

# GAUGE THEORY & TOPOLOGY SEMINAR

Elisenda Grigsby (Boston College)

## On Khovanov homology, Heegaard Floer homology, and Gluing

Ozsvath-Szabo's spectral sequence from Khovanov homology to Heegaard Floer homology has generated a number of interesting applications to questions in low-dimensional topology. By combining the constructions of Ozsvath-Szabo with sutured manifold theory, we now have an enhanced understanding of the algebraic structure of the connection. In particular, a generalization of Juhasz's surface decomposition theorem implies that the algebra of the spectral sequence behaves "as expected" under natural geometric operations like cutting and stacking.

In this talk, I will discuss joint work in progress with Denis Auroux and Stephan Wehrli aimed at understanding how the connection between Khovanov and Heegaard-Floer homology behaves under gluing. More precisely, we will see how to recover (a portion of) the sutured version of Khovanov homology as the Hochschild homology of certain bimodules over quiver algebras defined by Khovanov-Seidel. Along the way, we will discuss an intriguing relationship between these Khovanov-Seidel bimodules and certain bimodules appearing in the bordered Floer package of Lipshitz-Ozsvath-Thurston.

**Date:** Friday, September 17

**Time:** 3:30-4:30

**Location:** Harvard Mathematics Department, Science Center 507

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<http://math.harvard.edu/~acotton/seminar.html>