



Grupo de Física Matemática  
da Universidade de Lisboa

## SEMINÁRIO DE FÍSICA-MATEMÁTICA

Dia 17 de Junho de 2009 (quarta-feira), às 13h30m\*, na Sala B1-01

« **New Trotter-Kato Product Formulae for a Class of Time-Dependent Operators** »

**Pierre-A. Vuillermot**

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### Abstract

In this talk we shall provide a set of sufficient conditions that allow a natural extension of the so-called Chernoff product formula to the case of certain one-parameter families of functions taking values in the algebra of all linear bounded operators defined on an arbitrary complex Banach space  $B$ . Those functions need not be contraction-valued and are intimately related to certain evolution operators on  $B$ . The most natural consequences of the new result we shall discuss are various formulae of the Trotter-Kato type which involve either semigroups with time-dependent generators, or the resolvent operators associated with these generators. In the general case we can apply such formulae to evolution problems of parabolic type and also to Schrödinger evolution equations in some very particular cases. The formulae we prove may also be relevant to the numerical analysis of non-autonomous ordinary and partial differential equations.

\* **Novo horário**

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