SEMINARIO DE ANÁLISIS Y APLICACIONES

Viernes, 1 de marzo de 2019

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

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Nilspaces, Gowers norms, and a generalization of the Green-Tao-Ziegler inverse theorem

Resumen:
The uniformity norms, introduced by Gowers in his famous work on Szemerédi's theorem, have become a central tool in arithmetic combinatorics, especially to count linear configurations in subsets of compact abelian groups, and more generally to analyze averages of functions over such configurations. An important result related to the Gowers norms is the so-called inverse theorem, proved for functions on finite intervals of integers by Green, Tao and Ziegler. This theorem tells us essentially that such a function has large Gowers norm of order k+1 only if the function correlates with a specific type of function, called a nilsequence, that is generated by a rotation on a nilmanifold of step k. I shall discuss recent joint work with Balázs Szegedy in which, building up on the theory of nilspaces initiated by Camarena and Szegedy, we obtain in particular a generalization of the Green-Tao-Ziegler inverse theorem, valid for functions on compact abelian groups and also on nilmanifolds.

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