Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.

Supplementary information *for* "Structural features and energy storages of electric double layers in confined polyelectrolyte solutions"

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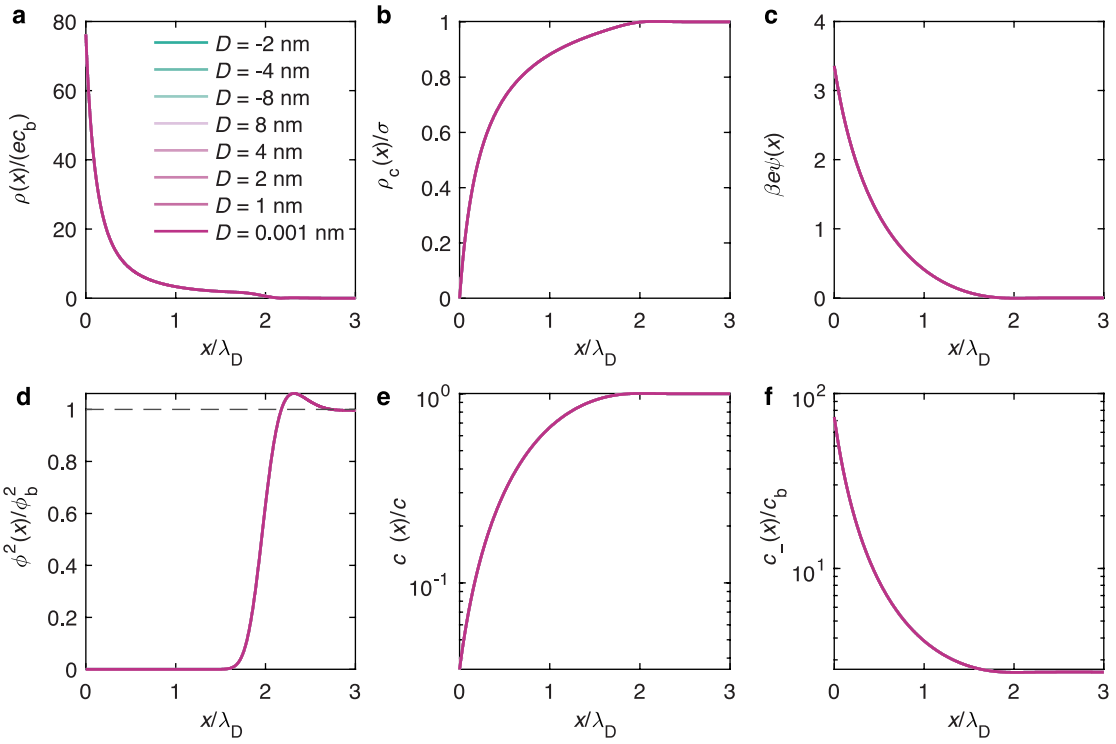

Fig. S1 (**a**) Net charge density profiles (normalized by ec_b). (**b**) Net cumulative charge profiles (normalized by σ). (**c**) Electrostatic potential profiles (normalized by $1/(\beta e)$). (**d**) Polyelectrolyte monomer concentration profile (normalized by ϕ_b^2). (**e**) Dimensionless small cation concentration profiles. (**f**) Dimensionless small anion concentration profiles. Other parameter values used in calculations are given as follows: $L = 3\lambda_D = 3\kappa_{salt}^{-1}/\sqrt{1 + fC}$, f=1, $c_b = 10^{-3}\,M$, $c_{p,b} = 10^{-3}\,nm^{-3}$ and σ =- 0.1e/nm^2. The legend in panel **b** is valid for all other plots.

