BOSTON UNIVERSITY GEOMETRY AND PHYSICS SEMINAR

3D TQFT, SOERGEL BIMODULES AND KNOT HOMOLOGY

Alexei Oblomkov
UMass Amherst

November 6, 2019, 4:00 – 5:00pm
Math/Computer Science, Room B39
111 Cummington Street, Boston

Tea: 3:45pm in Room B24

Abstract: Talk is based on joint work with Lev Rozansky. I will explain a mathematical construction of N=4 gauge 3D TQFT, known as Kapustin-Saulina-Rozansky theory.

The defects in this theory encode the braids and that allows us to categorify Ocneanu-Jones trace and obtain a triply-graded knot homology. We show the homology coincide with the Khovanov-Rozansky trace on the Rouquier complexes on Soergel bimodules. Because of the geometric nature of our TQFT construction we obtain an interpretation of the homology as space of global sections of a sheaf on the Hilbert scheme of point on the plane. I will also explain the relation between our result and the conjectures of Gorsky-Negut-Rasmussen.

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.