Mathematics > Geometric Topology

# A rank inequality for the knot Floer homology of double branched covers

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Given a knot K in S^3, let \Sigma(K) be the double branched cover of S^3 over K. We show there is a spectral sequence whose E^1 page is (\hat{HFK}(\Sigma(K), K) \otimes V^{n-1}) \otimes \mathbb Z_2((q)), for V a \mathbb Z_2-vector space of dimension two, and whose E^{\infty} page is isomorphic to (\hat{HFK}(S^3, K) \otimes V^{n-1}) \otimes \mathbb Z_2((q)), as \mathbb Z_2((q))-modules. As a consequence, we deduce a rank inequality between the knot Floer homologies \hat{HFK}(\Sigma(K), K) and \hat{HFK}(S^3, K).

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