

Abstract Submitted
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Developing Phase Qubits Without Dielectric Materials¹ R.W. SIMMONDS, M.S. ALLMAN, K. CIOK, JEFFREY S. KLINE, SEONGSHIK OH, K.D. OSBORN, G. PROKOPENKO, M.A. SILLANPAA, A.J. SIROIS, J.A. STRONG, J.D. WHITTAKER, D.P. PAPPAS, National Inst. of Standards and Tech. - Boulder — Recently amorphous insulating materials have been found to be detrimental to the energy retention of Josephson phase qubits. Most of this amorphous material has presently been used as an insulating layer between two wiring layers used in fabricating trilayer based Josephson phase qubits. In an effort to improve phase qubit performance we have developed two new fabrication techniques in order to produce phase qubits that do not require insulating layers. Here we will describe the fabrication processes and recent measurements on these systems.

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