BIJI WONG, CIRGET

A Floer homology invariant for 3-orbifolds via bordered Floer theory

Using bordered Floer theory, we construct an invariant $\widehat{HFO}(Y^{\text{orb}})$ for 3-orbifolds Y^{orb} with singular set a knot that generalizes the hat flavor $\widehat{HF}(Y)$ of Heegaard Floer homology for closed 3-manifolds Y. We show that for a large class of 3-orbifolds $\widehat{HFO}$ behaves like $\widehat{HF}$ in that $\widehat{HFO}$, together with a relative $\mathbb{Z}_2$-grading, categorifies the order of H_1^{orb}. When Y^{orb} arises as Dehn surgery on an integer-framed knot in S^3, we use the $\{-1,0,1\}$-valued knot invariant ε to determine the relationship between $\widehat{HFO}(Y^{\text{orb}})$ and $\widehat{HF}(Y)$ of the 3-manifold Y underlying Y^{orb}.