Electronic Supplementary Material (ESI) for Chemical Communications

Microporous sulphur-doped carbon from thienyl-based polymer network precursors

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SUPPORTING INFORMATION

1 Figures

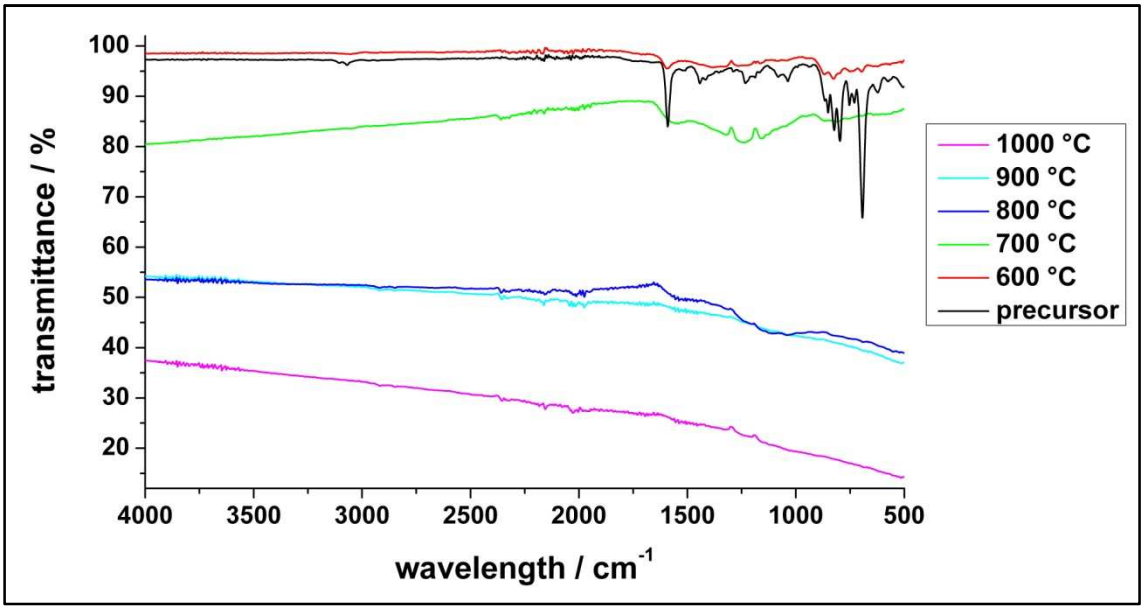

Fig. S 1: FT-IR spectra of the thienyl-based precursor and the samples thermally treated at varying temperatures.

