Seminario de Análisis y Aplicaciones

Martes, 19 de febrero de 2019

14:30 h., Módulo 17 - Aula 520 (Depto. Matemáticas UAM)

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Spectral multipliers and wave equation for sub-Laplacians: lower regularity bounds of Euclidean type

Resumen:

Let $\mathscr{L}$ be a smooth second-order real differential operator in divergence form on a manifold of dimension n. Under a bracket-generating condition, we show that the ranges of validity of spectral multiplier estimates of Mihlin–Hörmander type and wave propagator estimates of Miyachi–Peral type for $\mathscr{L}$ cannot be wider than the corresponding ranges for the Laplace operator on $\mathbb{R}^n$. The result applies to all sub-Laplacians on Carnot groups and more general sub-Riemannian manifolds, without restrictions on the step. The proof hinges on a Fourier integral representation for the wave propagator associated with $\mathscr{L}$ and nondegeneracy properties of the sub-Riemannian geodesic flow. This is a joint work with Alessio Martini and Sebastiano Nicolussi Golo.

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