Supplementary material (ESI) for Journal of Materials Chemistry

Electronic Supporting Information

Synthesis and mesophase behaviour of ionic liquid crystals

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1. Experimental conditions for X-ray scattering and supporting X-ray data

Powder X-ray investigations were carried out with a Guinier film camera and a Guinier Goniometer (Huber Diffraktionstechnik, Germany). Samples in glass capillaries (∅ 1 mm) in a temperature-controlled heating stage, quartz-monochromatized CuK_α radiation, 30 to 60 min exposure time, calibration with the powder pattern of $Pb(NO_3)_2$. 2D patterns for aligned samples on a glass plate on a temperature-controlled heating stage (alignment at the sample – glass or at the sample – air interface) were recorded with a 2D detector (HI-STAR, Siemens) using CuK_α radiation monochromatized by a Ni filter.

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2. Additional Tables

Table S1. X-ray data for the SmA phases from Guinier powder patterns (θ_{obs}: experimental scattering angle; d_{obs}: experimental d spacing; n: order of reflection)

Comp.	T (°C)	θ_{obs} (°)	d_{obs} (nm)	n
2e	136	1.247	3.54	1
	129	1.243	3.55	1
	122	1.239	3.56	1
	115	230	3.59	1
2g	150	1.191	3.71	1
	140	1.182	3.73	1
	130	1.174	3.76	1
	120	1.162	3.80	1
	110	1.135	3.46	1
	100	2.549	1.73	1
2h	150	1.145	3.86	1
	140	1.135	3.89	1
	130	1.119	3.95	1
	120	1.105	4.00	1
	110	1.090	4.05	1
	100	1.075	4.11	1
2i	150	1.184	3.73	1
		2.351	1.88	2

Comp.	T (°C)	θ_{obs} (°)	d_{obs} (nm)	n
3e	125	1.125	3.93	1
		2.268	1.95	2
	110	1.112	3.97	1
		2.241	1.97	2
	95	1.100	4.02	1
		2.206	2.00	2
	80	1.088	4.06	1
		2.169	2.04	2
	65	1.062	4.16	1
		2.122	2.08	2
	50	1.038	4.26	1
		2.088	2.12	2
3f	140	1.175	3.76	1
	130	1.162	3.80	1
	120	1.138	3.88	1
	110	1.138	3.88	1
4e	150	1.144	3.86	1
	160	1.159	3.81	1
	170	1.167	3.78	1

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3. Additional Figures

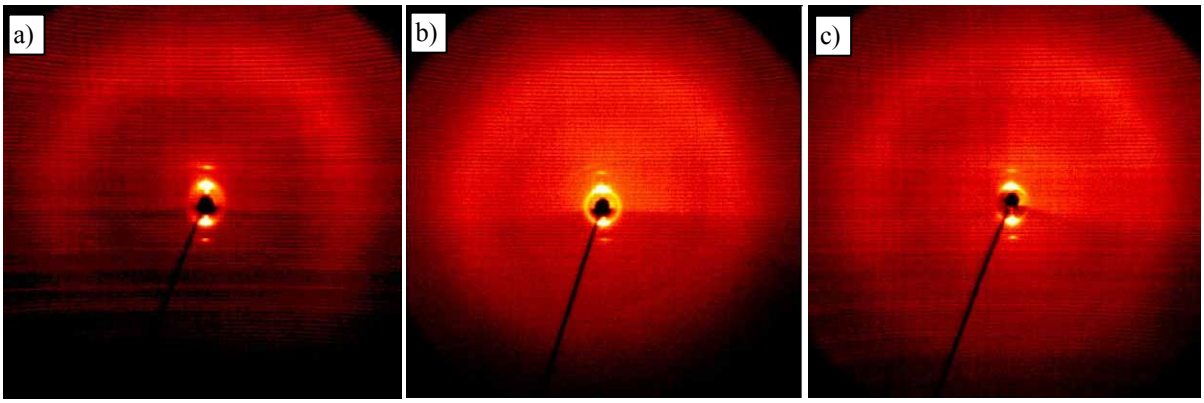

Fig. S1 Original 2D X-ray diffraction patterns of the SmA phase a) of **2e** at 149 °C, b) of **2i** at 150 °C and c) of **3e** at 129 °C.

