

Abstract Submitted
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Electric field noise in surface ion traps¹ CRYSTAL NOEL, MAYA LEWIN-BERLIN, CLEMENS MATTHIESEN, STANLEY LIU, S. MATTHEW GILBERT, HARTMUT HAEFFNER, University of California, Berkeley — Trapped ions provide a suitable platform for quantum information applications due to long coherence times and the ability to control their quantum state with high precision. In order to scale to many qubits and allow for fast processing, traps are getting smaller and ions are trapped closer to the surface. An unfortunate consequence of proximity to the surface is increased sensitivity to electric field noise caused by the surface of the trap. This leads to undesired decoherence of the ion motion, thereby limiting multi-qubit gate fidelities. We present recent results exploring the frequency scaling of the measured noise and effects on the noise of heating the trap substrate above room temperature.

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