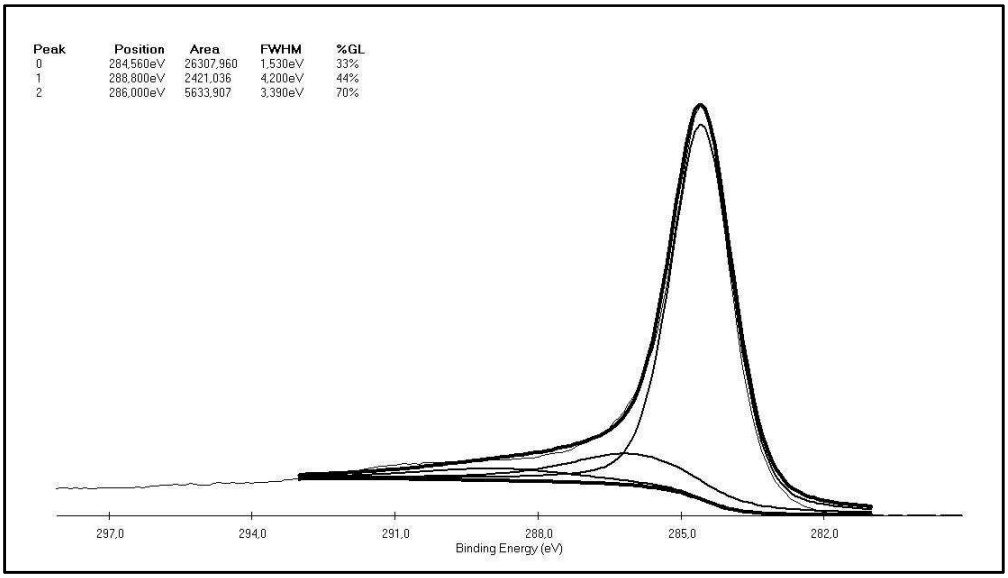

Fig. S 2: Deconvoluted XPS-spectrum of the C-1s orbital, measured on the material synthesised at 1000 °C.

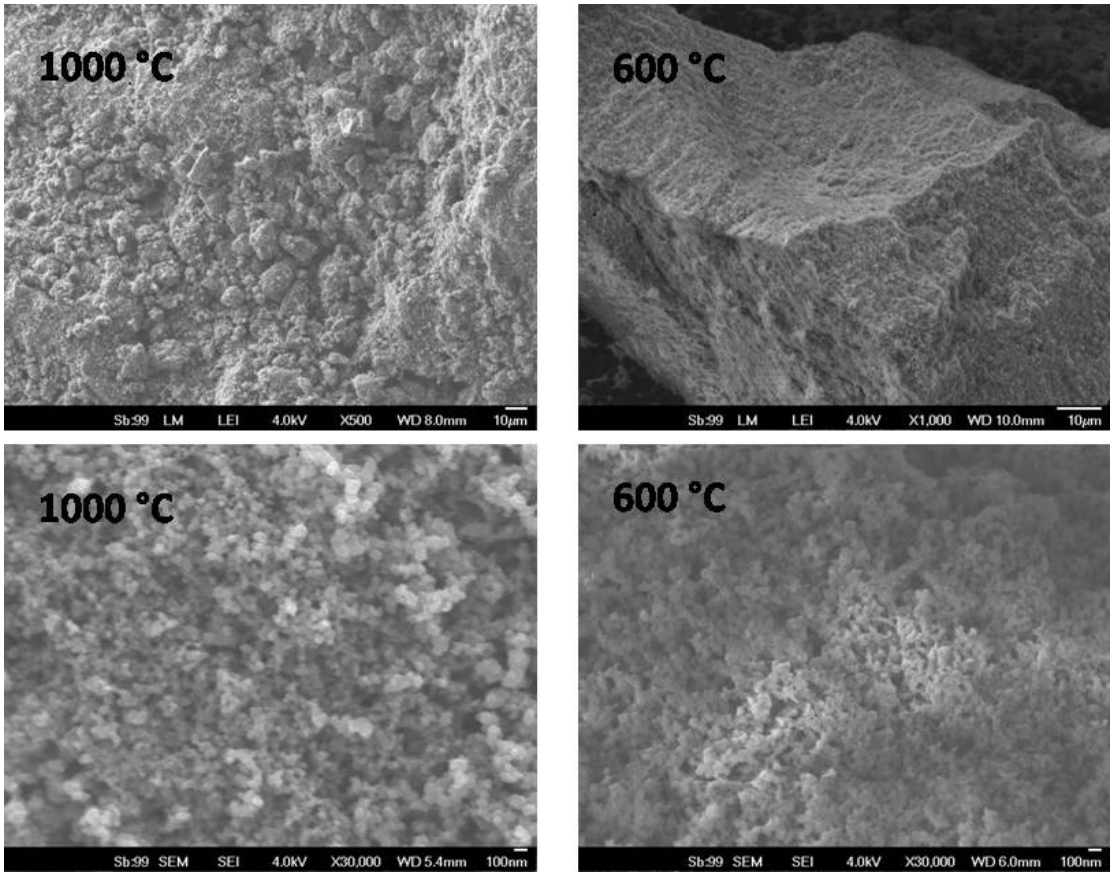

Fig. S 3: SEM micrographs of S-doped carbonaceous materials synthesized at 600 °C and 1000 °C.

