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Planar algebras, noncommutativity and hyperfinite subfactors

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The hyperfinite II_1 factor contains a wealth of subfactors that give rise to many new and fascinating mathematical structures.
Vaughan Jones discovered that the unitary tensor category generated by the standard representation of a subfactor has a planar structure and can be described as what he called a planar algebra". It is a complete invariant for amenable subfactors by a deep result of Popa. However, generic subfactors are not amenable, and one typically does not know how to distinguish them.
I will discuss a notion of asymptotic noncommutativity that can be used to distinguish subfactors with the same planar algebra invariant.
I will constructvery noncommutative" examples from actions of suitable groups on the hyperfinite II_1 factor. Moreover, planar algebra techniques lead to new subfactors with Temperley-Lieb-Jones planar algebra.

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