Title:	True experimental reconstruction of quantum states and processes via convex optimization
Authors:	Gaikwad, Akshay (/jspui/browse?type=author&value=Gaikwad%2C+Akshay) Arvind (/jspui/browse?type=author&value=Arvind) Dorai, Kavita (/jspui/browse?type=author&value=Dorai%2C+Kavita)
Keywords:	True experimental reconstruction quantum states
Issue Date:	2021
Publisher:	springer link
Citation:	Quantum Information Processing, 20(1).
Abstract:	We use a constrained convex optimization (CCO) method to experimentally characterize arbitrary quantum states and unknown quantum processes on a two-qubit NMR quantum information processor. Standard protocols for quantum state and quantum process tomography are based on linear inversion, which often result in an unphysical density matrix and hence an invalid process matrix. The CCO method, on the other hand, produces physically valid density matrices and process matrices, with significantly improved fidelity as compared to the standard methods. We use the CCO method to estimate the Kraus operators and characterize gates in the presence of errors due to decoherence. We then assume Markovian system dynamics and use a Lindblad master equation in conjunction with the CCO method, to completely characterize the noise processes present in the NMR system.
Description:	Only IISERM authors are available in the record.
URI:	https://doi.org/10.1007/s11128-020-02930-z (https://doi.org/10.1007/s11128-020-02930-z) http://hdl.handle.net/123456789/4661 (http://hdl.handle.net/123456789/4661)
Appears in Collections:	Research Articles (/jspui/handle/123456789/9)

Files in This Item:

File	Description	Size	Format	
Need To Add…Full Text_PDF..pdf (/jspui/bitstream/123456789/4661/1/Need%20To%20Add%e2%80%a6Full%20Text_PDF..pdf)	Only IISERM authors are available in the record.	15.36 kB	Adobe PDF	View/Open (/jspu

Show full item record (/jspui/handle/123456789/4661?mode=full)
(/jspui/handle/123456789/4661/statistics)