

WORKING GROUP IN NONCOMMUTATIVE HARMONIC ANALYSIS

Martes, 17 de marzo de 2015

11:00-13:00 h., [Aula Azul](#) (ICMat, Campus de Cantoblanco)

Guixiang Hong

ICMAT

Asymmetric Doob's maximal
inequalities and algebraic atomic
decomposition for noncommutative
martingales (I)

Resumen:

I shall talk about the Doob's maximal inequality for noncommutative martingales. I first recall the symmetric one proved by Marius Junge $1 < p \leq \infty$ and Cuculescu $p = 1$, which have many application to noncommutative harmonic analysis and ergodic theory. Then I present some asymmetric variants of Doob's maximal inequality, obtained recently in collaborating with Marius Junge and Javier Parcet. The study of these asymmetric variants is partially motivated by the research of principle value of noncommutative singular integrals. The origin of the asymmetry is the noncommutativity.

In order to show these asymmetric maximal inequalities, we develop algebraic atomic decomposition of Hardy spaces and L_p spaces, which are of independent interest and new even when the underlying von Neumann algebras are commutative.