Crystallization kinetics of (S)-4'-(1-methylheptyloxycarbonyl)biphenyl-4-yl 4-[4-(2,2,3,3,4,4,4-heptafluorobutoxy)but-1-oxy]-2-fluorobenzoate

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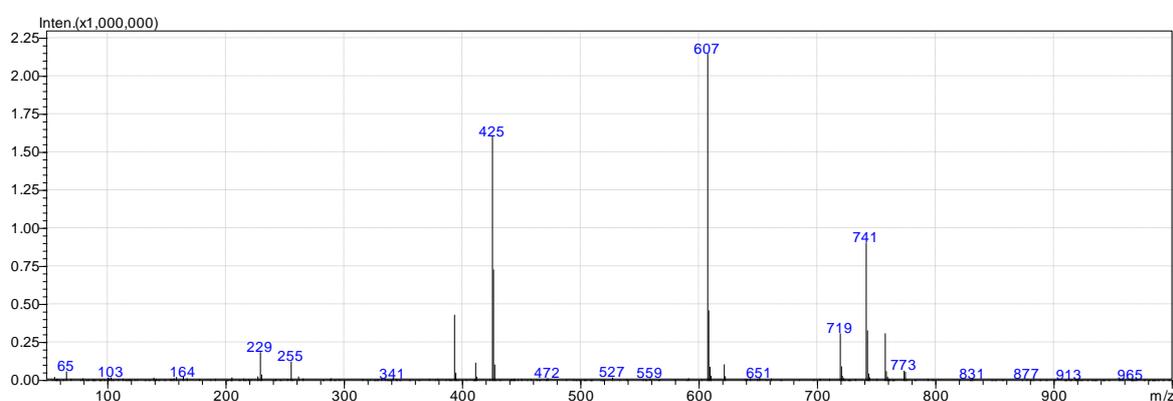
Supplementary Materials

Figure S1. Mass spectrum (+) of 3F4HPhF6, measured using the Shimadzu HPLC prominence chromatograph with MS (API-ESI) detector 2010EV. MS: 741[M + Na]+, 719[M + H]+, purity 99.9%. For details, see Supplementary Materials of Ref. [2].
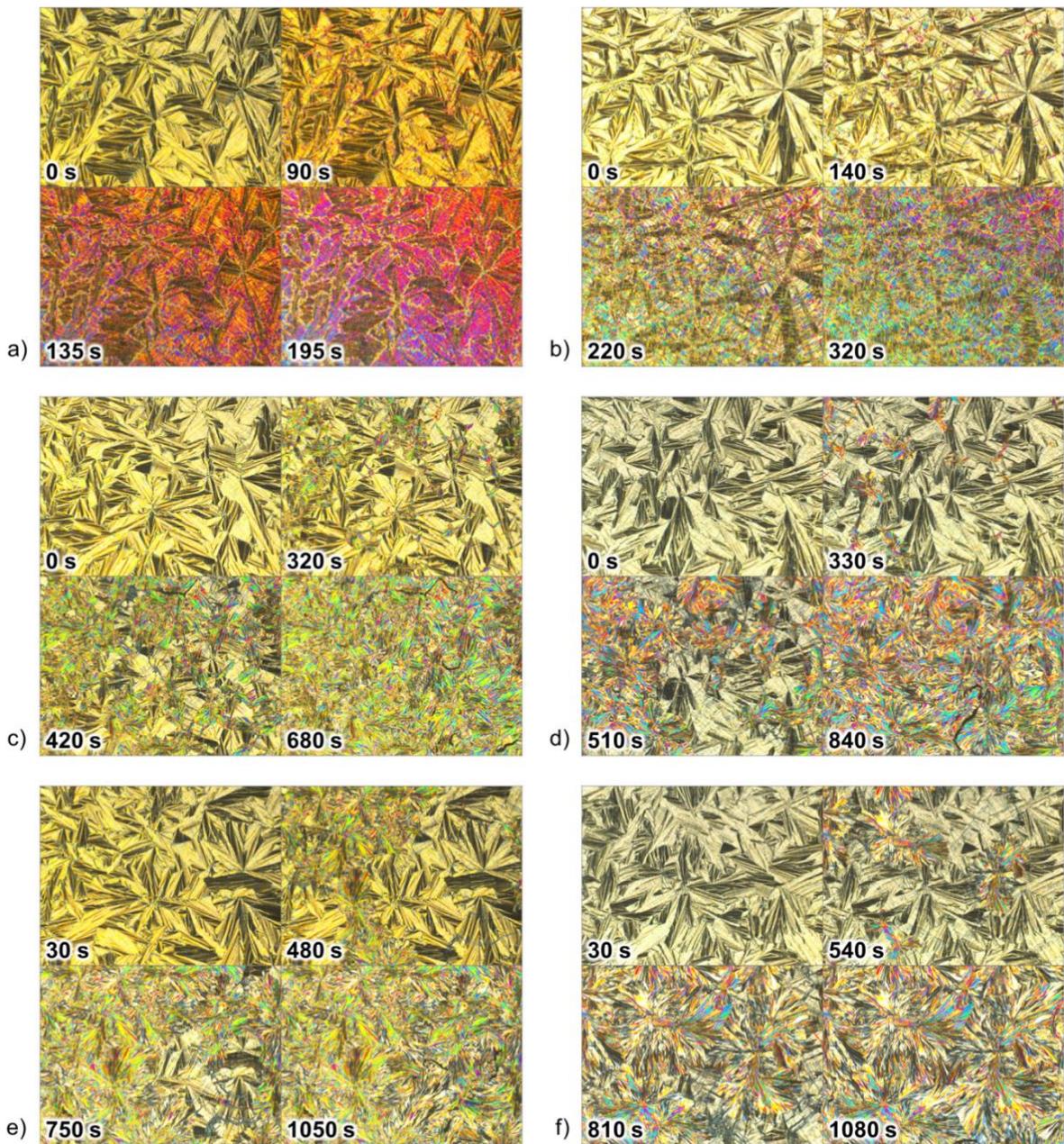
Figure S2. POM textures registered during isothermal melt crystallization in 285 K (a), 287 K (b), 289 K (c), 290 K (d), 291 K (e), and 292 K (f) after cooling with the 30 K/min rate from the isotropic liquid phase.
