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Knot Floer homology and Legendrian knots

Abstract. Heegaard Floer theory (as developed by Ozsvath and Szabo) provides a package of invariants for 3-manifolds, 4-dimensional cobordisms (and also for closed 4-manifolds), for contact structures on 3-manifolds, and for null-homologous knots in 3-manifolds. The recent advances of finding combinatorial descriptions of these invaraints for knots and links in the 3-sphere also provided a definition of an invariant of Legendrian knots. In the lecture we discuss these new developements, and show a way to extend the Legendrian knot invariant for knots in arbitrary contact 3-manifolds.