

Heegaard Floer homology of broken fibrations

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We will outline a programme for identifying Perutz's Lagrangian matching invariants and Ozsvath-Szabo's Heegaard Floer invariants of three and four manifolds. In this talk, we will deal with purely Heegaard Floer theoretical side of this programme and describe an isomorphism of 3-manifold invariants for certain Spin^c structures where the groups involved can be formulated in the language of Heegaard Floer theory. As applications, we give new calculations of Heegaard Floer homology of certain classes of 3-manifolds, a characterization of Juhasz's sutured Floer homology and an outline of Floer's excision theorem in the context of Heegaard Floer homology.