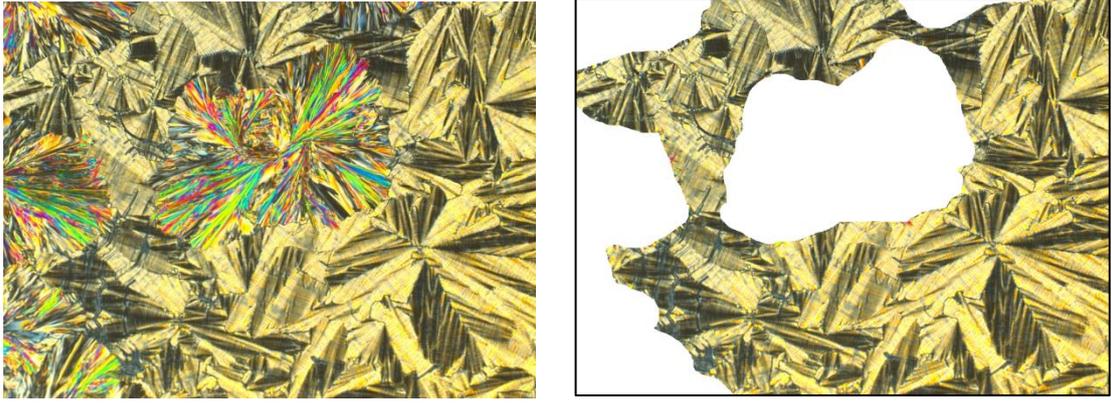
Figure S3. Determination of the crystallization degree as a fraction of the texture's area covered by the crystal phase (T_{cr} = 293 K, t = 750 s). The crystal's texture was manually covered by white and the number of white pixels was obtained using the histogram function in ImageJ.
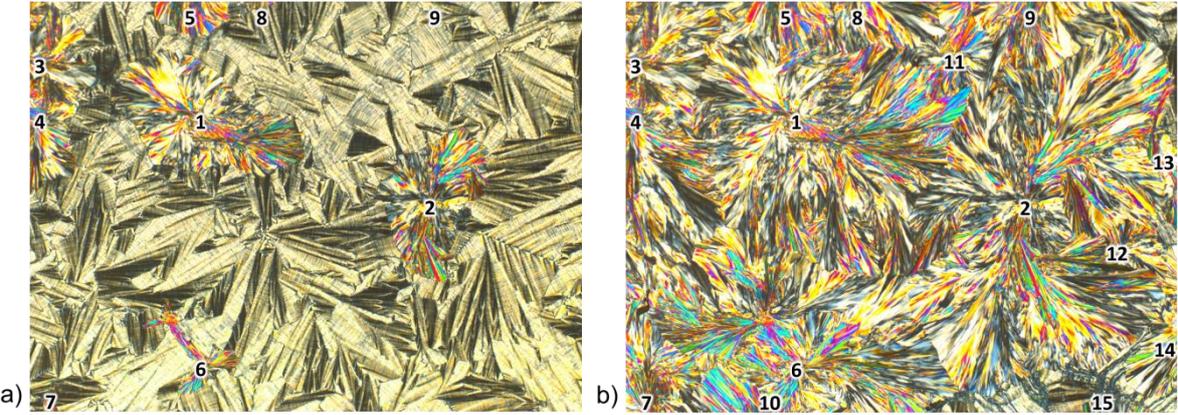

Figure S4. Manual calculation of nuclei for T_{cr} = 292 K at 480 s (a) and 960 s (b). The numbers assigned to each nuclei were copied to consecutive textures to avoid skipping any crystallite.
