SEMINARI D'ANÀLISI UAB-UB **Curs 2010–2011**

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Facultat de Matemàtiques, U.B., Aula T2.

L^p functional calculus for the Ornstein-Uhlenbeck operator

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ABSTRACT: Consider a self-adjoint operator A on $L^2(\mu)$, where (M, μ) is a measure space. A bounded Borel function m on $\mathbb{R}$ is called an *L^p-multiplier for A* $(1 \leq p < \infty)$, if the operator $m(A)$, defined spectrally on $L^2(\mu)$, extends from $L^p \cap L^2(\mu)$ to a bounded operator on $L^p(\mu)$. The set $\mathcal{M}_p(A)$ of L^p-multipliers forms a Banach algebra. Necessary and sufficients conditions for membership in $\mathcal{M}_p(A)$ have useful applications in spectral theory, in potential theory, to partial differential equations, in scattering theory ...

In the last thirty-odd years this problem has been investigated for several generalized Laplacians (Laplace-Beltrami operators on Riemannian manifolds, sums of squares of vector fields, Schrödinger operators ...) I shall discuss some results for the Ornstein-Uhlenbeck operator, a "natural" Laplacian on the Euclidean space with Gauss measure.