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Title:	Optimal Blind Quantum Computation
Authors:	Mantri, Atul (/jspui/browse?type=author&value=Mantri%2C+Atul)
Keywords:	Capabilities Quantum computation Client Computation
Issue Date:	2013
Publisher:	American Physical Society
Citation:	Physical Review Letters, 111(23).
Abstract:	Blind quantum computation allows a client with limited quantum capabilities to interact with a remote quantum computer to perform an arbitrary quantum computation, while keeping the description of that computation hidden from the remote quantum computer. While a number of protocols have been proposed in recent years, little is currently understood about the resources necessary to accomplish the task. Here, we present general techniques for upper and lower bounding the quantum communication necessary to perform blind quantum computation, and use these techniques to establish concrete bounds for common choices of the client's quantum capabilities. Our results show that the universal blind quantum computation protocol of Broadbent, Fitzsimons, and Kashefi, comes within a factor of 8 3 of optimal when the client is restricted to preparing single qubits. However, we describe a generalization of this protocol which requires exponentially less quantum communication when the client has a more sophisticated device.
Description:	Only IISERM authors are available in the record.
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