Electronic Supplementary Information for "Importance of the Shape of a Polyelectrolyte on Its Electrophoretic Behavior"

Jyh-Ping Hsu,* Chih-Yuan Lin, Li-Hsien Yeh, Sung-Hwa Lin

Department of Chemical Engineering, National Taiwan University, Taipei, Taiwan 10617

* Corresponding author

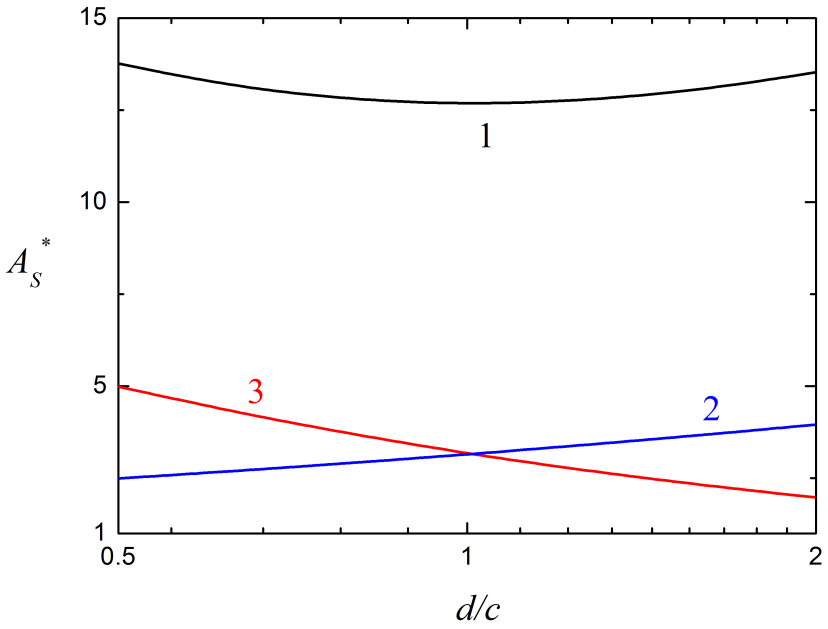

Fig. S1. Variations of the scaled area of a polyelectrolyte as a function of the aspect ratio (d/c) at fixed polyelectrolyte volume. Curve 1: scaled surface area of the polyelectrolyte; 2: scaled area of its projection onto a plane parallel to the z axis; 3: scaled area of its projection onto a plane perpendicular to the z axis.

