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CIDMA
CENTRO DE I&D EM MATEMÁTICA E APLICAÇÕES
CENTER FOR R&D IN MATHEMATICS AND APPLICATIONS

SEMINAR

Grupo de Análise Funcional e Aplicações
Functional Analysis and Applications Group

Convolution-like structures, differential operators and diffusion processes

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Abstract

It is well-known that convolutions, differential operators and diffusion processes are interconnected subjects: the ordinary convolution commutes with the Laplacian, and the law of Brownian motion has a convolution semigroup property with respect to the ordinary convolution. If we seek to generalize this useful connection so as to cover other differential operators and diffusion processes, we are naturally led to the notion of a convolution-like operator – i.e. a bilinear operator with respect to which a given diffusion (other than the Brownian motion) has the convolution semigroup property, and which commutes with the generator of the given diffusion. In this talk we present an introduction to the general problem of construction convolution-like operators and its applications to stochastic processes and differential equations. We will give an overview on some recent developments, and we will draw attention to a wide range of questions which still remain open in this area of research.

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