

Classically simulatable quantum computations

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Quantum computing is usually concerned with processes offering computing power beyond that achievable by classical means. Classically simulatable quantum computations offer no such benefit, but as a restricted class of quantum processes, their special features can nevertheless provide striking insights into fundamental questions of the origins of universal quantum computing power, and into practical issues of its implementation and verification. In this talk we will introduce the classically simulatable classes of Clifford computations and matchgate computations, and discuss some insights that they can offer for these issues.