

BOSTON UNIVERSITY GEOMETRY AND PHYSICS SEMINAR

SPECTRAL NETWORKS AND THE BONAHON-WONG QUANTUM TRACE

Andrew Neitzke
The University of Texas at Austin

March 27, 2019, 4:00 – 5:00pm
Math/Computer Science, Room 148
111 Cummington Street, Boston

Tea: 3:45pm in Room 144

Abstract: I will first review two known constructions involving framed links in 3-manifolds M .

- 1) If $M = R^3$, one can consider the Jones polynomial of the link: this is an element of $Z[q, 1/q]$,
- 2) If $M = C \times R$ for a surface C equipped with an ideal triangulation, one can consider the "quantum trace" associated to the link, introduced by Bonahon-Wong: this is an element of a certain noncommutative algebra associated to an ideal triangulation of C .

I will explain a geometric perspective on these constructions in the language of spectral networks. This perspective leads to a further generalization (work in progress with Fei Yan), which associates an invariant to a framed link in a more general 3-manifold M . The invariant is valued in a certain abelian group, the " $GL(1)$ skein module" of a double cover of M . The construction can be viewed as a q -deformation of the abelianization of flat $GL(2)$ -connections over M , and has relations to Gromov-Witten theory and to quantum field theory; I will describe these points as time permits.

See <http://math.bu.edu/research/geom/seminar.html> or contact Yoosik Kim (yoosik@bu.edu) or Siu-Cheong Lau (lau@math.bu.edu) for more information.