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Cosmetic crossings, cosmetic surgery and Conway spheres

A tangle decomposition along a Conway sphere breaks a knot or link into simpler pieces, each of which is a two-string tangle. In this talk, we'll discuss (one of the ways) in which Khovanov homology can be calculated using tangle decompositions. In particular, the algebraic invariants can be realized geometrically as immersed curves on the four-punctured sphere. This strategy turns out to be quite useful for investigating two classic open problems: the cosmetic surgery conjecture and the cosmetic crossing conjecture. This is joint with Kotelskiy, Lidman, Watson and Zibrowius.