WORKING GROUPS PDE

DATE: TUESDAY, FEBRUARY 14, STARTING FROM 16:00 [1]

Remarks on the first eigenvalue of the p(x)-Laplace operator

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In this talk we discuss some aspects regarding the first eigenvalue of the problem $-\Delta_{p(x)}u = \lambda|u|^{p(x)-2}u$ if $x \in \Omega$, $u = 0$ if $x \in \partial\Omega$, where $\Omega \subset \mathbb{R}^N$ is a bounded domain, $p : \overline{\Omega} \to (1, \infty)$ is a continuous function and $\Delta_{p(x)}u := \mathrm{div}(|\nabla u|^{p(x)-2}\nabla u)$ stands for the $p(x)$-Laplace operator. Particularly, we will emphasize, on the one hand, situations when the first eigenvalue is zero, and, on the other hand, we will advance some sufficient conditions when the first eigenvalue is positive. In the case when $p \in C^1(\Omega)$ some extensions will be presented. In a related context some connections with a maximum principle will be pointed out. Finally, letting $\Omega^\star$ be the ball centered in the origin having the same measure as Ω and taking $p^\star$ be the Schwarz symmetrization of p, we will highlight that in the case when p is not a constant function, the first eigenvalue of the problem $-\Delta_{p^\star(x)}u = \lambda|u|^{p^\star(x)-2}u$ if $x \in \Omega^\star$, $u = 0$ if $x \in \partial\Omega^\star$ is zero.

Numerical Methods for the Simulation of an Adaptive Control System

GIACOMO DRAGO

PhD Student, BCAM

I will present a specific linear control problem in finite dimensions, and the application of some numerical methods (Kalman Filter, Pole Placement) to the problem.

Uniform polynomial stability of C0 semigroups

SALEM NAFIRI

Internship, BCAM

In this paper, we give a characterization of the uniform polynomial stability of a sequence of C0-semigroups $Tn(t)$ on Hilbert space H_n in resolvent terms. We are going to show that the constants in the polynomial estimate are uniform with respect to n. At the end, we consider some applications...

[1] The presentation will last about 25 minutes + further questions and discussions