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Artem Kotelskiy* (artofkot@gmail.com), **Liam Watson** (liam@math.ubc.ca) and **Claudius Zibrowius** (liam@math.ubc.ca). *Khovanov-theoretic curve-invariants of 4-ended tangles: structural results and their applications*. Preliminary report.

Consider a Conway two-sphere S intersecting a knot K in 4 points, and thus decomposing the knot into two 4-ended tangles T and T' . We have developed a framework that allows to interpret Khovanov homology $\text{Kh}(K)$ as Lagrangian Floer homology of a pair of specifically constructed immersed curves on the dividing 4-punctured sphere S . Each of the two immersed curves are invariants of 4-ended tangles T and T' . We will describe a structural result concerning these immersed curves, which severely restricts the types of curves that may appear as tangle invariants. The key tools behind this are matrix factorization framework of Khovanov-Rozansky, and homological mirror symmetry statement for the three-punctured sphere. Time permitting we will also discuss applications of this structural result: progress on mutation invariance of $\text{Kh}(K; \mathbb{Q})$, and studying thin knots in the presence of Conway spheres. This is joint work with Liam Watson and Claudius Zibrowius. (Received January 12, 2021)