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Title: Knot Concordance and Exotica

Abstract: One well-known strategy for distinguishing smooth structures on closed 4-manifolds is to produce a knot K in S^3 which is (smoothly) slice in one smooth filling W of S^3 but not slice in some homeomorphic smooth filling W' . There are many techniques for distinguishing smooth structures on complicated closed 4-manifolds, but this strategy stands out for its potential to work for 4-manifolds W with very little algebraic topology. However, this strategy had never actually been used in practice, even for complicated W . I'll discuss joint work with Manolescu and Marengon which gives the first application of this strategy. I'll also discuss joint work with Manolescu which gives a systematic approach towards using this strategy to produce exotic definite closed 4-manifolds.