

Quantum Topology / Hopf Algebra Seminar

How hard is it to approximate the Jones polynomial?

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Abstract: The short answer is that it's $\#P$ -hard. The longer answer is that it was an algorithm was constructed in the quantum computation community to approximate the Jones polynomial at a principal root of unity, except with a diagram-dependent normalization factor. I will present my result that if you strip away this normalization factor to ask for any fair approximation, then approximating the Jones polynomial is as hard as any combinatorial counting problem and almost certainly out of reach for classical or even quantum computers. It is conjectured that the Jones polynomial distinguishes the unknot, but we can envision that we can know whether a complicated knot diagram is an unknot long before we know much about its Jones polynomial.

Thursday, September 17 at 3:00 PM in SEO 612
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