Supporting Information

Step-by-Step Growth of Highly Oriented and Continuous Seeding Layers of $[Cu_2(ndc)_2(dabco)]$ on Bare Oxide and Nitride Substrates.†

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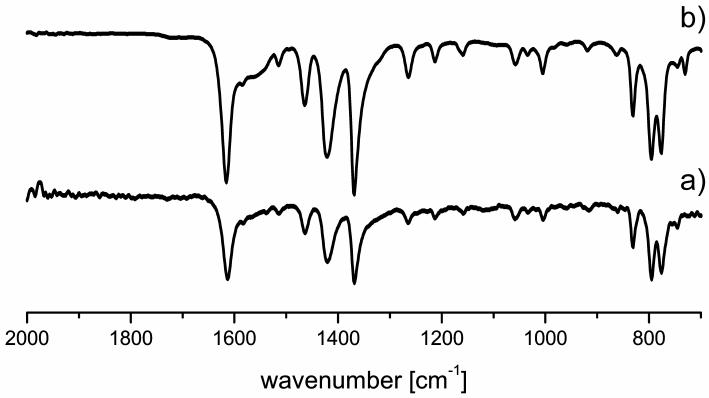

Figure S1. FTIR spectra (a) of 700 nm thick film of $[Cu_2(ndc)_2(dabco)]$ deposited with method **C** on SiO_2 and (b) of bulk $[Cu_2(ndc)_2(dabco)]$ material synthesized according the reported method.[7]

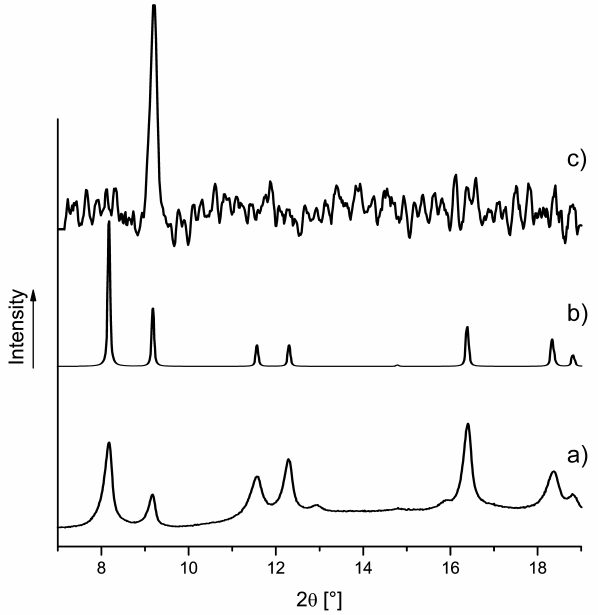

Figure S2. (a) PXRD data of bulk $[Cu_2(ndc)_2(dabco)]$ material, simulated PXRD of $[Cu_2(ndc)_2(dabco)]$ (b) and obtained PXRD (c) for oriented in [001] direction thin film after 40 numbers of growth cycles at 50 °C on the Si_3N_4 substrate. The bulk material was synthesized according the reported method.[7]

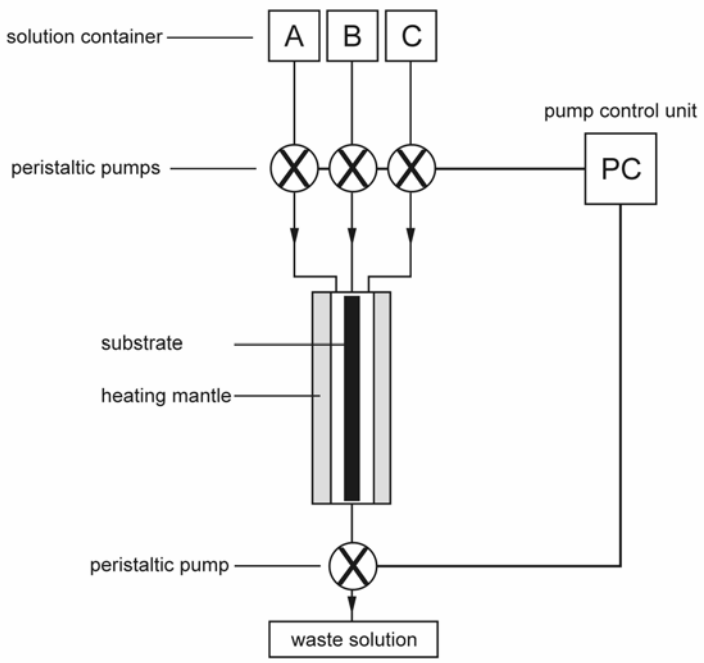

Figure S3. Scheme of "Step-by-step" growth apparatus.