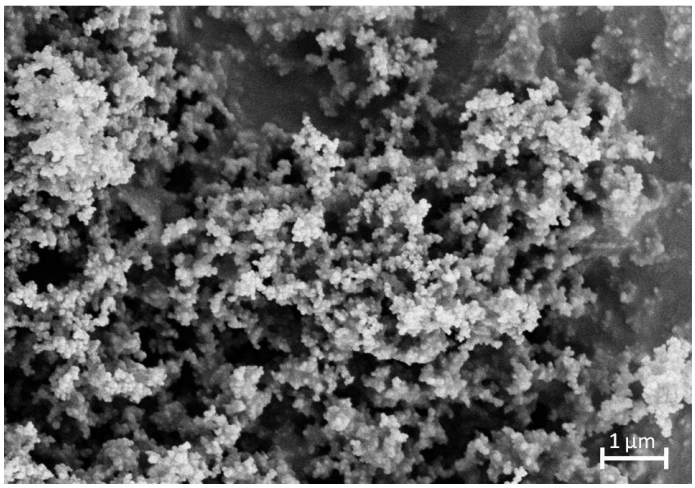

Fig. S 4: SEM micrograph of poly(1,3,5-tris(thienyl)benzene).

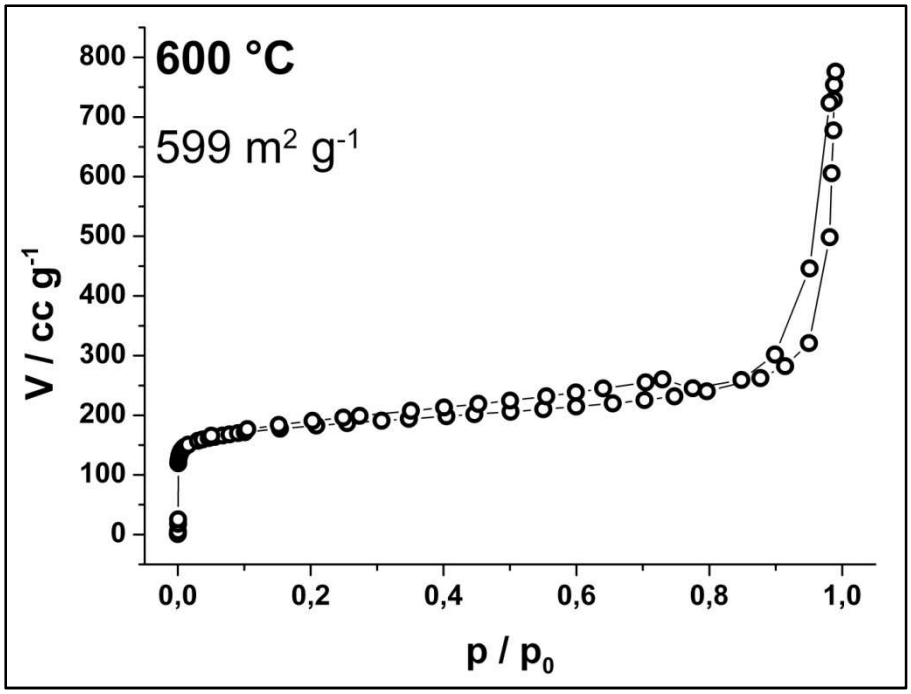

Fig. S 5: Nitrogen sorption isotherm of S-doped carbonaceous material synthesised at 600 °C.

