

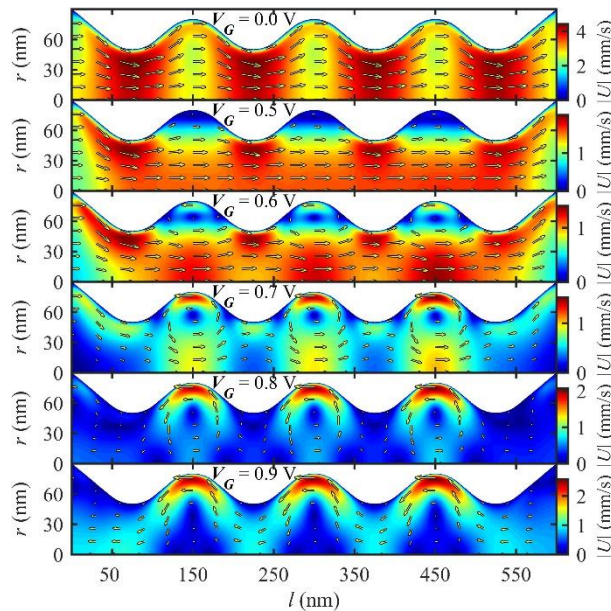
Supplementary material for “A comparative study of electrolyte concentration-symmetry and gate voltage effects on the heterogenous surface charge in a nanofluidic FET”

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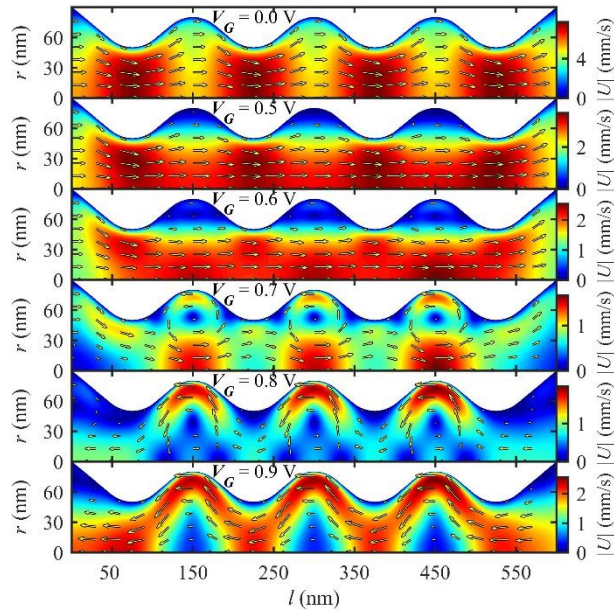
The below material is intended to illustrate minor details regarding velocity profile using different electrolyte concentrations and symmetries that did not get the chance to appear in the main text of the paper. However, these details are necessary for the device design in terms of trapping particles and mixing multiphase flow. For instance, the window of applied gate voltage (V_G) to achieve a vortex generation in the diverging section of the channel (below D_{max}) changes with both electrolyte concentration and symmetry.



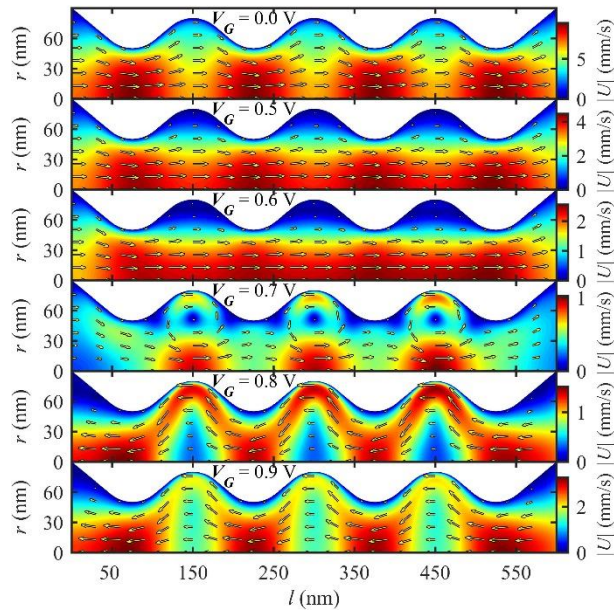
S1. Effect of V_G on the velocity field of a 10 mM monovalent electrolyte.

