

## Supporting Information

NH<sub>3</sub>-assisted synthesis of microporous silicon oxycarbonitride ceramics from preceramic polymers: a combined N<sub>2</sub> and CO<sub>2</sub> adsorption and small angle X-ray scattering study

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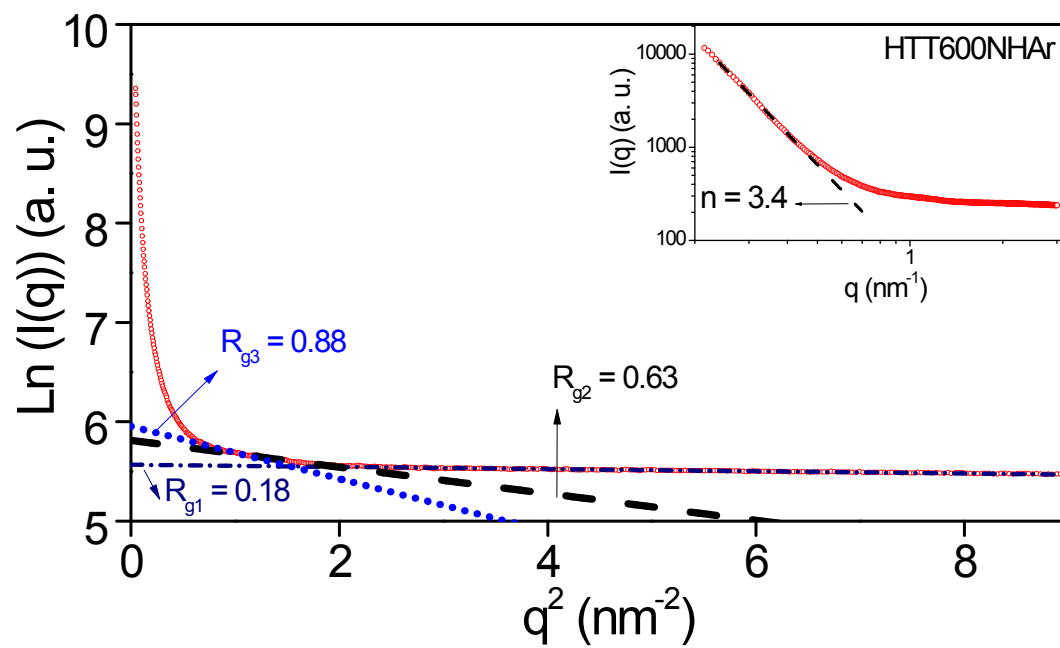


Figure S1. The tangent method illustrated for HTT600NHAr.

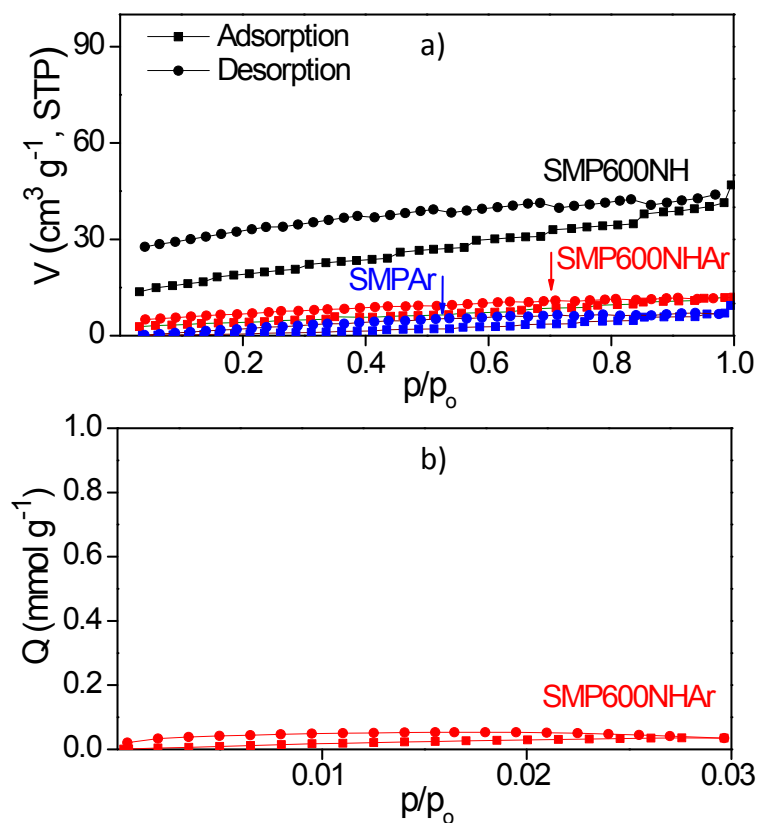


Figure S2. N<sub>2</sub> adsorption isotherms for SMP600NH, SMP600NHAr, and SMPAr (a) and CO<sub>2</sub> adsorption isotherm for SMP600NHAr (b).

