CATEGORIFICATIONS FOR LINK INVARIANTS COMING FROM SYMPLECTIC GEOMETRY

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II. Symplectic Khovanov Homology-invariance under Markov moves

In this second talk, we will present the invariance of the Symplectic Khovanov Homology with respect to the Markov moves, which ensures that the theory leads to a link invariant. As presented in the first talk, the Symplectic Khovanov groups $KH^*_{\mathrm{sympl}}(L)$ depend on the choice of a braid that represents L.

In order to prove the invariance, one needs to check that the homology groups do not modify under the Markov moves I and II. We will discuss the main ideas of this proof. The interesting part occurs at the Markov move II. For the definition of the invariant, it is used just the smooth part and the fibers with singularities where two points "collide" of the projection map. In order to check Markov II, it is used a new singular part of the projection map, which has singularities where three points "collide"(of type so called (A_2)).

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