

Abstract Submitted
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Progress Towards Quantum Simulation Using Micro-fabricated Ion Traps¹ K. WRIGHT, G. JI, C. RICKERD, K. COLLINS, C. MONROE, Univ of Maryland-College Park — We report on current experimental progress towards using a surface electrode trap for quantum simulation. We use a micro-fabricated trap developed collaboratively between the Georgia Tech Research Institute (GTRI) and Honeywell International known as the Ball Grid Array (BGA) trap. This trap features 96 electrodes for fine control of the DC potential as well as a small footprint allowing for tight focusing of interaction lasers. We discuss the experimental system which utilizes the BGA trap, loading of Yb171 ions in this trap, and deterministic loading of chains of five or more ions. We hope to take advantage of the features of this new trap architecture in order to perform a small scale Boson Sampling experiment.

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