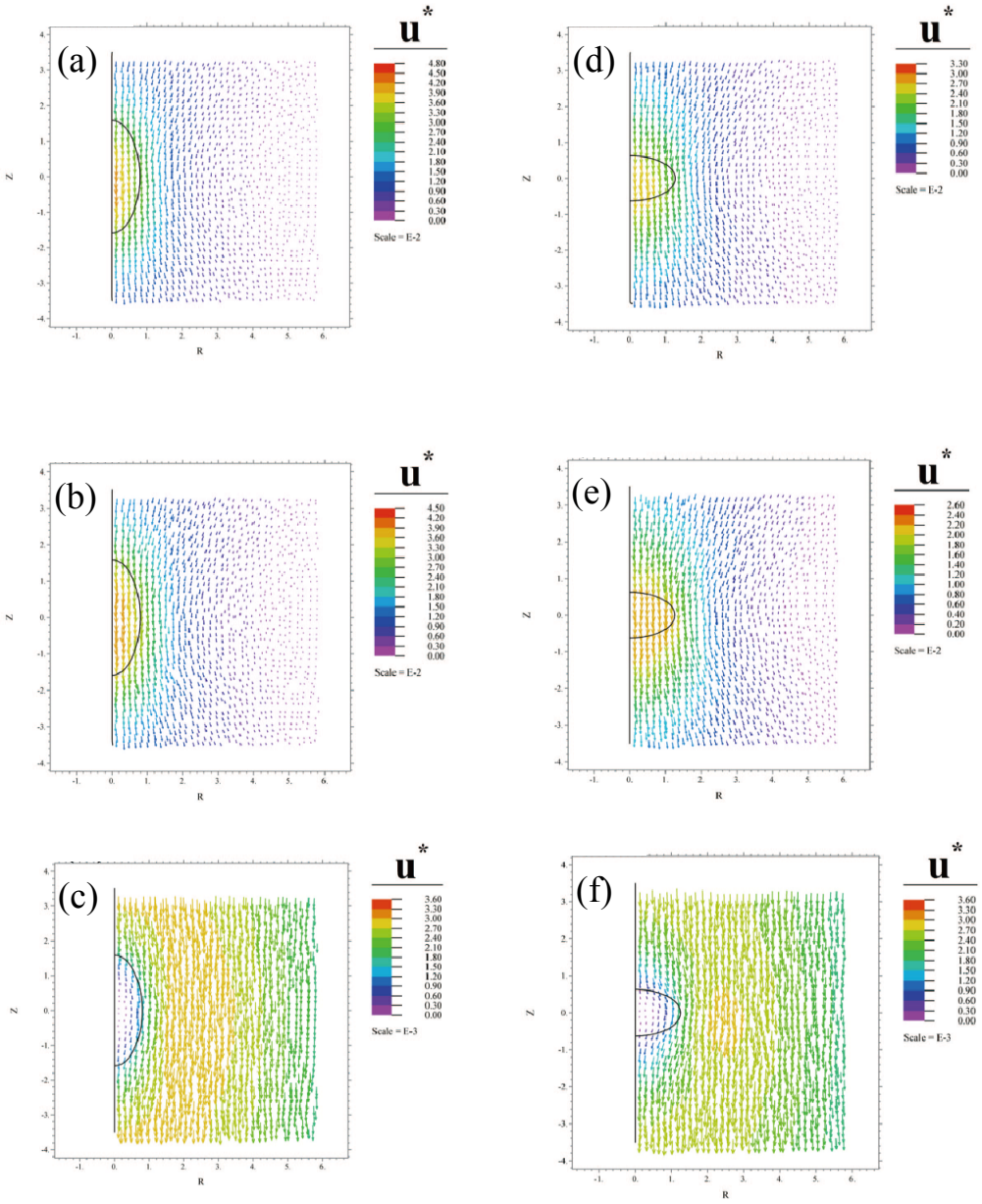

Fig. S2. Variations of the scaled flow field $\mathbf{u}^*$ in sub-problem two on the half plane $\theta = 0$ for various combinations of Q_{fix}, κa, and (d/c) at $\lambda a = 2$. (a) $Q_{fix} = 50$, $\kappa a = 5$, and d/c=2; (b) $Q_{fix} = 100$, $\kappa a = 5$, and d/c=2; (c) $Q_{fix} = 100$, $\kappa a = 0.2$, and d/c=2; (d) $Q_{fix} = 50$, $\kappa a = 5$, and d/c=0.5; (e) $Q_{fix} = 100$, $\kappa a = 5$, and d/c=0.5; (f) $Q_{fix} = 100$, $\kappa a = 0.2$, and d/c=0.5.