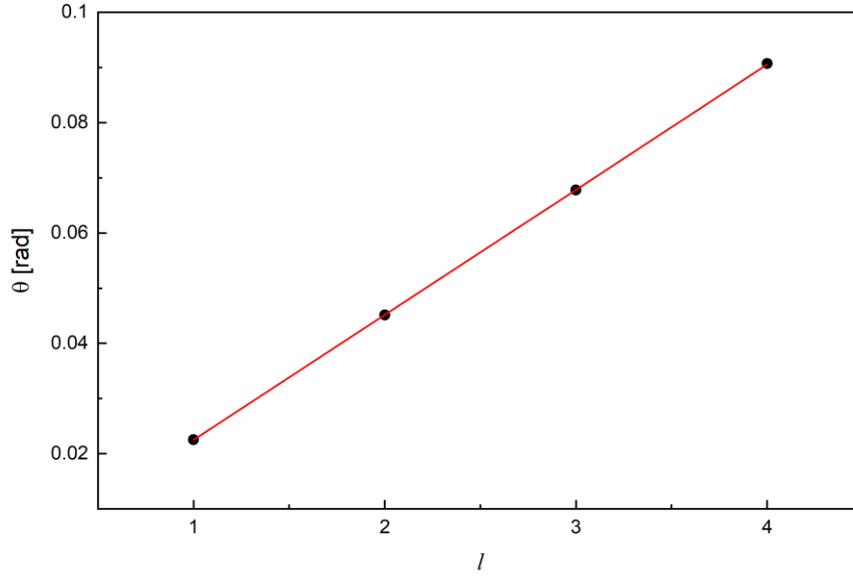
Figure S5. An example of determination of the characteristic period d for a sample crystallized in 303 K. The fitted function is $\theta(l) = \theta_0 + \arcsin(l\lambda/2d)$, where θ are positions of the lth order diffraction peaks, θ_0 is the systematic shift in the peak's position and $\lambda = 1.5406$ Å is the CuKα radiation wavelength. The function is another form of the Bragg equation $l\lambda = 2d\sin(\theta - \theta_0)$.
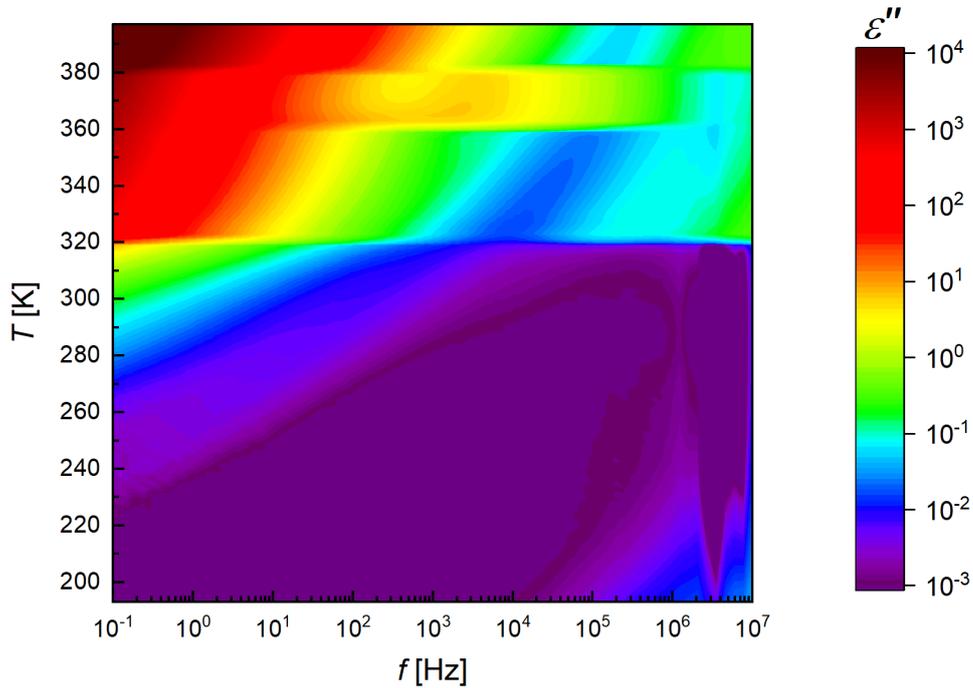

Figure S6. Dielectric absorption of 3F4HPhF6 upon heating after cooling from the isotropic liquid with the 15 K/min rate.
