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Branched cyclic covers and L-spaces

A 3-manifold is called an L-space if its Heegaard Floer homology is "simple." No characterization of all such "simple" 3-manifolds is known. Manifolds obtained as the double-branched cyclic cover of a knot in the 3-sphere give many examples of L-spaces. In this talk, I'll discuss the search for L-spaces among higher index branched cyclic covers of knots. In particular, I'll give new examples of knots whose branched cyclic covers are L-spaces for every index n. This is joint work with Ahmad Issa.