Seminario de Geometría y Topología

UNIVERSIDAD COMPLUTENSE MADRID

Scale Structures and C*-algebras

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Resumen:

The purpose of this talk is to investigate the duality between large scale and small scale. It is done by creating a connection between C*-algebras and scale structures. In the commutative case we consider C*-subalgebras of $C^b(X)$, the C*-algebra of bounded complex-valued functions on X. Namely, each C*-subalgebra $\mathscr{C}$ of $C^b(X)$ induces both a small scale structure on X and a large scale structure on X. The small scale structure induced on X corresponds (or is analogous) to the restriction of $C^b(h(X))$ to X, where $h(X)$ is the Higson compactification of X. The large scale structure induced on X is a generalization of the C_0-coarse structure of N.Wright. Conversely, each small scale structure on X inducesÂ a C*-subalgebra of $C^b(X)$ and each large scale structure on X inducesÂ a C*-subalgebra of $C^b(X)$. To accomplish the full correspondence between scale structures on X and C*-subalgebras of $C^b(X)$ we need to enhance the scale structures to what we call hybrid structures. In the noncommutative case we consider C*-subalgebras of bounded operators $B(l_2(X))$.

Joint work with Kyle Austin and Michael Holloway.

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