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Counting statistics of phase slips in superconducting interferometers PHILLIP WEINBERG, Michigan State University, ANDREW MURPHY, University of Illinois Urbana-Champaign, ALEX LEVCHENKO, Michigan State University, VICTOR VAKARYUK, The Johns Hopkins University, ALEXEY BEZRYADIN, University of Illinois Urbana-Champaign — In the superconducting proximity circuits, stochastic switching from the super-current carrying state to dissipative normal state is triggered by the topological fluctuations of the order parameter - phase slips. We study theoretically switching current statistics in a double-nanowire quantum interferometer as a function of the applied magnetic field perpendicular to the plane of the device. This system is a prototype of the double-slit experiment in optics which allows to probe macroscopic coherence of superconducting condensates. Magnetic field induces Meissner currents in the leads that lock superconducting phases across the wires. As a results phase slips that occur in the wires are not independent. We calculate dispersion of the switching current distribution as well as higher moment and find that they oscillate as the function of the field.

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