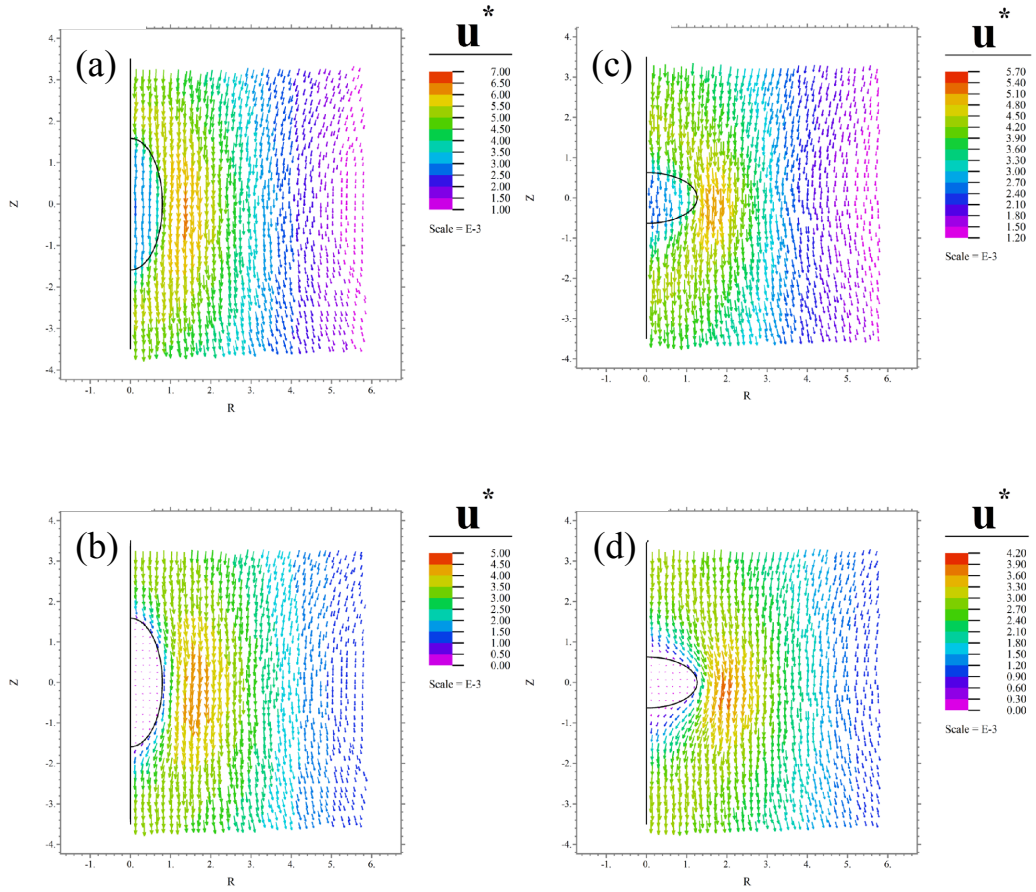

Fig. S3. Contours of the scaled velocity $\mathbf{u}^*$ in sub-problem two on the half plane $\theta = 0$ for various combinations of λa and (d/c) at $Q_{fix} = 25$ and $\kappa a = 1$. (a) $\lambda a = 4$ and d/c=2; (b) $\lambda a = 20$ and d/c=2; (c) $\lambda a = 4$ and d/c=0.5; (d) $\lambda a = 20$ and d/c=0.5.

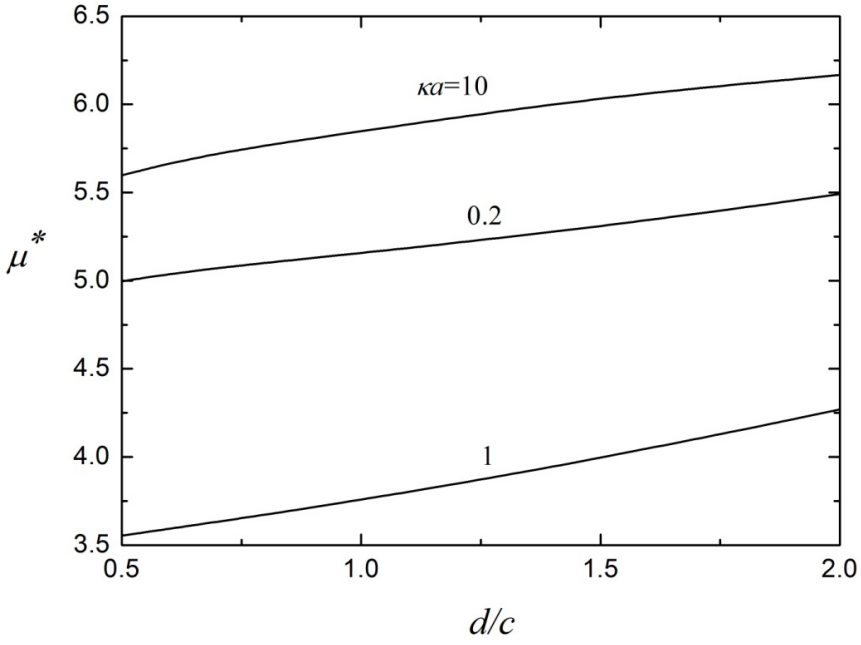

Fig. S4. Variations of the scaled electrophoretic mobility μ^* as a function of the aspect ratio (d/c) at various values of κa for an ellipsoidal polyelectrolyte at $Q_{fix} = 25$ and $\lambda a = 2$.