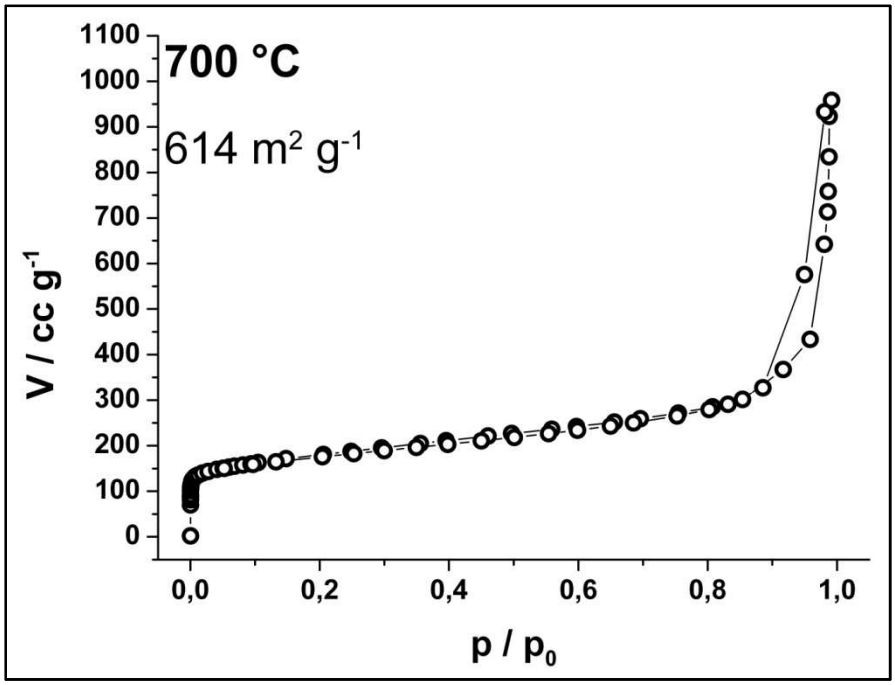

Fig. S 6: Nitrogen sorption isotherm of S-doped carbonaceous material synthesised at 700 °C.

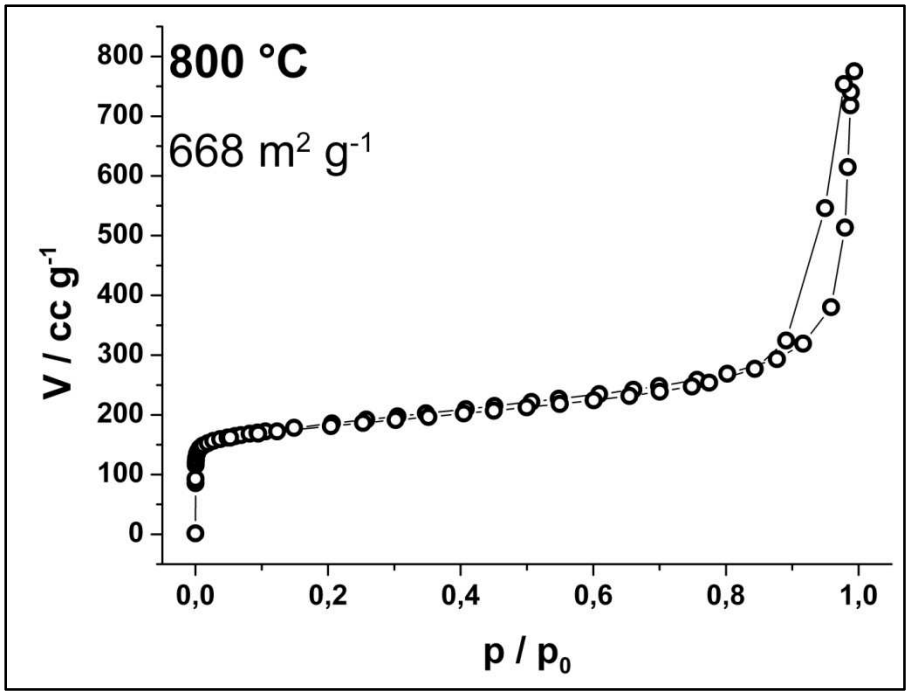

Fig. S 7: Nitrogen sorption isotherm of S-doped carbonaceous material synthesised at 800 °C.

