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Polymer Brushes Driven by Electro-Osmotic Flow in Nanoscale Channels[1] IBRAHIM SOUKI, MOHAMED LARADJI, University of Memphis, P.B. SUNIL KUMAR, IIT-Madras — Using systematic dissipative particle dynamics simulations, we investigated the flow of solvents in nanoscale channels, driven by wall grafted polyelectrolites , under the influence of an oscillating external electric field. Net flow of the fluid is observed when the external field is temporally asymmetric. We found that the flow rate is strongly affected by grafting density, chain length, field amplitude and period. In particular we can achieve an optimum flow rate for specific values of the parameters listed above. The details of polymer kinetics involved and their effect on net fluid flow will be presented.

[1]Petroleum Research Fund

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