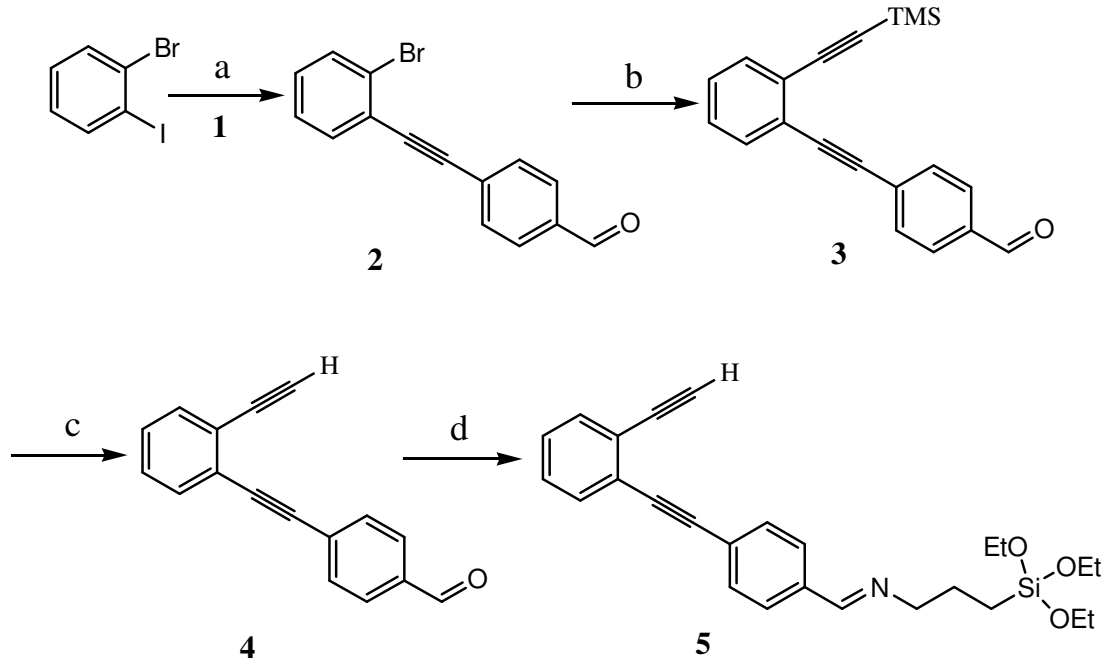
Supporting Information

Synthesis of Ultrathin Ordered Porous Carbons through Bergman Cyclization of Enediyne Self-Assembled Monolayers on Silica Templates

Zhiwen Li, Depeng Song, Jian Zhi, Aiguo Hu*

Key Laboratory for Ultrafine Materials of Ministry of Education, School of Materials Science and Engineering, East China University of Science and Technology, Shanghai, 200237, China.

Synthesis of Enediyne-Containing Imine (5). Enediyne **4** was synthesized by three consecutive Sonogashira coupling reactions in high yields. 4-ethynylbenzaldehyde (**1**) was first synthesized through a known procedure Reaction of **1** with commercial available o-bromoiodobenzene afforded **2** in good yield. In this reaction, iodine was selectively substituted while bromine was intact according to NMR and MS analysis. Subsequent installation of trimethylsilylacetylene (TMSA) took place in a sealed tube under elevated temperature, and then the trimethylsilyl protection group was completely removed using a solution of TBAF and PTSA in THF. TBAF is typically used as a selective and mild deprotection reagent for the trimethylsilyl (TMS) group. However, we found that lots of unidentified byproduct formed when using solely TBAF to remove TMS group of **3**. This phenomenon was speculated as due to the strong basicity of fluorine anions in TBAF solution. To solve this problem, a half equivalent of PTSA was added to the reaction mixture to neutralize fluorine anions into bifluoride. With this combo deprotection reagent, the reaction took place cleanly to form **4** in quantitative yield. The final imine product **5** was successfully formed by reacting **4** with APTES in anhydrous ethanol. A slight excess of enediyne **4** was used in this reaction to avoid incorporation of free APTES (enediyne void in SAMs) on templates in the subsequent immobilization step (Scheme 1).[1]



Scheme S1. Synthesis of enediyne containing imine. (a) 4-ethynylbenzaldehyde (1), $Pd(PPh_3)_2Cl_2$, CuI, Et_3N, 60□, 76%. (b) TMSA, $Pd(PPh_3)_2Cl_2$, CuI, Et_3N, 80□, 73%. (c) TBAF, PTSA, THF, 99%. (d) APTES, EtOH, RT, 98%.

