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On the unknottedness of self shrinkers

Self shrinkers are basic singularity models for the mean curvature flow. Much progress has been made in their study but outside some curvature convexity conditions and other special cases they are still not fully understood. In this talk I'll discuss some "unknottedness" results for self shrinkers in $\mathbb{R}^3$, which for instance imply that a self shrinking torus cannot be a tubular neighborhood of a nontrivial knot. The arguments discussed use the mean curvature flow and include some families of noncompact self shrinkers - closed self shrinkers were previously considered in a joint work with Shengwen Wang.