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On the efficacy of weak measurements for tomography JONATHAN A. GROSS, CHRISTOPHER FERRIE, NINNAT DANGNIAM, CARLTON M. CAVES, University of New Mexico, Center for Quantum Information and Control — Recently there has been a fascination with weak measurements in the field of tomography. We conduct a detailed analysis of two specific schemes: so-called "direct state tomography" and another scheme marketed as outperforming "standard" tomography with respect to fidelity considerations. Through the application of generalized measurement theory we clearly identify what weak measurements contribute beyond "standard" projective measurements and what simple techniques the application of weak measurements obscures.

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