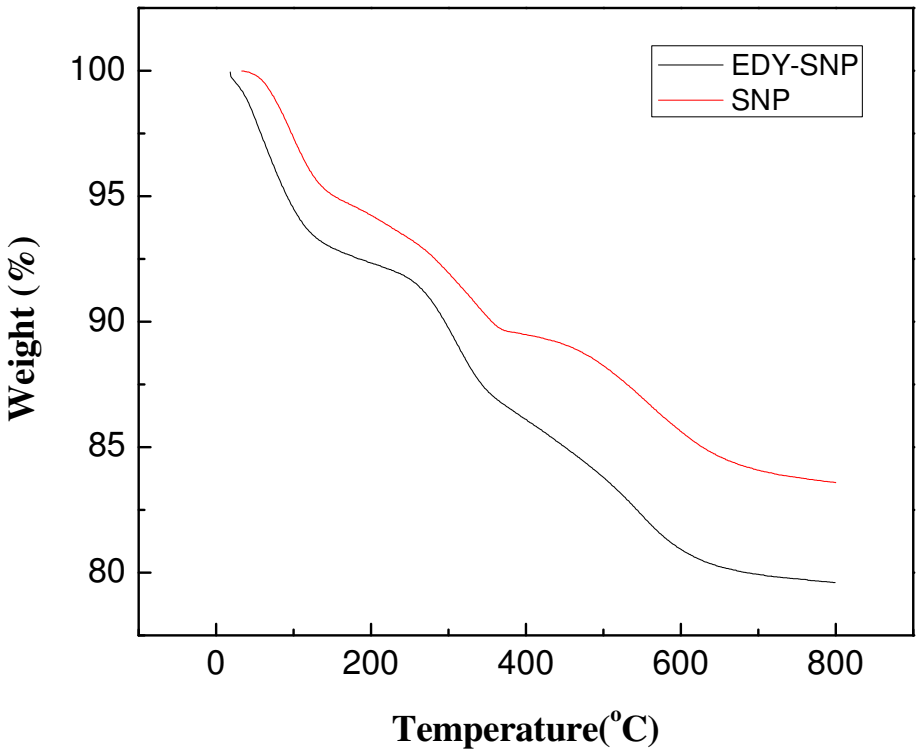


Fig. S1. TGA analysis of SNP and EDY-SNP

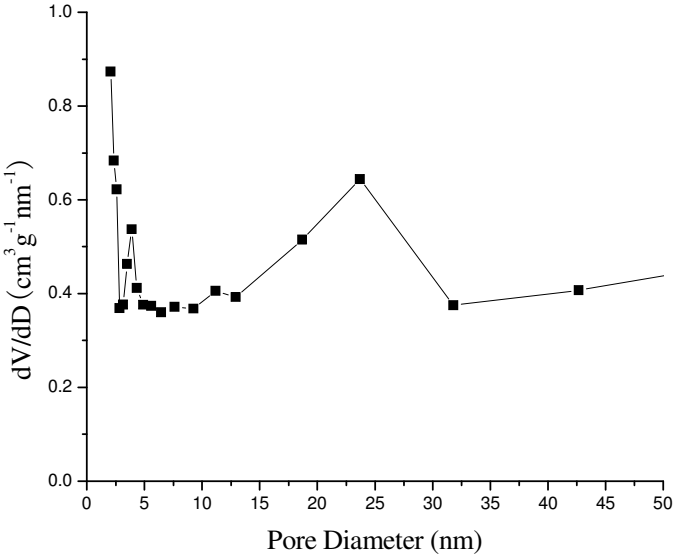


Fig. S2. Pore size distribution of the porous carbons (230nm) calculated from the desorption branch of the isotherms by BJH method

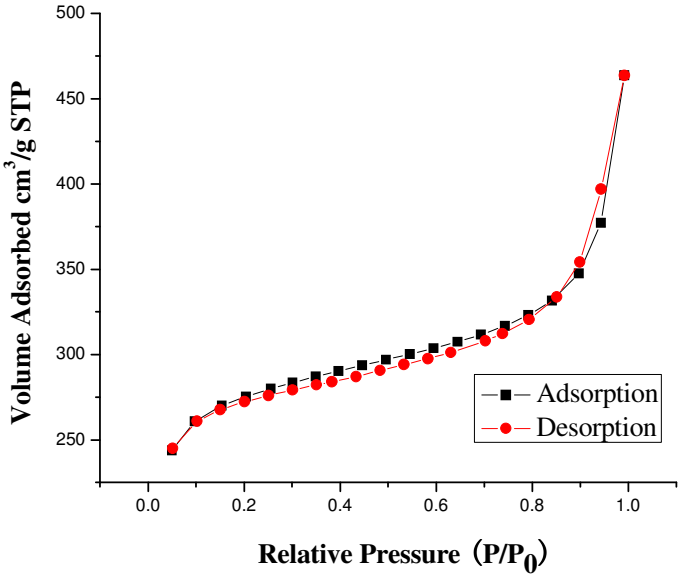


Fig. S3**.** Nitrogen sorption isotherm of the ordered macroporous carbon templated from 160 nm SNPs.

