Fluctuation Theorems for Individual Currents in Open Electric Circuits NIKOLAI SINITSYN, Theoretical Division, Los Alamos National Laboratory — We present a new class of fluctuation theorems for currents through specific components of mesoscopic electric circuits. We will refer to our results as Fluctuation Theorems for Individual Currents (FTICs). FTICs can be used to estimate system parameters when complete information about nonequilibrium many-body electron interactions is unavailable. We show that FTICs are often robust in the sense that they do not depend on some basic types of electron interactions. We also argue that principles that lead to FTICs in electric circuits extend to the quantum mechanical regime.

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