Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.

Supporting Information

Densely Grafted Liquid Crystalline Copper Phthalocyanine Side Chain Polymer: Synthesis and Characterization

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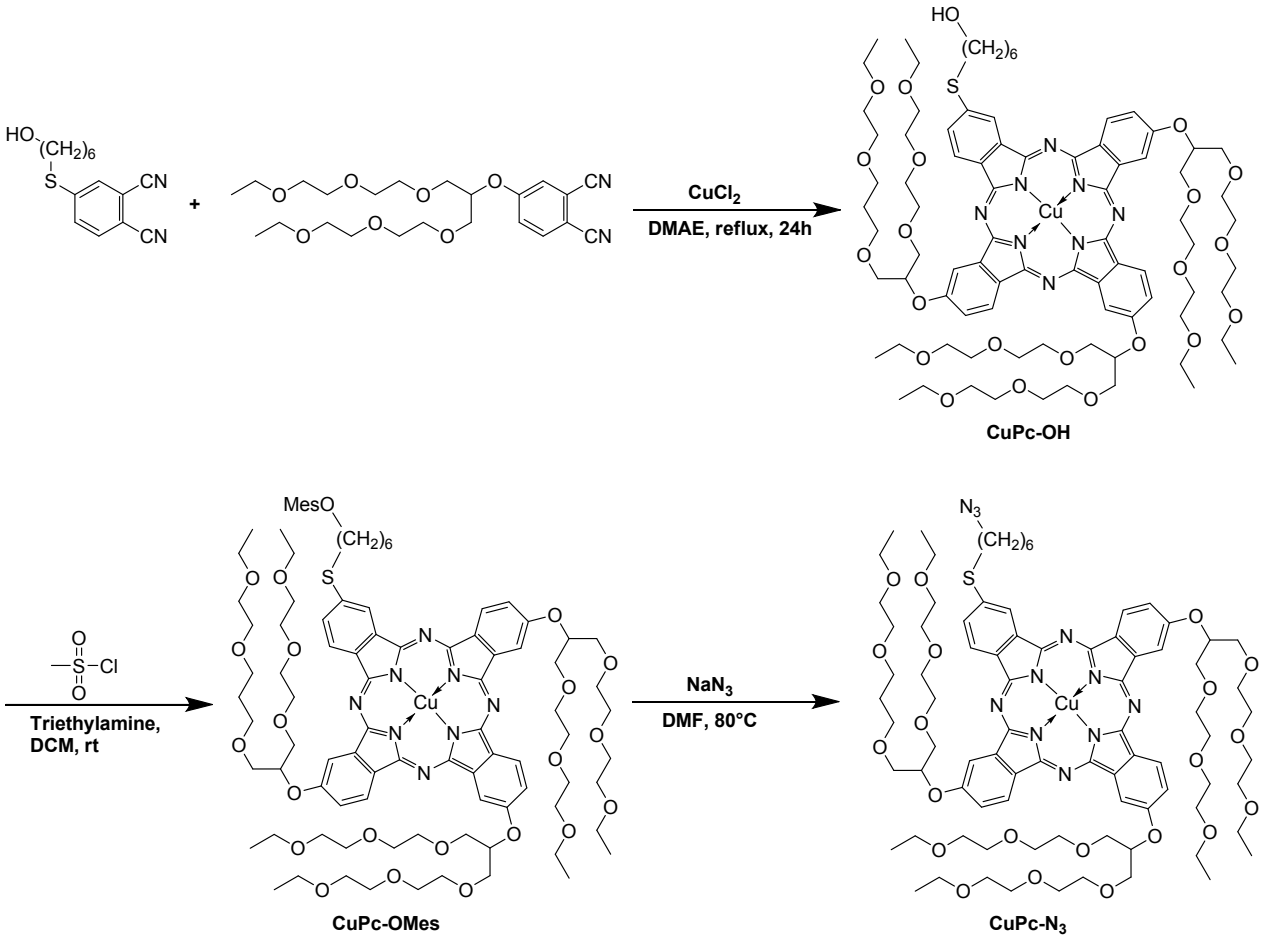

Scheme S 1 Synthesis of **CuPc-N_3**.

