ESRF	**Experiment title:** Domain Orientation and Orientation Kinetics of Block Copolymer Solutions under the Influence of Electric Fields	**Experiment number**: SC-950
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Report:

When the block copolymer domains, which are oriented, were confined by decreasing the electrode spacing, we observed a pronounced increase of the time constant, τ, as shown in Table 1. The reorientation kinetics at constant field strength was measured for different electrode spacings for a 35 wt.-% solution of $S_{50}I_{50}^{80}$ in toluene. Interestingly, we find a distinct jump of an order of magnitude in the time constant from 1 mm to 0.5 mm, indicating that below 1 mm the energetic cost for realignment decreasingly can be balanced by the gain in energy from the aligned domains. Obviously, the respective "surface field", which imposes an energetic penalty on the process, extends far beyond the anticipated range of a few lamellar spacings into the polymer solution.

Electrode Spacing *d* [mm]	**τ [sec]**	$P_{2,\infty}$	χ^2 [10^{-4}]
0.5	61.1	-0.27	0.3
1	7.2	-0.37	0.9
2	5.0	-0.32	1.4
4	3.8	-0.33	0.2

Table 1: Time constants of the reorientation behavior at constant electric field strength and different electrode spacings (E = 1 kV/mm, w_p = 35 wt.-%).