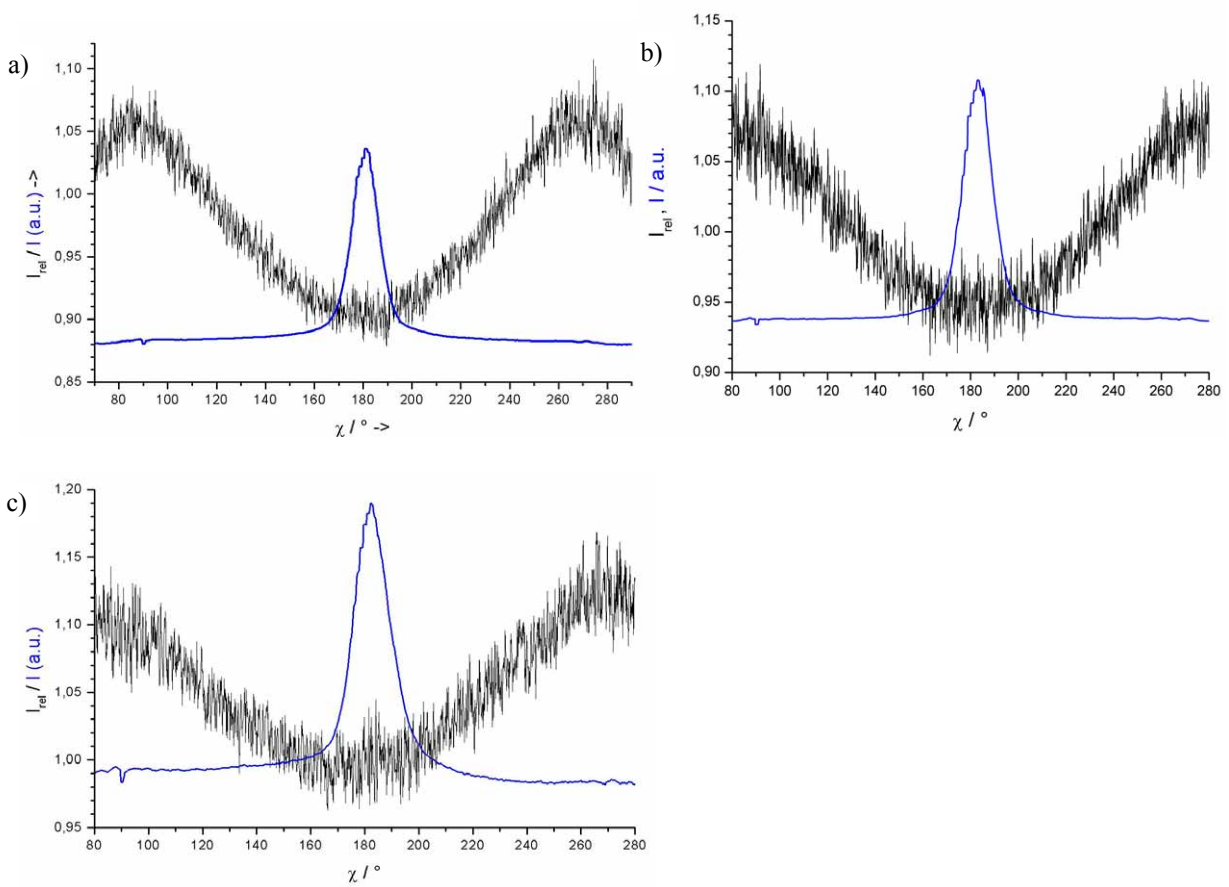

Fig. S2 χ-scans for the 2D X-ray patterns in the SmA phase of a) **2e** at 149 °C, b) **2i** at 150 °C and c) **3e**.at 129 °C [black lines … outer diffuse scattering, maxima on the equator of the patterns at $\chi \approx 90$ and 270°, I_{rel} = I (T) / I (isotropic liquid), blue lines … layer reflections, maxima on the meridian of the patterns at $\chi \approx 180$, I / a.u.]

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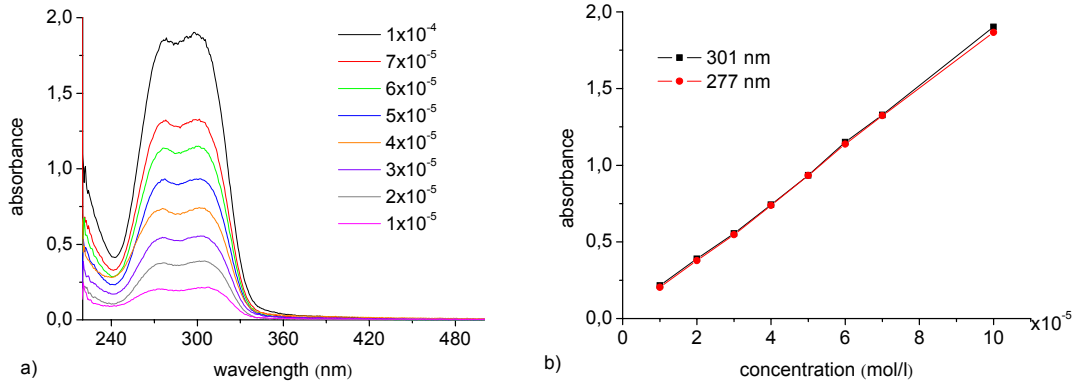

Fig. S3 a) Concentration dependence of **2g** in 1, 2-dichloroethane, l = 1 cm, l – path length of the quartz cell b) Lambert – Beer plot.