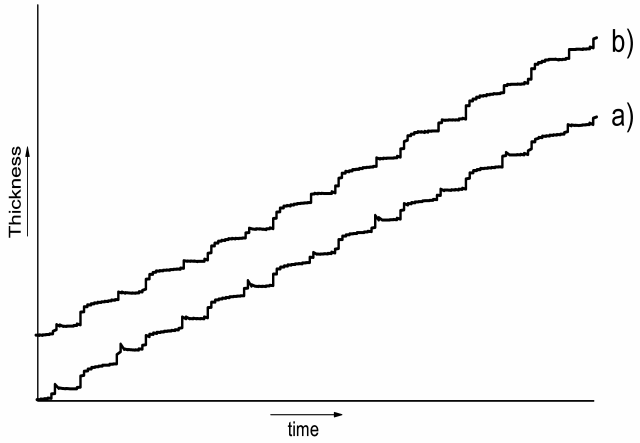

Figure S4. In situ QCM studies of the growth of $[Cu_2(ndc)_2(dabco)]$ on (a) SiO_2 and (b) Al_2O_3 substrates according to method **B**.

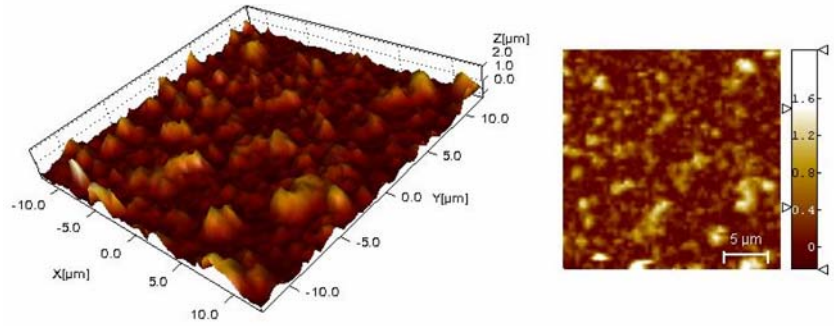

Figure S5. 3D (left) and topographic (right) AFM images of 25 x 25 µm area of $[Cu_2(ndc)_2(dabco)]$ thin film on SiO_2 deposited with the method **B** (40 cycles at 50 °C). The rms roughness is 250 nm.

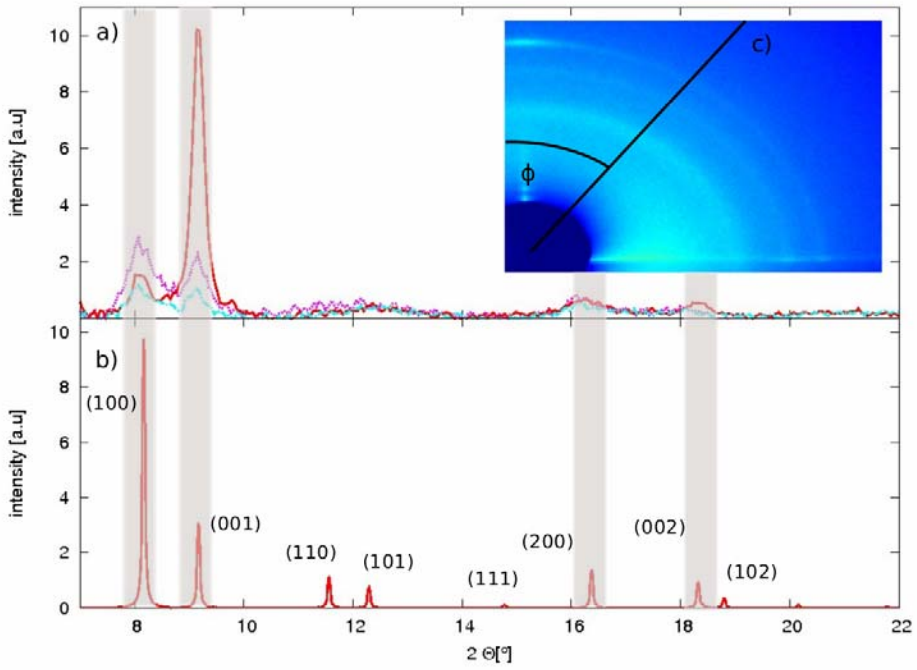

Figure S6. PXRD data of $[Cu_2(ndc)_2(dabco)]$ deposited on SiO_2 with the method **B** (40 cycles). (a) The red line is the out-of-plane diffraction pattern, the purple line is the in-plane diffraction pattern and the blue line is the pattern for φ=45°. (b) The calculated profile for $[Cu_2(ndc)_2(dabco)]$ bulk material. (c) The 2D pattern of $[Cu_2(ndc)_2(dabco)]$ film recorded with MAR435 image plate detector.

