Interaction effects in transport through an electronic Mach-Zehnder interferometer VITALY GOLOVACH, FLORIAN MARQUARDT, Department of Physics, Arnold-Sommerfeld-Center for Theoretical Physics, and Center for NanoScience, Ludwig-Maximilians-University Munich, Germany — We study theoretically transport through an electronic Mach-Zehnder interferometer in the presence of Coulomb interaction inside the interferometer, using a discrete wave-packet model. We find that the mutual capacitance between the arms of the interferometer leads to a suppression of the visibility of the Aharonov-Bohm oscillations at a large source-drain bias $\Delta \mu \gg h v_F / L$, where $L$ is the length of the arms and $v_F$ is the electron drift speed. Our numerical simulations indicate that the visibility of the Aharonov-Bohm oscillations is a non-analytic function of the mutual capacitance strength, in the limit $\Delta \mu \to \infty$. 

Vitaly Golovach
Department of Physics, Arnold-Sommerfeld-Center for Theoretical Physics and Center for NanoScience, Ludwig-Maximilians-University Munich, Germany

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