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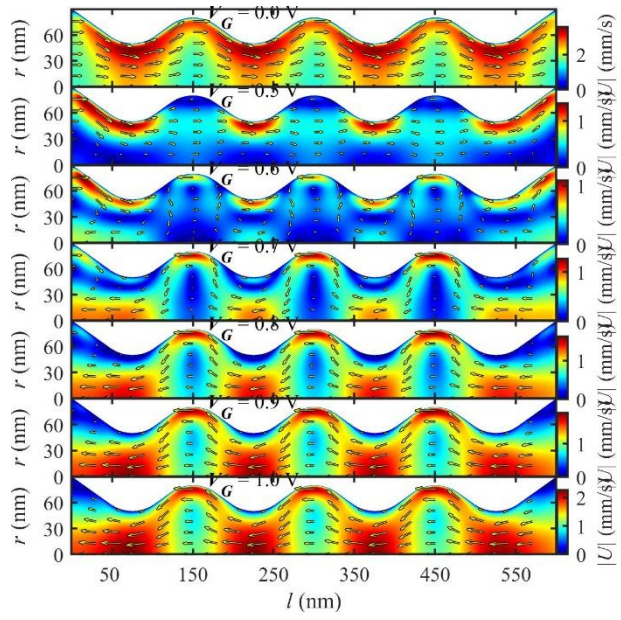
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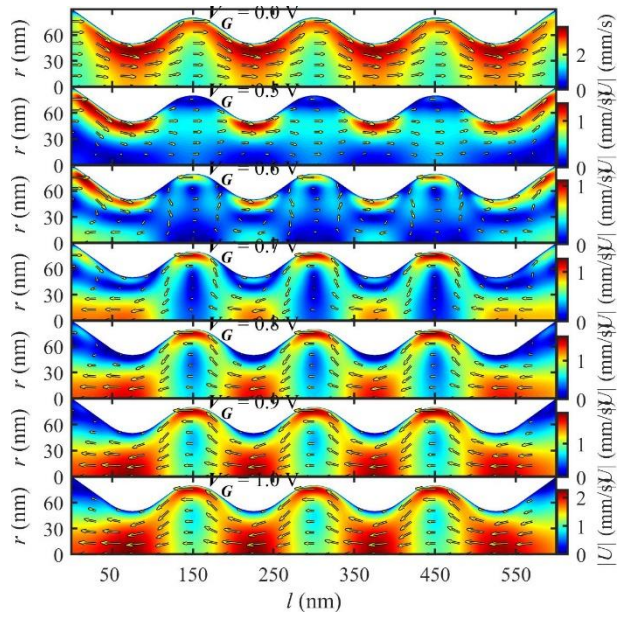
S2. Effect of V_G on the velocity field of a 1 mM monovalent electrolyte



