



Figure S3: Stability along steady-state solution branches of  $\Delta\psi$  parametrized with respect to the surface-charge density  $\sigma$  at  $\sigma_r = 0.02$  with (A)  $R_c = 10^{-6}$  m and  $\vartheta = 0.05$ , (B)  $R_c = 10^{-8}$  m and  $\vartheta = 0.05$ , (C)  $R_c = 10^{-6}$  m and  $\vartheta = 0.1$ , and (D)  $R_c = 10^{-8}$  m and  $\vartheta = 0.1$ . Colorbars indicate the value of  $C^{\text{salt}} = C_\infty/2$  that corresponds to each curve in (A)–(D). The tortuosity coefficient  $\vartheta$  only affects stability without altering steady-state solutions. Solid and dashed lines represent stable and unstable steady-state solutions, respectively.