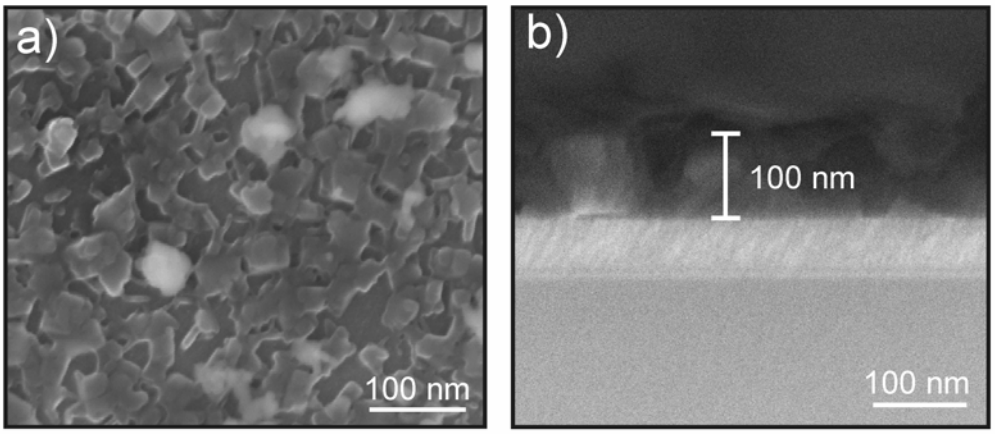

Figure S7. Scanning electron microscopic overview image of $[Cu_2(ndc)_2(dabco)]$ thin film (40 cycles with method **B** at 50 °C and 2 washing cycles) obtained on the SiO_2 substrate (a) and the corresponding cross section image (b).

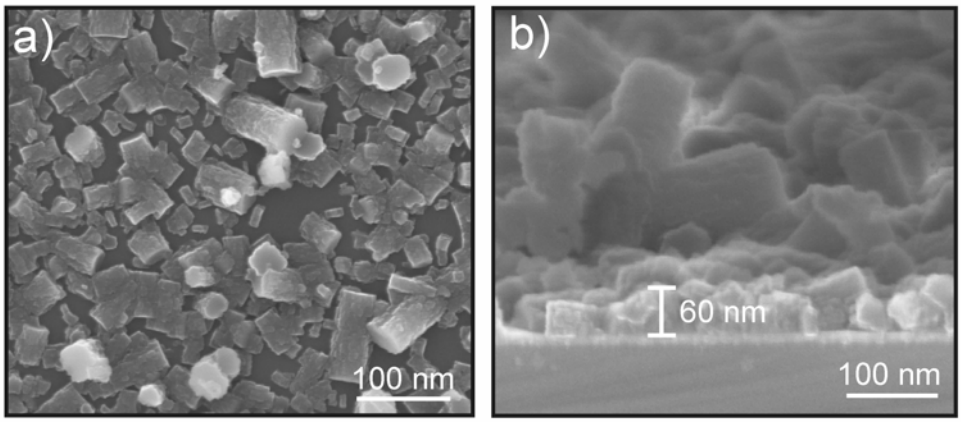

Figure S8. Scanning electron microscopic overview image of $[Cu_2(ndc)_2(dabco)]$ thin film (40 cycles with method **B** at 50 °C and 4 washing cycles) obtained on the SiO_2 substrate (a) and the corresponding cross section image (b).

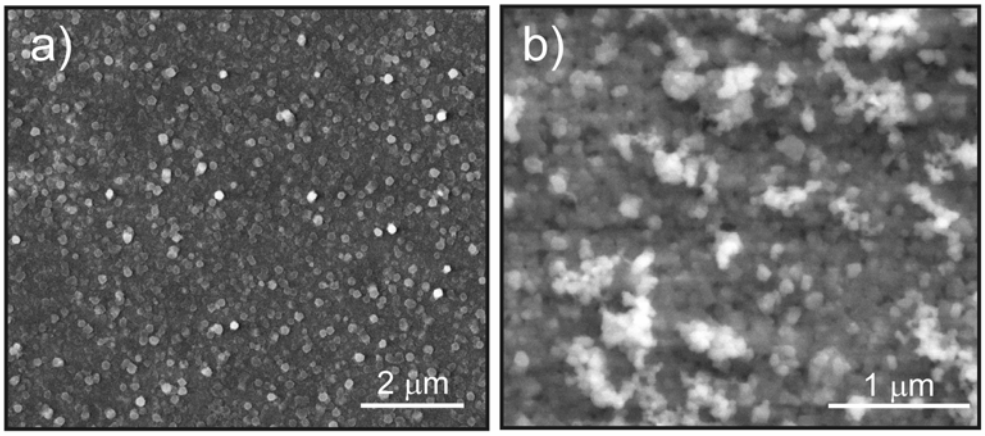

Figure S9. SEM images of $[Cu_2(ndc)_2(dabco)]$ thin film on (a) Ta_2O_5 and (b) Si_3N_4 grown with method **B** (40 cycles at 50 °C).

Table S1. Line-profile parameters for (0 0 1) diffraction line in PXRD for thin films grown by method **B**.

Substrate/Cycles number	Line position, 2θ	Fwhm, 2θ[a]	<L>, nm[b]
SiO_2/40	9.21	0.091	29±5
Al_2O_3/40	9.31	0.141	23±5
SiN/40	9.23	0.187	22±5
SiN/25	9.20	0.156	22±5

[a] The full width at half maximum (Fwhm) was obtained from single line analysis.
[b] Domain-size was calculated from single line Fourier analysis of PXRD data.