

PDE Seminars

2007 December 5th.

Judith Vancostenoble
Laboratoire MIP
*Mathématiques pour l'Industrie
et la Physique*
Université Paul Sabatier
Toulouse 3

11:00 - 12:00

Carleman estimates and null controllability for parabolic equations in some non standard cases.

In this talk, we study the null controllability question of linear parabolic equations in some non standard cases.

When the equation is uniformly parabolic, stated in a bounded domain and with regular lower order terms, it is by now well-known that the standard Carleman estimates developed by Imanuvilov-Fursikov ensures the null controllability property.

We concentrate here on some cases that are not covered by standard Carleman estimates such as the case of a degenerate parabolic equation or the case of nondegenerate parabolic equation but with a singular potential term.

Sylvain Ervedoza
Université de Versailles
Saint-Quentin-en-Yvelines
12:00 - 12:30

Remarks on Carleman estimates for parabolic equations with an inverse square potential.

In this talk, we present a Carleman estimate designed for the heat equation with an inverse-square potential, which completes and slightly generalizes the recent results obtained by J. Vancostenoble and E. Zuazua. We will also present further comments and open problems.

Julie Valein
Université de Valenciennes
et du Hainaut-Cambrésis
12:30 - 13:00

Quasi exponential decay of a finite difference space discretization of the 1-d wave equation by pointwise interior stabilization.

We first prove that the exponential decay of the scheme does not hold in general due to high frequency spurious modes. Secondly we show that a filtering of high frequency modes allows to restore a quasi exponential decay of the discrete energy.



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