

Supplementary movies:

Movie-Ds : Movie of the E-field induced dynamical state, which shows the melting and forming of small nematic domains for an electric field amplitude 3.5 V/mm and frequency 100 Hz, which is close to the transition line. The total movie is 300 seconds in real time (300 frames with 1 second intervals). The fd-concentration is 2.0 mg/ml with an ionic strength of 0.16 mM Tris/Hcl buffer.

Movie-Df : Same as the Movie-Df, but now for an electric field amplitude of 6.2 V/mm and the same frequency of 100 Hz, which is far away from the transition line. The total movie is 90 seconds in real time (300 frames with 0.3 second intervals).