

CATEGORICAL ACTION OF THE BRAID GROUP OF THE CYLINDER: SYMPLECTIC ASPECT

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ABSTRACT. Khovanov and Seidel constructed in 2000 an action of the classical braid group on a category of algebraic nature that categorifies the Burau representation. They proved the faithfulness of this action through the study of curves in a punctured disk (while Burau representation is not faithful for braids with five strands or more). In the same article, they also constructed a faithful categorification of symplectic nature that is equivalent to the algebraic one. Both constructions had huge consequences in representation theory and geometry.

In an article with Anne-Laure Thiel and Emmanuel Wagner, we already extended the algebraic categorification to the braid group of the cylinder and in a work in progress we define its symplectic counterpart. In this talk, I will explain the main tools and ideas behind the symplectic version. No prior knowledge of symplectic geometry will be assumed.