"Light-assisted evaporation induced self-assembly": an efficient approach toward ordered carbon materials

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I. Experimental part

Synthesis

To accurately determine the irradiance used in the experiments, a calibration curve of the power vs. irradiation distance (UV lamp-liquid surface) was plotted. A power function profile was found as revealed in Fig. S1. To ensure reproducibility, the measurements were performed twice. From extrapolation, we found an average power of 6.76 mW at irradiation distance of 5.5 cm. Diameter of the brick was 5 cm while the irradiance at the liquid surface 0.34 mW/cm^2.
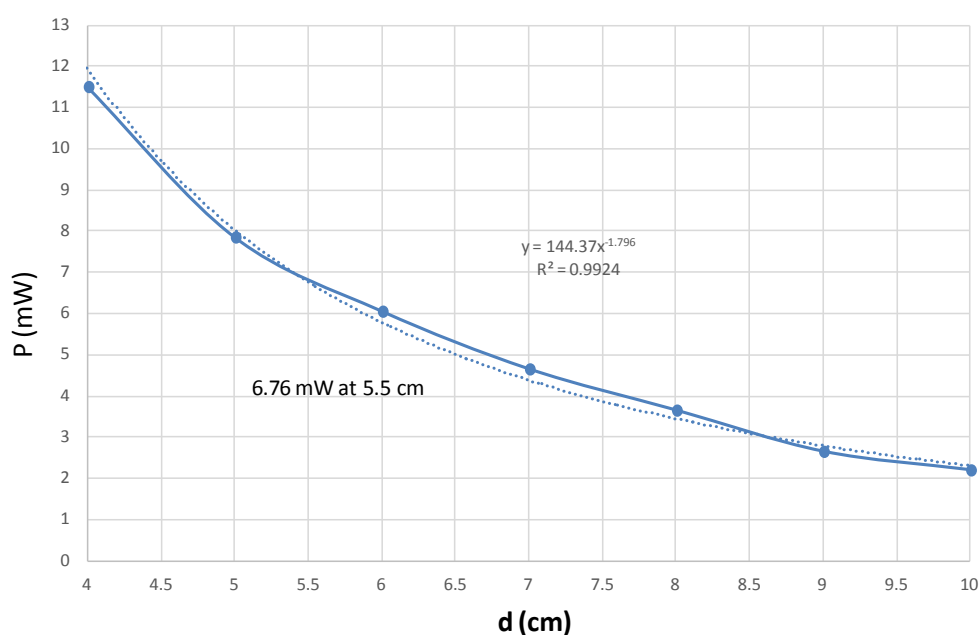

The chart shows P (mW) on the y-axis versus d (cm) on the x-axis, with fit equation $y = 144.37x^{-1.796}$, $R^2 = 0.9924$, and annotation "6.76 mW at 5.5 cm".

Figure S1: Correlation between the power lamp vs. irradiation distance

Characterization

^{1}H NMR relaxation experiments were performed on a Bruker Minispec MQ-20 spectrometer. The dead-time of the receiver and the duration of the 90°and 180° pulses were 9 μs, 3.4 and 7.8 μs, respectively. A solid echo pulse sequence, 90°x-$t$se-90°y-$t$se-[acquisition of the

amplitude of the transverse magnetization $A(t)$], with $t$se) 9.5 µs was used to measure the free induction decay (FID). A Hahn echo pulse sequence, 90°x-tHe-180°x-tHe-[acquisition $A(t)$ of the amplitude of an echo maximum], was used to record the slow part of the $T2$ relaxation decay for the soft domains of the samples, where tHe was varied between 10μs and 10 ms. The Carr Purcell Meiboom Gill (CPMG) sequence was used to measure spin-spin relaxation time $T2$ for the soft domains exclusively. NMR signals were analyzed by using a discrete fitting method such as the Marquard t method (least-squares nonlinear regression technique). $T1$ experiments was carried on by inversion recovery sequence.
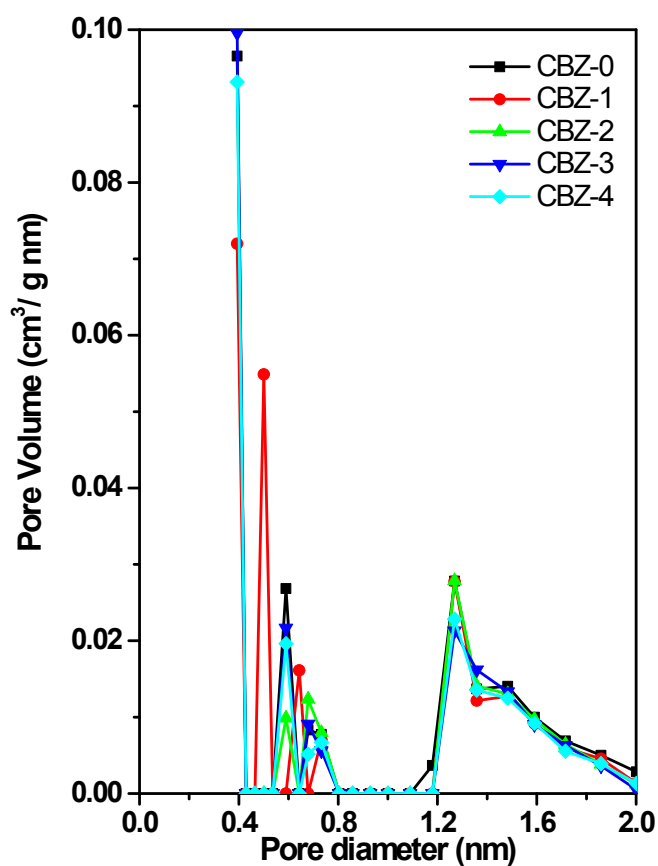
II. Results

