MIT GRADUATE STUDENT LUNCH SEMINAR
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Title: Moduli of semistable sheaves and representation theory

Abstract: Shuffle algebras are known to provide incarnations for the algebra of Hecke correspondences that acts on the cohomology/K-theory/derived category of moduli spaces of sheaves on the affine plane. When we replace the affine plane by an arbitrary surface S, the corresponding shuffle algebra takes on some new and interesting features. For one thing, it involves doing representation theory of non-commutative algebras over non-integral domains. Ultimately, this should provide an interesting family of new representations for which we can ask questions from mathematical physics, integrable systems, or the theory of vertex operator algebras.