

Knot Floer homologies

Andras Stipsicz, Hungarian Academy of Sciences (MTA)

Knot Floer homology (introduced by Ozsvath-Szabo and independently by Rasmussen) is a powerful tool for studying knots and links in the 3-sphere. In particular, it gives rise to a numerical invariant, which provides a nontrivial lower bound on the 4-dimensional genus of the knot. By deforming the definition of knot Floer homology by a real number t from $[0,2]$, we define a family of homologies, and derive a family of numerical invariants with similar properties. The resulting invariants provide a family of homomorphisms on the concordance group. One of these homomorphisms can be used to estimate the unoriented 4-dimensional genus of the knot. We will review the basic constructions for knot Floer homology and the deformed theories and discuss some of the applications. This is joint work with P. Ozsvath and Z. Szabo.