Swiss Doctoral Program in Mathematics: Forthcoming lecture course

One-parameter semigroups of linear operators

Lecturer: Emilie David-Guillou, Neuchâtel Mathematical Institute.

When/Where: The lecture will take place one Wednesday out of two between March 21 and May 16, 2007, from 14:00 to 17:30 at Neuchâtel Mathematical Institute, room E213. The dates of the sessions may eventually be discussed at the first meeting.

Abstract:

The aim of this course is to give a simple and self-contained presentation of the theory of one-parameter semigroups of bounded linear operators.

We propose to present an account of the abstract theory, and to show some applications to concrete initial value problems for partial differentiable equations.

Fundamental results like *Hille-Yosida Theorem* or *Lumer-Phillips Theorem* will be proved in details, and the general theory will largely be illustrated by a choice of examples.

The course is meant to be accessible to anyone who has taken an undergraduate course in functional analysis. Additionally, since differentiable operators on L^p spaces provide a large class of examples, some familiarity with Lebesgue integration and Fourier Analysis might be useful.

The main references for the course are:

[1] A. Pazy, *Semigroups of Linear Operators and Applications to Partial Differential Equations*, Vol. 44, Springer-Verlag, New-York (1983).

[2] E. B. Davies, *One-Parameter Semigroups*, Academic Press, London (1980).

[3] E. Hille and R. S. Phillips, *Functional analysis and semi-groups*, Amer. Math. Soc. Colloq. Publ., Vol. 31, Providence R. I. (1957).

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