Electronic Supplementary Material (ESI) for Nanoscale.

Supporting Information

Rectification of nanopores in aprotic solvents – Transport properties of nanopores with surface dipoles

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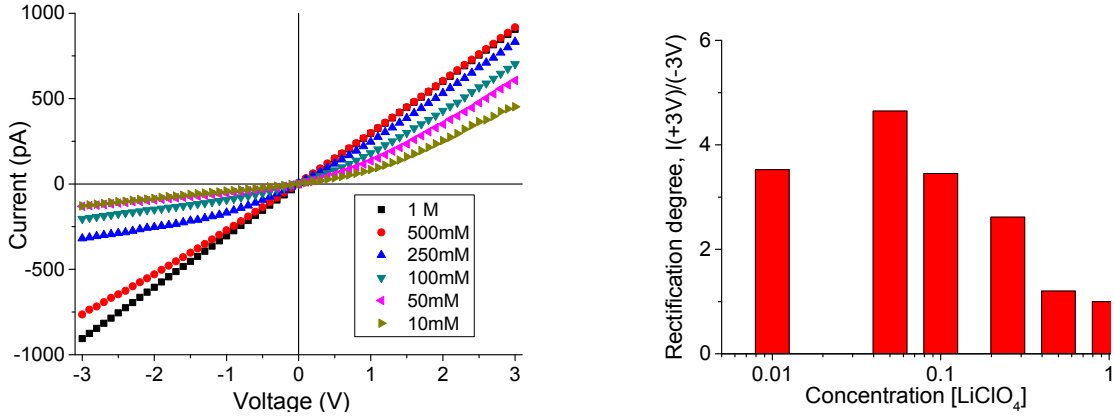

Figure S1. Current-voltage curves through a sinle conically shaped nanopore in polycarbonate film with opening of 50 nm (tip) and 410 nm (base). Recordings were performed in $LiClO_4$ solutions in propylene carbonate. The onset and degree of rectification occurs at a lower concentration than for the pore with a tip of opening of 11 nm, shown in the main manuscript (Figure 2). The data support the statement made in the main manuscript that there is tip size dependence for the ion current rectification in pores.

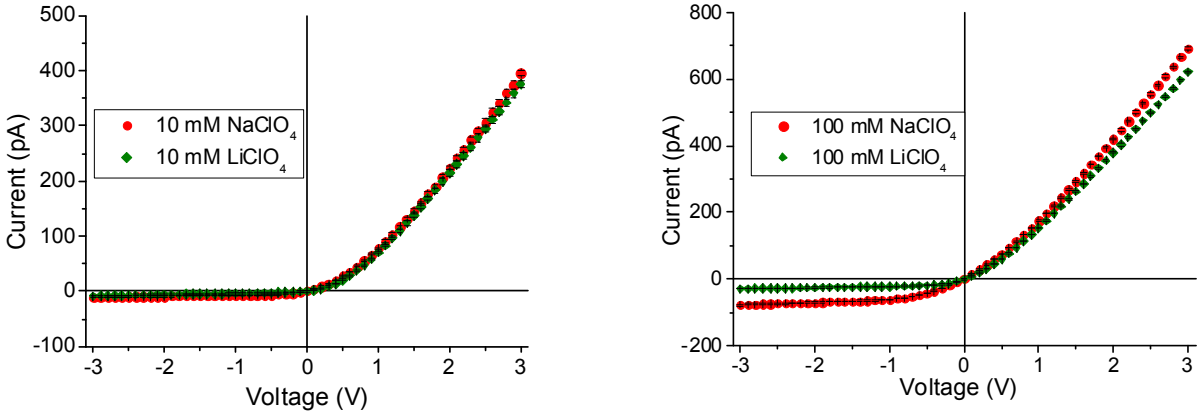

Figure S2. Current-voltage curves through a single polycarbonate nanopore in 10 mM (left) and 100 mM (right) $LiClO_4$ and $NaClO_4$ in propylene carbonate. The pore had opening diameters of 10 nm (tip) and 700 nm (base).

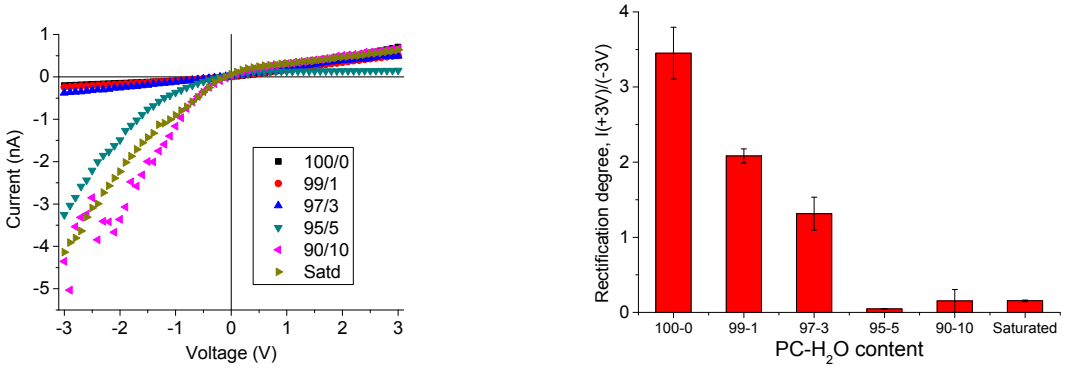

Figure S3. (left) Current-voltage curves through a single pore in a polycarbonate membrane recorded in 100 mM $LiClO_4$ solutions in propylene carbonate with different content of water as indicated in the figure. (right) Rectification degree calculated as a ratio of currents at +3V and -3V. The pore had opening diameters of 50 nm (tip) and 410 nm (base).

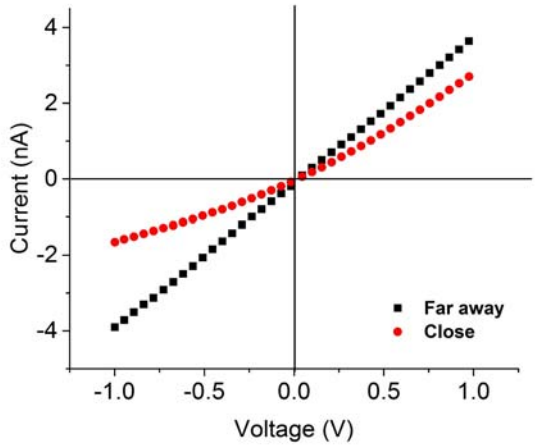

Figure S4. Scanning ion conductance measurements performed on a glass surface in 100 mM acetonitrile solution of $LiClO_4$. Higher currents for positive voltages (red circles) indicate positive potential of the glass surface.