Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Error Accounting in Electron Counting Experiments[1] MICHAEL WULF, ALEXANDER B. ZORIN, Physikalisch Technische Bundesanstalt — Electron counting experiments attempt to provide a current of a known number of electrons per unit time. We propose architectures utilizing a few readily available electron-pumps or turnstiles with error rates of 1 part in 10^4 with common sensitive electrometers to achieve the desireable accuracy of 1 part in 10^8. This is achieved not by counting electrons but by counting the errors of individual devices; these are less frequent and therefore readily recognized and then accounted for. We thereby ease the route towards quantum based standards of current and capacitance.

[1]Supported in part by the EU under projects EuroSQIP and REUNIAM.

Michael Wulf
Physikalisch Technische Bundesanstalt

Date submitted: 01 Dec 2008 Electronic form version 1.4