

Abstract Submitted
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Single Electron Charge Pumping in CMOS Devices ROY MURRAY, NIST - Natl Inst of Stds Tech , JUSTIN K. PERRON, Department of Physics, California State University San Marcos, MD STEWART, JR., NEIL M. ZIMMERMAN, NIST - Natl Inst of Stds Tech — Achieving a large current simultaneously with low uncertainty remains the central challenge for electrical current metrology. Silicon based single electron devices offer a unique opportunity to increase current by parallelizing devices due to their superb temporal stability. As a first step on this path, we present results on individual devices fabricated at NIST in the silicon on insulator architecture operated as single electron pumps. We will present results from devices operated in both turnstile and ratchet pumping mode, where the former has a bias applied across the device, and the latter can be operated with no bias. We will discuss error rates both as a function of device operation mode and temperature of the device.

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