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Stacks associated with non-commutative surfaces

This is joint work with Eleonore Faber, Matthew Satriano, and Shinnosuke Okawa. One of the main constructions of Connes' noncommutative geometry is a construction of the convolution algebra of a groupoid. It is not clear how to characterize which algebras can be obtained this way. We construct a groupoid associated to a smooth, finite over centre, noncommutative surface which has the same category of modules. This was done locally by Reiten and Van den Bergh and in dimension one by Chan and I. We hope to use this result to study Artin's conjectured classification of noncommutative surfaces by reduction to characteristic p .