

Bordered Floer homology and friends

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Heegaard Floer theory is a family of invariants of 3- and 4-dimensional manifolds initially developed by Peter Ozsvath and Zoltan Szabo, with many topological applications. Bordered Floer homology is an extension of Heegaard Floer theory to 3-manifolds with boundary, initially developed by Ozsvath, Dylan Thurston and the speaker. In this talk we will start by reviewing the structure of Heegaard Floer theory and bordered Floer theory and mentioning some of their applications. We will then discuss some of the ideas that led us to bordered Floer theory and its known and expected relationships to the Fukaya category; Khovanov homology; Juhasz's sutured Floer theory; and some notions from categorification. (The talk will assume some interest, but little or no background, in these topics.)