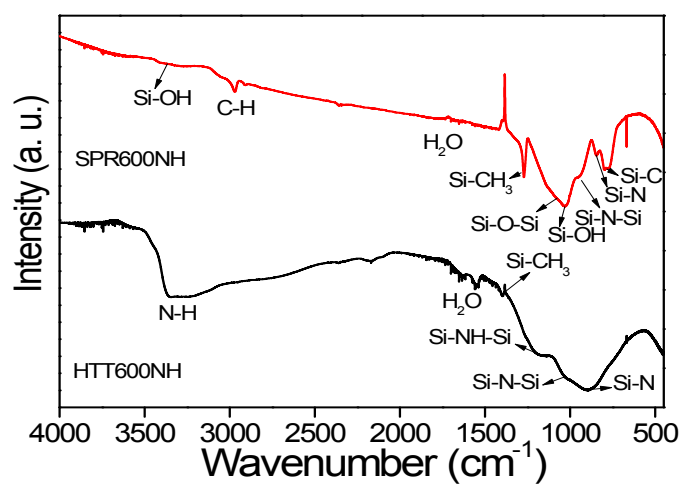


Figure S3. FTIR spectra of HTT600NH and SPR600NH samples. For HTT600NH sample, bands located at 3387 cm<sup>-1</sup> and 1185 cm<sup>-1</sup>, correspond to  $\nu(\text{N-H})$  vibrations and  $\gamma(\text{N-H})$  deformation bands of Si-NH-Si, respectively. The dominant bands around 900-1000 cm<sup>-1</sup> are attributed to Si<sub>2</sub>N vibrations. For SPR600NH sample, weak bands at 3450 cm<sup>-1</sup> and 960 cm<sup>-1</sup> correspond to Si-OH bonds.

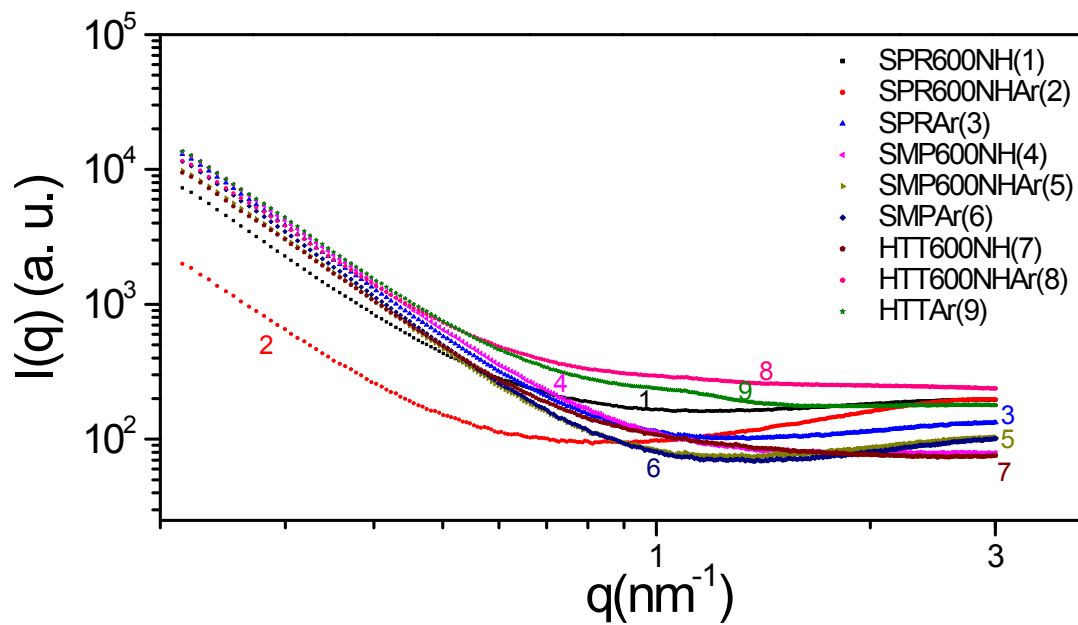


Figure S4. SAXS curves of specimens derived from polycarbosilane, polysiloxane, and polysilazane precursors. For the sample notation, see Figure 1 b in the main manuscript.

