Abstract Submitted
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Prime factoring using a Josephson phase-qubit architecture: $15 = 3 * 5$ ERIK LUCERO, R. BARENDS, J. BOCHMANN, Y. CHEN, B. CHIARO, J. KELLY, M. LENANDER, M. MARIANTONI, A. MEGRANT, C. NEILL, P. O'MALLEY, P. ROUSHAN, D. SANK, A. VAINSENCHER, University of California, Santa Barbara, H. WANG, Zhejiang University, J. WENNER, T. WHITE, Y. YIN, A.N. CLELAND, JOHN M. MARTINIS, University of California, Santa Barbara — We demonstrate a compiled version of Shor's algorithm using a quantum processor. The processor consists of "off-the-shelf" components: qubits and resonators arranged in the ReZQu architecture. We have performed the algorithm for N=15 and the period r=2. The required two and three qubit entanglement is observed during the computation, which exemplifies the quantum nature of the algorithm.

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