

Abstract Submitted  
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**Three step implementation of any unitary matrix with complete graph of  $n$  qubits** AMARA KATABARWA, MICHAEL GELLER, Univ of Georgia  
— The use of programmable array of superconducting qubits for general purpose quantum computation has been recently proposed, and applications to amplitude amplification, phase estimation and simulation of realistic molecular collisions. This Single Excitation Subspace (SES) approach does not require error correction and is practical now. We show that any element in the unitary group  $U(n)$  can be generated in three steps, for any  $n$ . This allows for implementation of highly complex operations in constant time.

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