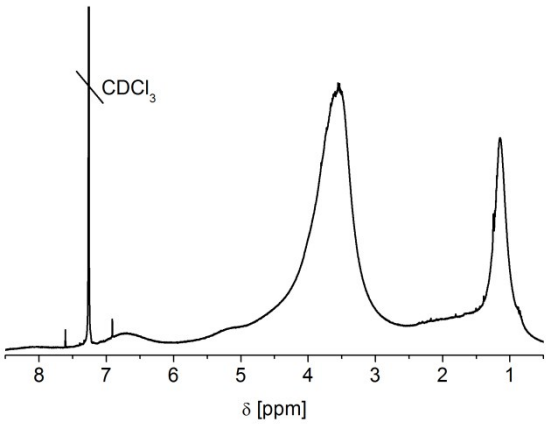

Fig. S 1 ^{1}H-NMR spectrum of **PCuPc**.

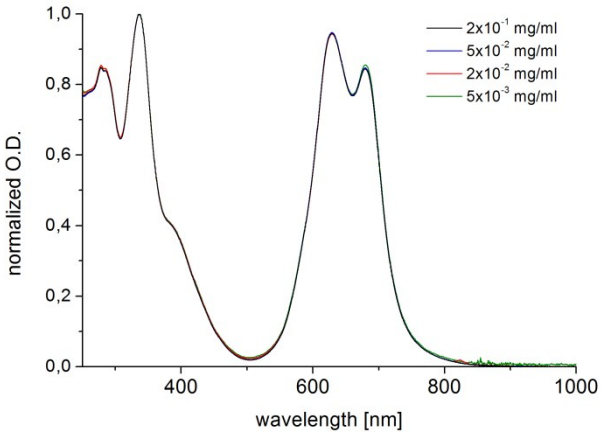

Fig. S 2 Normalized UV-Vis spectra of solutions of **PCuPc** in DCM in a concentration range from $2{\cdot}10^{-1}$-$5{\cdot}10^{-3}$ mg mL^{-1}. No difference of the spectra at different concentrations can be detected.

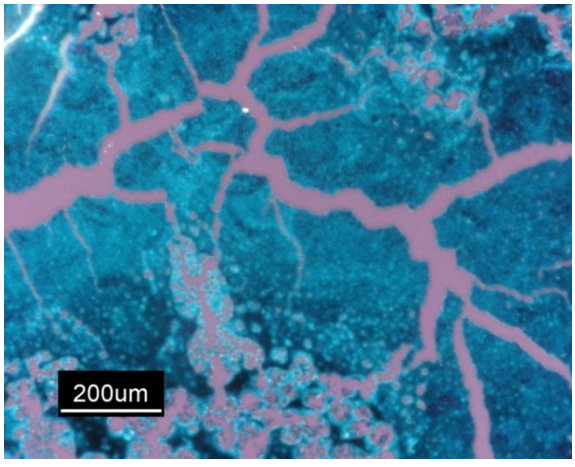

Fig. S 3 Polarization microscopy picture of **PCuPc** at room temperature.