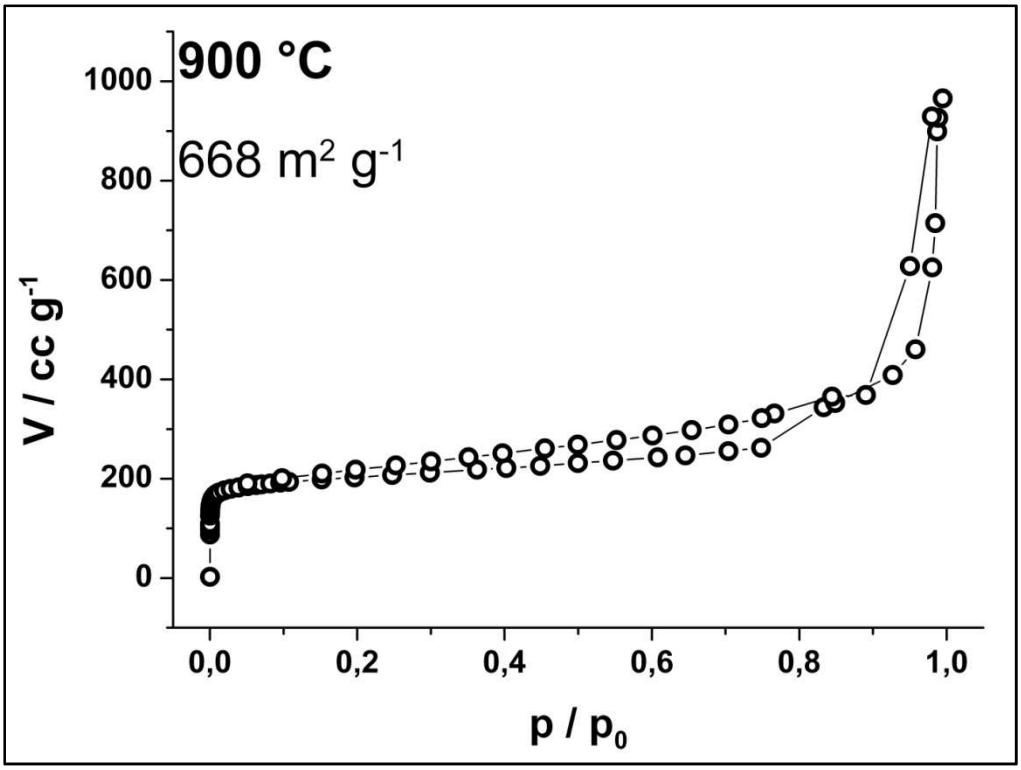

Fig. S 8: Nitrogen sorption isotherm of S-doped carbonaceous material synthesised at 900 °C.

2 Experimental Section

Thermogravimetric analysis was accomplished using an STA6000 device manufactured by Perkin-Elmer. Elemental analysis was accomplished as combustion analysis using a Vario Micro device. X-ray Photoelectron Spectroscopy (XPS) experiments were performed in type Theta probe (Thermo Fisher) using monochromatized Al K_α radiation at hν = 1486.6 eV. Peak positions were internally referenced to the C1s peak at 284.6 eV. Spectra were devconvoluted using XPSPEAK41 software. Nitrogen sorption isotherms were measured using a Quadrasorb porosimetry device manufactured by Quantachrome, samples were degassed at 150 °C for 10 h at reduced pressure before measurement.

PTTB was synthesised according to our previous publication.[1] Sulphur doped carbons were synthesised by annealing 150 mg of yellow PTTB, placed in a ceramic crucible, in a box type furnace (N7/H Nabertherm), equipped with a continuous gas inlet, under a continuous Ar-flow of 2 L min^{-1}. Samples were heated to 600 °C, 700 °C, 800 °C, 900 °C or 1000 °C, respectively, with a heating rate of 100 K h^{-1} and the temperature was subsequently kept for 1 h before the samples were allowed to cool down. Homogeneously black powders were obtained that were directly used for characterisation without further treatment.

1. J. Schmidt, J. Weber, J. D. Epping, M. Antonietti and A. Thomas, *Advanced Materials*, 2009, **21**, 702-705.