

TRR Guest Scientist Lecture / Seminar

Date/Time: 17.07.2017 / 14:00 Uhr
Location: Paderborn, P8.4.09

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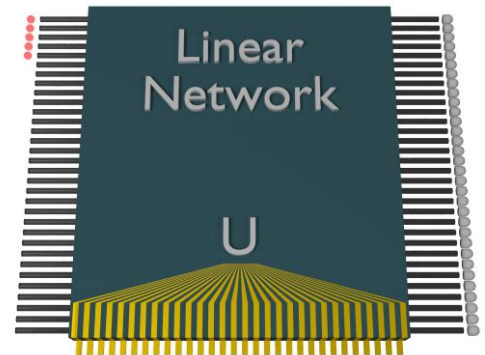


Quantum Sampling Problems, Boson Sampling and Quantum Supremacy

Abstract:

The study of computational problems that produce samples from probability distributions can be generated efficiently using only quantum mechanical resources. This aided our understanding of the power of quantum algorithms and lowered the requirements for demonstration of fast quantum algorithms. The proposed quantum sampling problems do not require a quantum computer capable of universal operations and also permit physically realistic errors in their operation. This is an encouraging step towards an experimental demonstration of quantum algorithmic supremacy.

In this talk, sampling problems are reviewed and the arguments that have been used to deduce when sampling problems are hard using classical resources alone. Two classes of quantum sampling problems that demonstrate the supremacy of quantum algorithms are Boson Sampling and IQP Sampling. Both schemes are presented with a focus on recent developments in Boson Sampling.



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