5<sup>th</sup> International Conference on

## **Advances in Chemical Engineering & Technology**

October 04-05, 2018 | London, UK

## Soft-templated synthesis of carbon micron-buds

Jiangtao Li<sup>1</sup> and Pengna Li<sup>2</sup> <sup>1</sup>Xi'an University, China <sup>2</sup>NSFC, Foundation (No. 21706209), China

Using coal tar pitch based amphiphilic carbonaceous materials (ACMs) as the precursor and amphiphilic triblock copolymer F127 as the only soft template, hollow carbon micro-buds (CMBs) were synthesized. The concentration of F127, cF, and the mass ratio of F127 to ACM, r, are the key parameters of controlling the shape of the as-prepared products. CMBs with diameters of about 1  $\mu$ m were prepared under the condition of ci=53.4 g/L and r=2. CMBs were amorphous materials. The shape of the as-prepared products can be controlled by tuning the F127 concentration and the mass ratio of F127 to ACM. Micronbuds with diameter of 150–500 nm were obtained when the mass ratio of F127 to ACM is 2 and the F127 concentration is 53.4 g/L. During the immediate carbonization of F127/ACM aggregates, ordered mesoporous structure within the carbon skeleton was destroyed, due to the crosslinking reaction and decomposition of functional groups.



Fig.1: SEM and TEM images of samples.

## **Recent Publications:**

- 1. Rebecca J Nicholls, Jude Britton, Seyyed Shayan Meysami, Antal A KoÓs and Nicole Grobert (2013) In situ engineering of NanoBud geometries. Chem. Commun 49:10956–10958.
- 2. A Seif, E Zahedi and T S Ahmadi (2011) A DFT study of carbon nanobuds. The European Physical Journal B 82:147–152.
- 3. Xiaojun Wu and Xiao Cheng Zeng (2009) Periodic graphene nanobuds. Nano Lett. 9(1):250-256.
- 4. Xiaojun Wu and Xiao Cheng Zeng (2008) First-principles study of a carbon nanobud. ACSNANO 2(7):1459–1465.
- 5. A Nasibulin, P V Pikhitsa, D P Brown, A V Krasheninnikov and A S Anisimov (2007) A novel hybrid carbon material. Nature Nanotechnol 2:156–161.

## Biography

Jiangtao Li graduated from Shaanxi Normal University in 2012. He has a PhD Degree in Organic Chemistry at Xi'an University . He is a faculty of Organic Chemistry at Xi'an University. He has published articles in Carbon and Australian Journal of Chemistry.

lijiangtao-968@126.com