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**Quantum Process Tomography** KAVAN MODI, CESAR RODRIGUEZ, AIK-MENG KUAH, GEORGE SUDARSHAN, The University of Texas at Austin, ANIL SHAJI, Univ. of New Mexico at Albuquerque — Quantum process tomography has become a very important tool in quantum information science. It is the way to study the detailed structure of a quantum channel. We will examine some recent experiment on quantum process tomography. We will point out some ambiguity in the way these experiments were preformed. We will show how these ambiguities lead to incorrect conclusion, namely the "unphysical" result of not completely positive map. The notion that a dynamical map must be completely positive is erroneous. We will present specific examples in which this is not the case. We will also present a recipe that will resolve any ambiguity in the future.

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