COHOMOLOGICAL HALL ALGEBRAS,
YANGIANS AND KLEINIAN SURFACE
SINGULARITIES

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Zoom link:
https://bostonu.zoom.us/j/95346529200?pwd=SzFGbXpGbjN6V1pFaWREVU9XcnsrZz09
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Abstract: Moduli spaces of sheaves on complex surfaces play an important role in algebraic geometry, with motivation coming from (among others) string theory and gauge theory.

One way to understand the structure of the cohomology of such moduli spaces is to construct an action of a suitable algebra, through some 'Hecke type' correspondences. Traditionally, one considers Hecke correspondences modifying a sheaf at a single point (varying along a fixed cycle on the surface). In an ongoing joint work with Diaconescu, Sala and Vasserot, we consider the case of resolutions of Kleinian singularities, and modifications along the (1-dimensional) components of the exceptional locus. This yields actions of some Yangian type algebras (more precisely, affine Yangians). The main tool is the notion of cohomological Hall algebra, and the main technical result describes the behavior of such algebras upon derived equivalences coming from reflection functors.

See http://math.bu.edu/research/geom/seminar.html or contact Yu-Shen Lin (yslin@bu.edu) or Siu-Cheong Lau (lau@math.bu.edu) for more information.