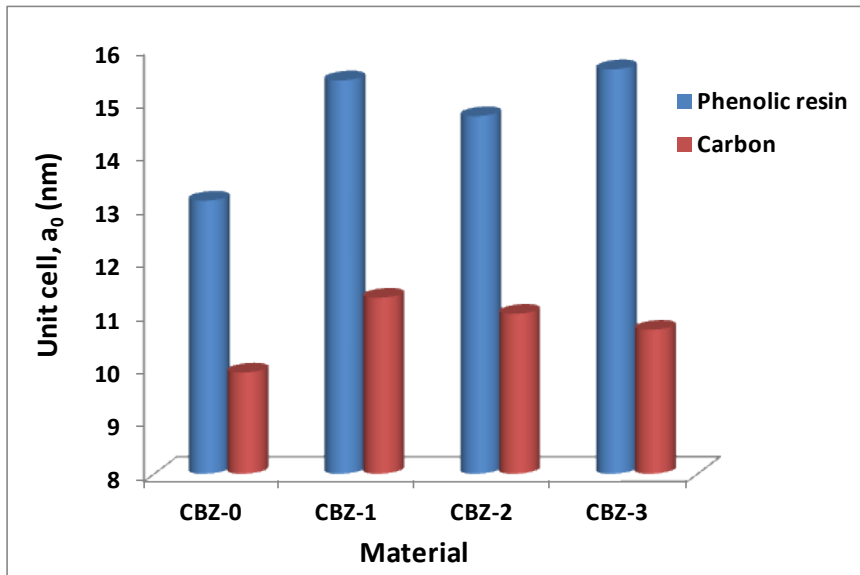**Figure S2**: DFT micropore size distribution for carbon materials

Figure S3: Unit cell parameters determined by SAXS measurements for phenolic resins and their corresponding carbons
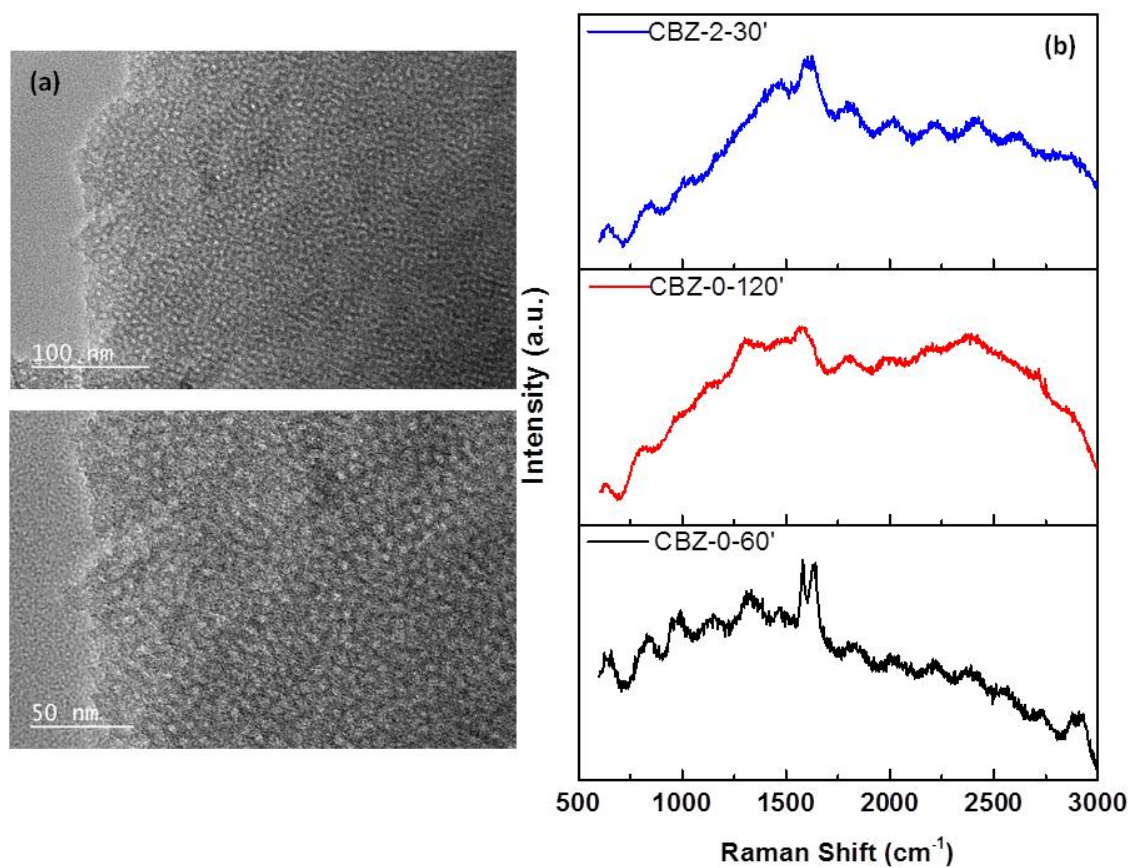
Figure S4: (a) TEM pictures and Raman spectra (b) of phenolic-resins synthesized in the absence of benzophenone by irradiation with light for 2h.