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Slope detection in knot complements and the L-space conjecture

The L-space conjecture posits a connection between left-orderability of the fundamental group of a prime 3-manifold, whether or not the manifold admits a co-orientable taut foliation, and whether or not the manifold is a Heegaard Floer homology L-space. There is also a relative version of this conjecture for manifolds with torus boundary, which posits a connection between the boundary behaviours of these structures—tracking this boundary behaviour is known as “slope detection”.

For knots in S^3 that admit L-space Dehn fillings, also known as L-space knots, I will explain how checking the expected boundary behaviour of left-orderings can be broken down into a two-step process, and explain how to complete step one. This is a joint work in progress with Junyu Lu.