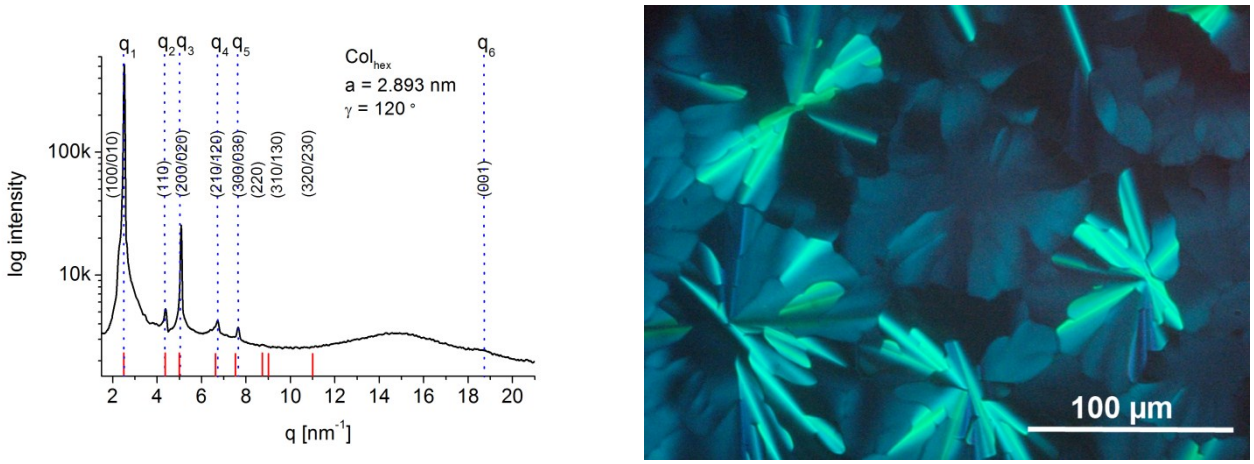

Fig. S 4 (left) Diffraction pattern of the hexagonal mesophase (Col_{hex}) of **CuPc-OH** measured at room temperature with the calculated reflection positions indicated by the red bars (measuresd at a Bruker Advanced D8 diffractometer). (right) Polarization microscopy picture of **CuPc-OH** at room temperature. The phase transition behavior of CuPc-OH was observed by means of a polarizing optical microscope (Leitz Wetzler Orthoplan-pol.) equipped with a hot stage (Linkam TMS 93) and a temperature controller (Linkam LNP).

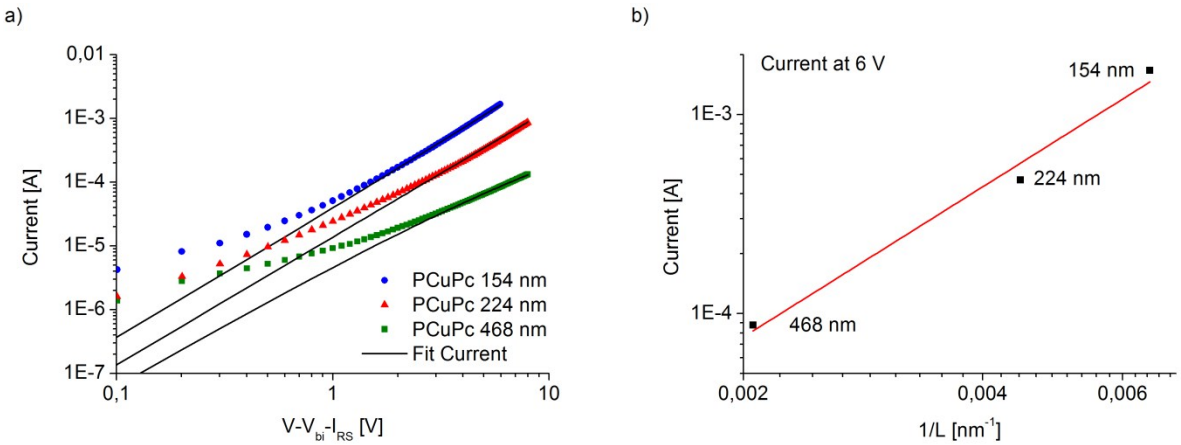

Fig. S 5 a) Log-log plot of I-V characteristics of as-cast films of **PCuPc** measured at room temperature. The I-V characteristics were corrected for the built-in voltage (V_{bi}) and the voltage drop (IR) over the contacts. The fits are calculated with equation (5) and the parameters given in **Table S 1**. b) Dependency of the current at a fixed voltage (6 V) on the film thickness L. The fit corresponds to L^3.

Table S 1 Active layer film thicknesses and fitting parameter for the SCLC devices.

	Thickness [nm]	Fitted mobility [$cm^2 V^{-1} s^{-1}$]	Fitted γ [$V^{-0.5} m^{-0.5}$]	Mobility at F = $1.5 \cdot 10^7$ V m^{-1} [$cm^2 V^{-1} s^{-1}$]
Device 1	154	$4.1 \cdot 10^{-5}$	$-4.7 \cdot 10^{-5}$	$4.9 \cdot 10^{-6}$
Device 2	224	$5.0 \cdot 10^{-6}$	0	$5.0 \cdot 10^{-6}$
Device 3	468	$2.3 \cdot 10^{-5}$	$-3.4 \cdot 10^{-4}$	$6.2 \cdot 10^{-6}$