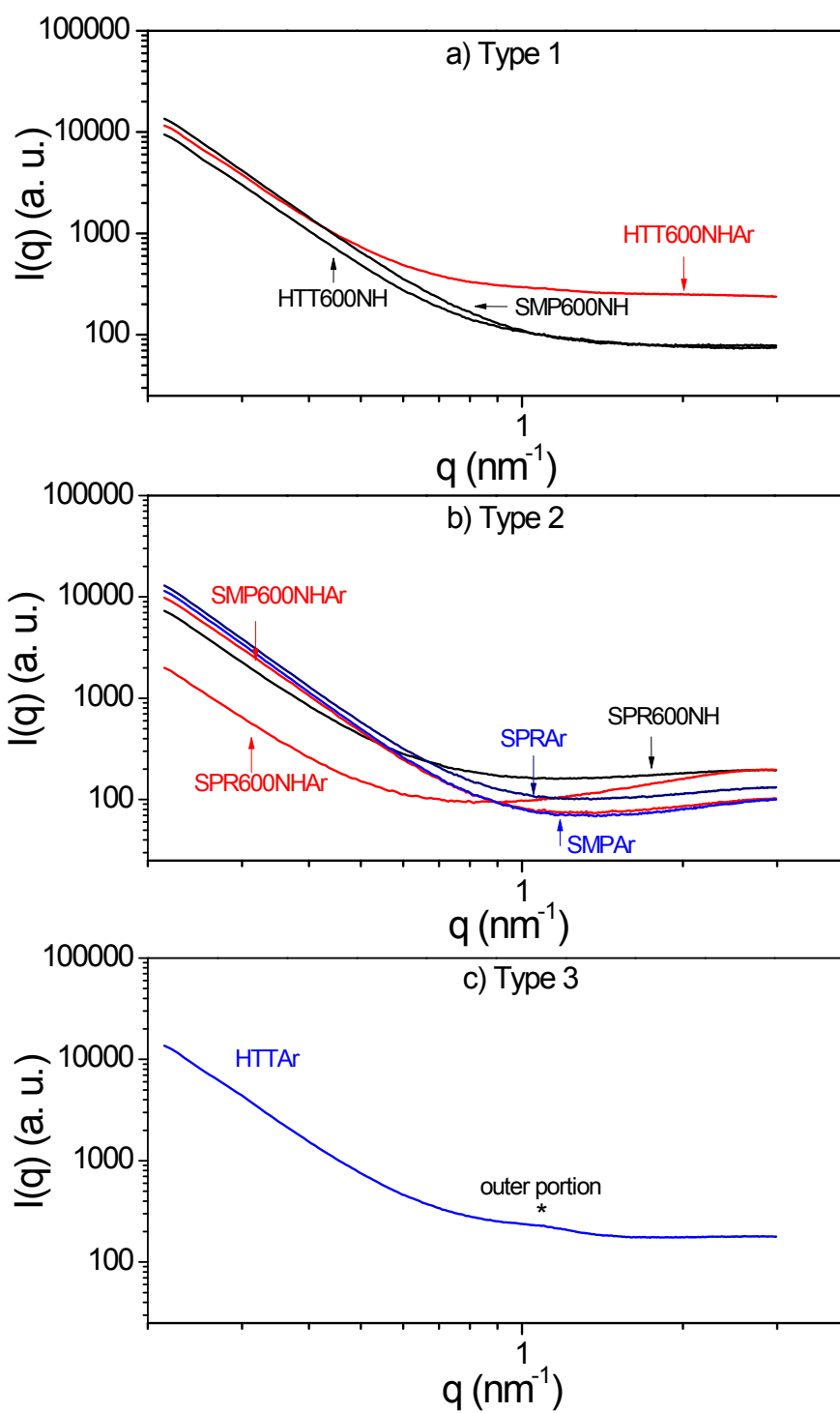


Figure S5. Different SAXS profiles: a) Type 1, b) Type 2, and c) Type 3. For details see section 3.5 in the main manuscript.