# Electronic Supplementary Information for

**Tuning water transport through nanochannels by changing the direction of external electric field**

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**PS1: The dependences of 〈flux〉 on the strength of external electric field.**

We show here the dependenc of 〈flux〉 on the strength of external electric field (figure S1 (a and b)). Comparing figure S1 (a) with figure 2, the similar changing trends of 〈flux〉 with the angle θ are observed under different strengths of external field (E).

From figure S1 (a) and figure 2, we can see that the 〈flux〉 under E=0.5 V/nm is smaller than that under E=1 V/nm. It is shown in figure S1 (b) that 〈flux〉 is monotonically increased with the strength of the external field. The inset of figure S1 (b) shows that as E decreases, the probability of bipolar orientation for the water molecules in CNT increases. The bipolar orientation may disrupt the unidirectional transport of the water molecules through the CNT. Furthermore, when E decreases to 0.2 V/nm, the probability of –dipole state increases largely. The –dipole state of the water molecules in CNT would result in a large instantaneous $flux_{down}$ and a small instantaneous $flux_{up}$. As a result, 〈flux〉 is monotonically increased with the strength of the external field.

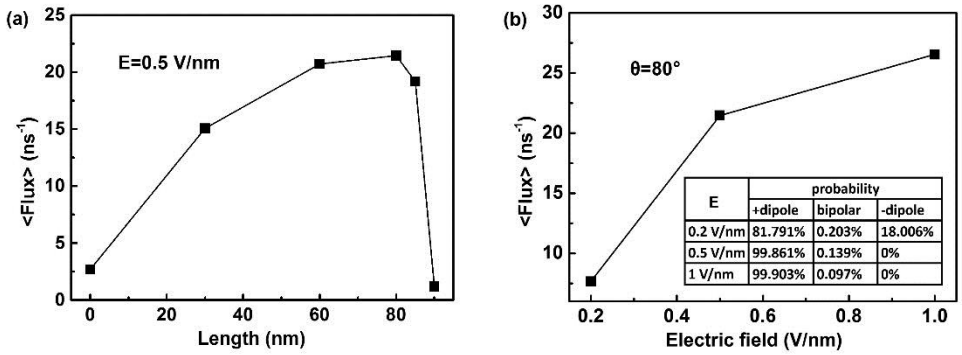


Figure S1. (a) The value of〈flux〉 for different θ when the strength of the external field (E) is 0.5 V/nm. (b) The value of〈flux〉 for different E when θ=80 º. Inset of (b): the probabilities for the +dipole state, the bipolar orientation, and the –dipole state, respectively. Each value of the〈flux〉was calculated from a 105 ns NVT molecular dynamics simulation. The last 100 ns trajectories were sampled for our analysis.