

## Supplementary Information: Coarse-grained simulations of stretching entangled DNA using oscillating electric fields.

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The accompanying movie shows the DNA primitive path during a simulation illustrating the stretching mechanism. Model parameter used are the same as in the main text, with the field given by  $\epsilon = 10$  and  $\omega\tau_e = 0.3$ . The simulation runs for a time period of  $23\tau_e$ . The colours represent the local stretch, with red being highly stretched through to light green being unstretched.