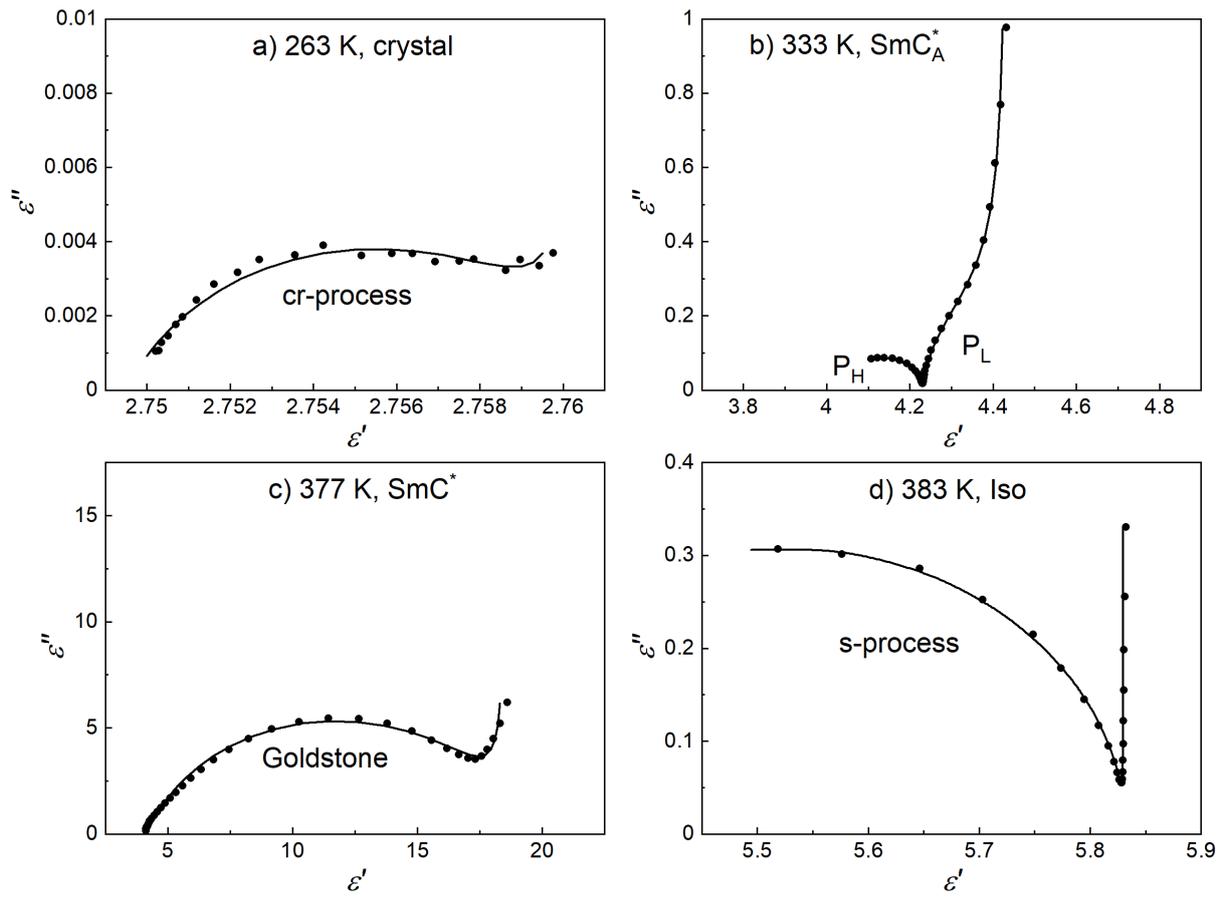
Figure S7. Cole-Cole plots of experimental BDS spectra (points) and fitting results of Equation (1) (lines) for different phases of 3F4HPhF6.