

Abstract Submitted
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A multiport scheme for performing SIC-POVMs¹ GELO NOEL TABIA, Perimeter Institute for Theoretical Physics, University of Waterloo, and Institute for Quantum Computing — SIC-POVMs comprise a family of generalized quantum measurements known to be optimal for linear quantum tomography, according to fairly standard Hilbert-Schmidt measures of statistical efficiency [1]. Because of the practical significance of state estimation in quantum information processing, it should prove useful to develop experimental methods for implementing SIC-POVMs directly. Based on the idea of Naimark extensions for POVMs, I propose the design for a SIC-POVM experiment using multiport devices with path-encoded qudits and demonstrate how it can be realized with integrated linear optics for qubits and qutrits [2]. References: [1] A. J. Scott, *J. Phys. A* **39**, 13507 (2006). [2] G. N. M. Tabia, arXiv:1207.6035 (2012).

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