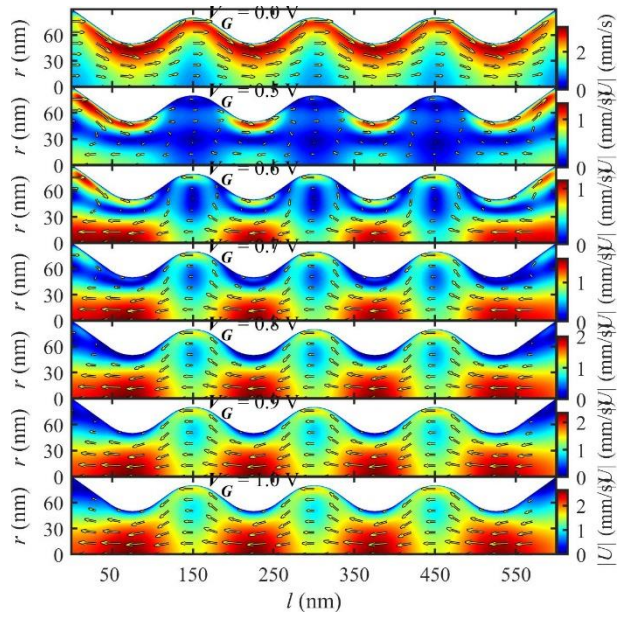
S3. Effect of V_G on the velocity field of a 0.1 mM monovalent electrolyte.



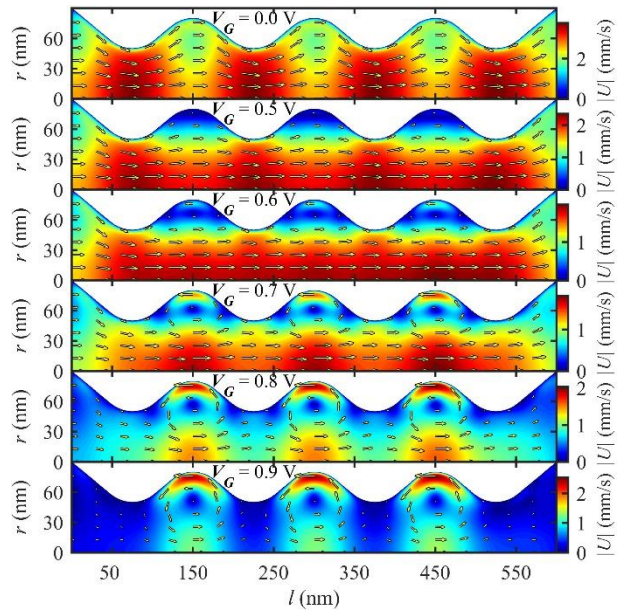
S4. Effect of V_G on the velocity field of a 10 mM divalent electrolyte.



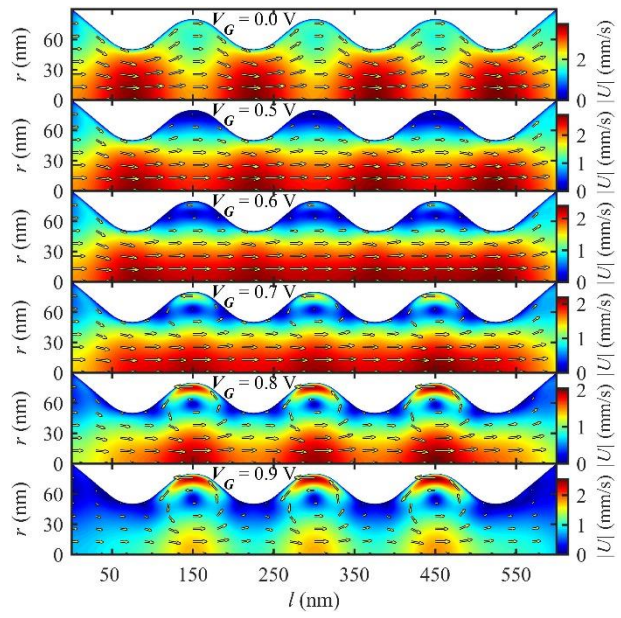
S5. Effect of V_G on the velocity field of a 10 mM $1^+ : 2^-$ electrolyte.



S6. Effect of V_G on the velocity field of a 10 mM 1^+3^- electrolyte.



S5. Effect of V_G on the velocity field of a 10 mM 2^+1^- electrolyte.



S5. Effect of V_G on the velocity field of a 10 mM $3^+ : 1^-$ electrolyte.