

Creighton University Department of Mathematics Invites You To Attend

# Department of Mathematics Colloquium

Friday, April 5, 2019 | 3:30 p.m. | HLSB 522

## *“Categorified Trace Functions and Quantum Annular Knot Homology”*

The trace of a square matrix is a linear functional which is characterized by the property that it is invariant under cyclic reordering: the trace of  $AB$  is equal to the trace of  $BA$  whenever  $AB$  and  $BA$  are square matrices.

In this talk, I will discuss categorical generalizations of trace functions and explain why they are relevant to low-dimensional topology. In particular, I will show how the formalism of categorified trace functions can be used to prove new results about annular Khovanov homology, a combinatorial invariant for knots and links in a thickened annulus, which was discovered by Asaeda-Przytycki-Sikora around the year 2003. One of our most striking results is that annular Khovanov homology can be quantized, in the sense that it admits a deformation which gives rise to nontrivial invariants for closed surfaces embedded in a twice thickened annulus.



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Join us in HLSB 503 at 3:00 p.m.  
for a reception before the talk.