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Shot Noise in Anyonic Mach-Zehnder Interferometer[1] KAM TUEN LAW, DIMA FELDMAN, Brown University, YUVAL GEFEN, Weizmann Institute of Science, ALEXEI KITAEV, California Institute of Technology, ADY STERN, Weizmann Institute of Science — Recently a new type of interferometer for quantum Hall systems, an electronic Mach-Zehnder interferometer, was designed. We demonstrate that shot noise in such an interferometer can be used to probe the charge and statistics of quantum Hall quasiparticles. The dependence of the noise on the magnetic flux through the interferometer allows for a simple way to distinguish Abelian and non-Abelian quasiparticle statistics. In the Abelian case, the Fano factor is always lower than an electron charge. In the non-Abelian case, the maximal Fano factor as a function of the magnetic flux exceeds the charge of an electron.

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