

SEMINARIO DE ANÁLISIS Y APLICACIONES

Viernes, 16 de marzo de 2012

11:30 h., Módulo 17 (antiguo C-XV) - Aula 520 (Depto. Matemáticas UAM)

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Harmonic analysis and the morphology
of the visual cortex

Resumen:

The primary visual cortex V1 is the first area of the brain involved in the processing of visual stimuli captured by retina. Neurons in V1 are capable of extracting local features from images, and make part of a network of connections relating those features to each other.

A key role for a quantitative description of V1 functional architecture is played by noncommutative harmonic analysis and differential geometry, with emphasis on group representations, reproducing kernel Hilbert spaces and sub-Riemannian structures.

After a brief introduction on the neurophysiological and experimental settings, we will develop a coherent states transform based on the uncertainty principle of the group of Euclidean motions and apply it to reproduce concrete measurements of brain activity.