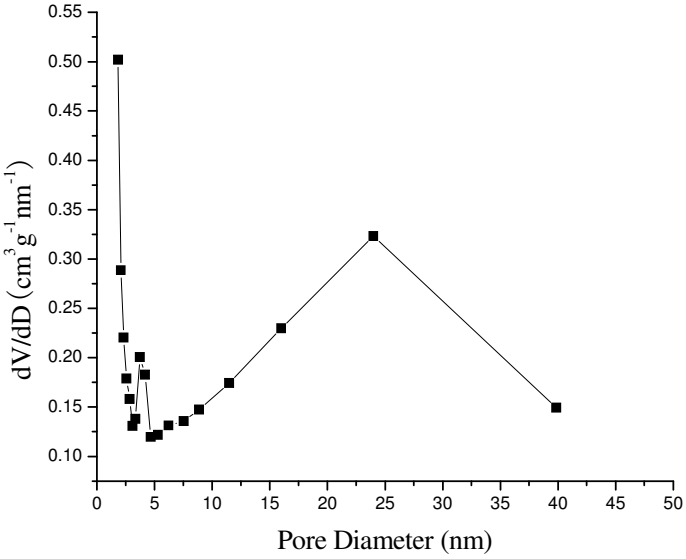


Fig. S4. Pore size distribution of the porous carbons (160nm) calculated from the desorption branch of the isotherms by BJH method

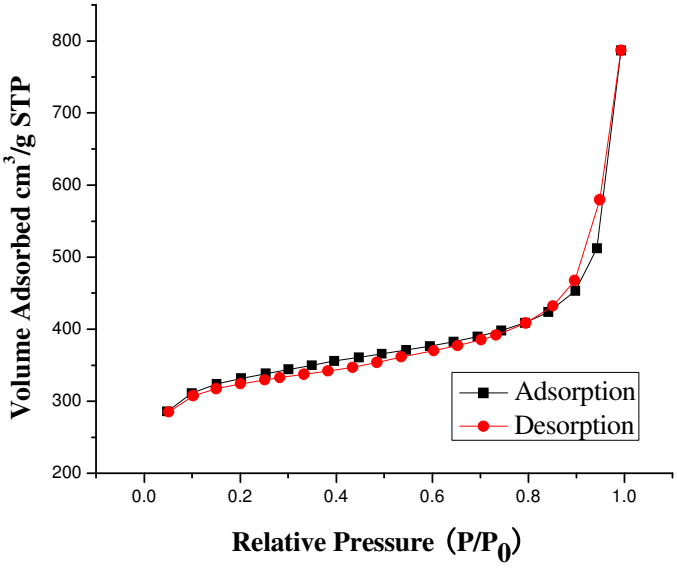


Fig. S5**.** Nitrogen sorption isotherm of the ordered macroporous carbon templated from 160 nm SNPs.

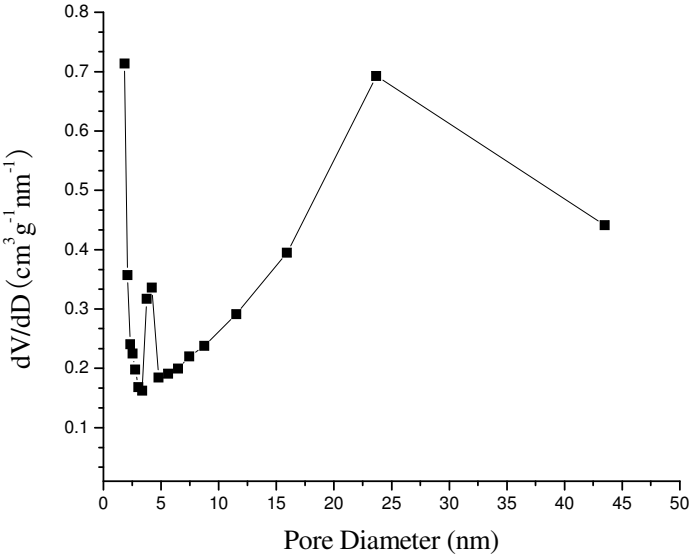


Fig. S6. Pore size distribution of the porous carbons (270nm) calculated from the desorption branch of the isotherms by BJH method

References

(1) Yang, X.; Li, Z.; Zhi, J.; Ma, J.; Hu, A. *Langmuir* **2010**, *26*, 11244.