

Investigation of field effects in the solid-state nanopore transistor

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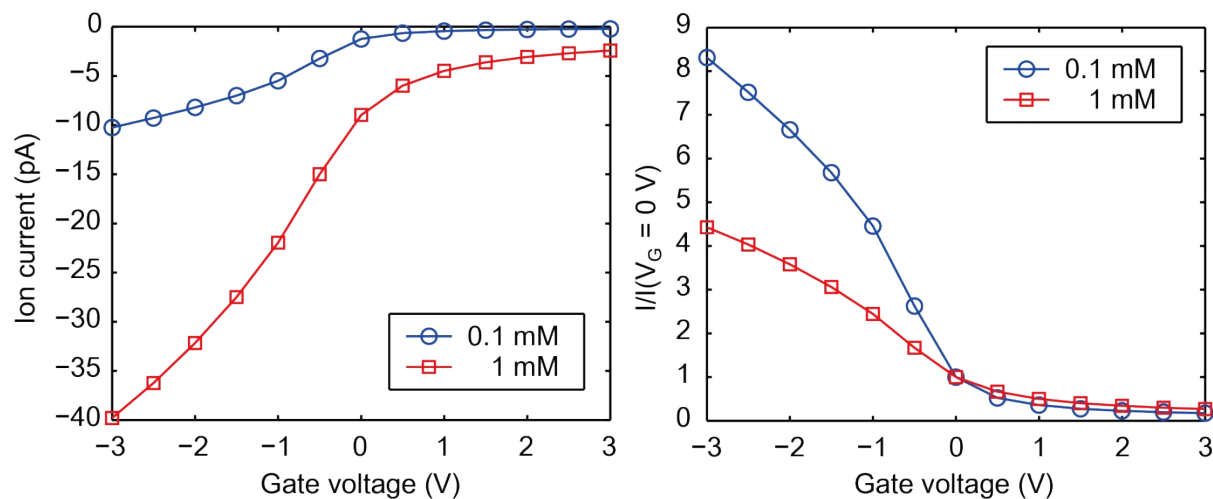


Figure S1. (a) Ion current versus gate voltage in 0.1 and 1 mM KCl solution. (b) Normalized ion current versus gate voltage. To compare the ion current in different ion concentration, we normalize the ion current by dividing the zero gate current.

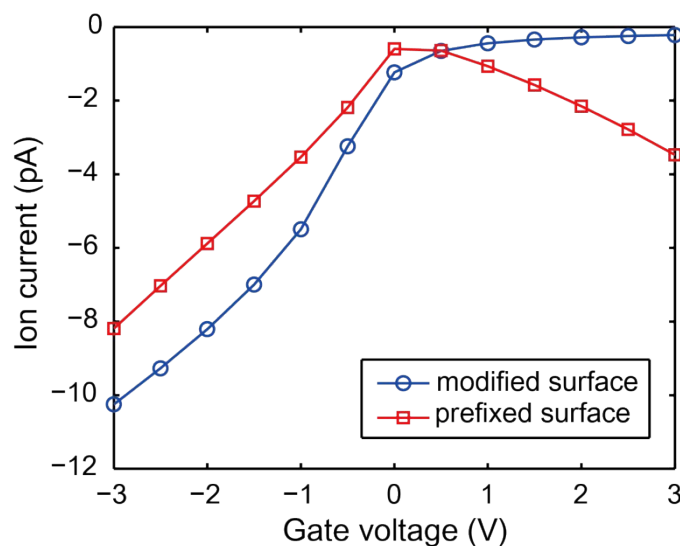


Figure S2. Ion current versus gate voltage using modulated surface charge model and prefixed surface charge model. In the low ion concentration and pH 5 condition, SiO_2 surface has very low negative charge density in experiment.^[1] Therefore, -0.45 mC/m^2 was used as the prefixed surface charge density with floating gate voltage. In the prefixed model, bipolar behavior was found, which is not consistent with experimental results.

[1] N. Sahai and D. A. Sverjensky, *Geochim. Cosmochim. Acta*, 1997, **61**, 2801-2826