad Matemática Española
Universidad de Murcia, del 7 al 11 de Septiembre de 2015

Analyticity up to the boundary of analytic linear parabolic problems and applications to observations over measurable sets.

Santiago Montaner[1], **Luis Escauriaza**[1], **Can Zhang**[2]

In the talk I will explain new quantitative estimates on the space-time analyticity of solutions to parabolic IVBP problems with L^2 initial data. The main features of these estimates are that:

i) they provide a time-independent lower bound for the radius of convergence in the space variable for the Taylor series of solutions,

ii) they hold up to the boundary of the domain in which we solve the parabolic problem.

The motivation for this quantification of analyticity stems from the application of the telescopic series method to prove observability inequalities over interior or boundary measurable sets for higher order equations or systems with variable coefficients. These observations are new even for the case of observations over open sets. As a drawback, we must require the coefficients to be space-time analytic and the boundary to be globally analytic. For second order equations the regularity hypothesis of the coefficients and boundary can be relaxed.

Referencias

[1] L. Escauriaza, S. Montaner, C. Zhang: Observation from measurable sets for parabolic analytic evolutions and applications. *to appear in J. Math. Pure Appl.* (2015).

[1]Departmento de Matemáticas
Universidad del País Vasco / Euskal Herriko Unibertsitatea
Apto. 644, 48080 Bilbao, Spain
luis.escauriaza@ehu.eus, santiago.montaner@ehu.eus.

[2]School of Mathematics and Statistics
University of Wuhan
zhangcansx@163.com