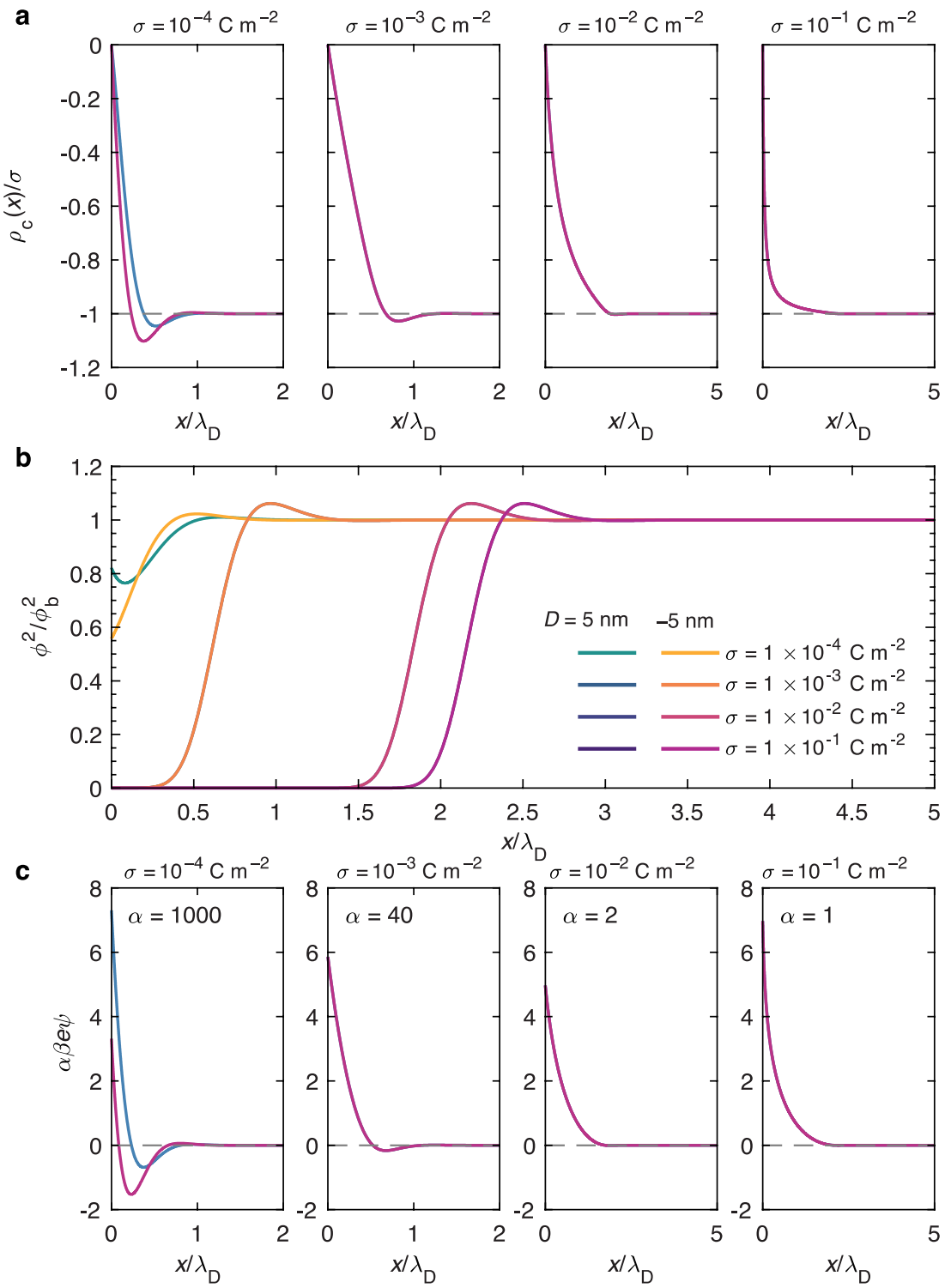

Fig. S2 Effects of absorption length under various surface charge densities for positively charged surfaces as D=-5 nm and D=5 nm. (**a**) Net cumulative charge profiles (normalized by σ), (**b**) monomer concentration profiles (normalized by ϕ_b^2) and (**c**) electrostatic potential profiles (normalized by $1/(\beta e)$). Other parameter values used in calculations are L=50 nm, f=1, $c_b = 10^{-3}$ M and $c_{p,b} = 10^{-3}\ nm^{-3}$.

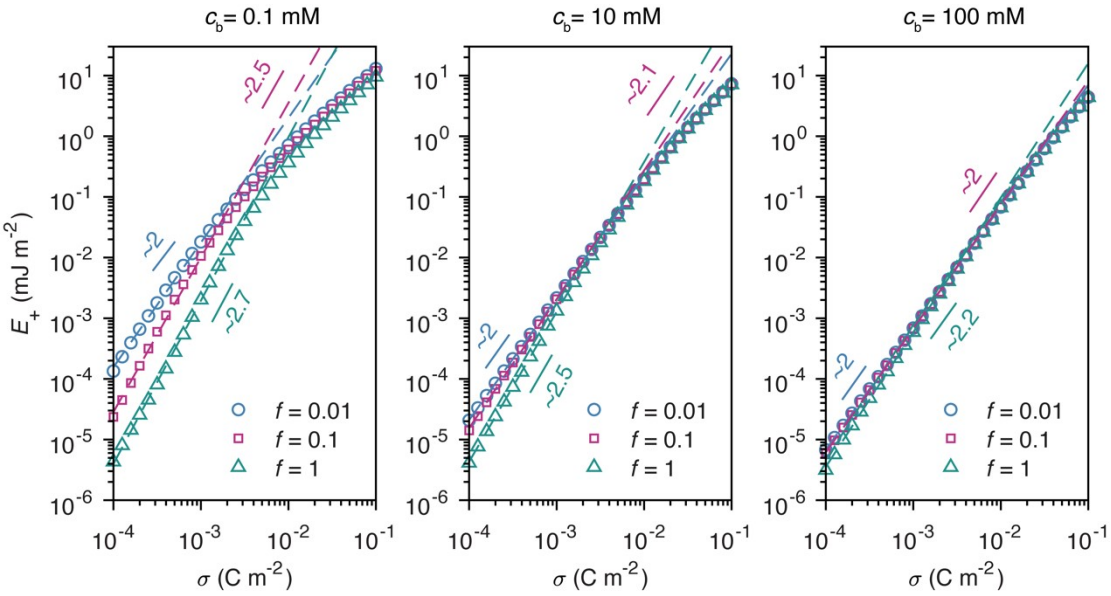

Fig. S3 The EDL electrostatic energy E_+ as a function of surface charge density σ for varying charge fraction *f*. The bulk salt concentration is set to (a) c_b=0.1 mM, (b) c_b=10 mM and (c) c_b=100 mM. Other parameter values used here are listed as follows: $L = 50$ nm, $c_{p,b} = 10^{-3}$ nm^{-3}, $D = 5$ nm.