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Relation of operator Schmidt decomposition and CNOT complexity[1] MARK COFFEY, RON DEIOTTE, Colorado School of Mines — We consider two-qubit operators and provide a correspondence between their Schmidt number and controlled-NOT (CNOT) complexity, where the CNOT complexity is up to local unitary operations [1]. The results are obtained by complementary means, and a number of examples are given. Additionally, we present results for exact decompositions of two-qubit operators in terms of CNOT [2]. Instances of these results are applicable to superconducting-flux qubit and other systems. [1]M. W. Coffey and R. Deiotte, Quant. Info. Proc. 7, 117 (2008). [2]M. W. Coffey and R. Deiotte, preprint (2008).

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