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*Knot Floer Homology and Relative Adjunction Inequalities*

In this talk, we present a relative adjunction inequality for 4-manifolds with boundary. We begin by constructing generalized Heegaard Floer tau-invariants associated to a knot in a 3-manifold and a nontrivial Floer class. Given a 4-manifold with boundary, the invariant associated to a Floer class provides a lower bound for the genus of a properly embedded surface provided that the Floer class is in the image of the cobordism map induced by the 4-manifold. We will also discuss several applications to links and contact manifolds.

This is joint work with Matt Hedden.