



UNIVERSITY OF CALIFORNIA, RIVERSIDE

MATHEMATICS DEPARTMENT COLLOQUIUM

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“DEGREES OF NONCOMMUTATIVITY FOR SUBFACTORS”

A subfactor is an inclusion of infinite dimensional algebras of operators on a Hilbert space that can be thought of as noncommutative probability spaces. It captures symmetries of the mathematical or physical objects from which it was constructed, much like a group does classically. These "quantum symmetries" form a unitary tensor category, or a planar algebra, that is a complete invariant for so-called amenable subfactors. Many interesting examples of exotic categories have been constructed in this way.

It turns out that most subfactors are not amenable, and it is open how to distinguish them. I will discuss an asymptotic noncommutativity property of a subfactor that is not captured by the planar algebra, and explain a new result that leads to the first known examples of "very noncommutative" subfactors. Perhaps this property should be viewed as a quantum symmetry.

WEDNESDAY, JUNE 6TH, 2018

SURGE 284

3:40 - 5:00 P.M.