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Title: Equivariant sliceness and the extension of involutions on lens spaces to rational homology balls

Abstract: A knot in the three-sphere is called slice if it bounds a smoothly embedded disk in the four-ball. Deciding which knots are slice is a central question in low-dimensional topology, closely tied to fundamental conjectures in 4-dimensional topology.

One obstruction to sliceness arises from analyzing the double branched cover of the knot and determining whether the branching involution extends to a rational homology 4-ball.

In this talk, I will discuss the problem of extending involutions to rational homology balls and explain its relation to the question of whether a knot is equivariantly slice. I will then focus on the case of involutions on lens spaces and revisit the equivariant sliceness of two-bridge knots, giving a new proof of a theorem of Di Prisa–Framba. This is a joint work with Antony Fung and Lisa Lokteva.