



Functional Silsesquioxane-based Porous Polymer for Multiple Application

Hongzhi Liu

International Center for Interdisciplinary Research and Innovation of Silsesquioxane Science, Shandong University
Jinan 250100, China. E-mail: liuhongzhi@sdu.edu.cn

Silsesquioxane-based hybrid polymers (PCSs) have attracted growing attention recently because of their large surface areas with abundant pores that provide sufficient binding sites and good transport channels.^[1-3] Our group has proven that octavinylsilsesquioxane (OVS) is a versatile precursor to construct a number of functional porous polymers via Friedel-Crafts reaction, Heck coupling reaction and cationic polymerization (**Fig. 1**) in a large scale^[4-6]. These hybrid porous polymers are widely used in gas storage and separation, sensor, catalyst and water treatment etc. In order to overcome the processing difficulty of PCSs, we successfully fabricated hybrid aerogels by blending PCSs with soft chitosan, which further extend the application scope of PCSs.

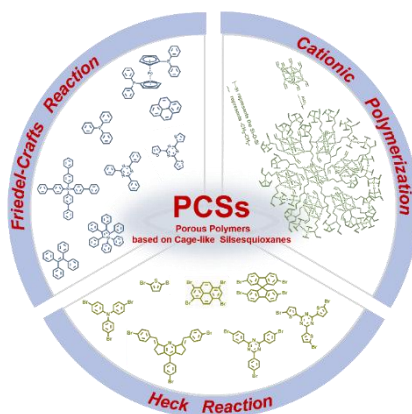


Fig. 1 Preparation methods of PCSs

References

1. M. Soldatov, H. Liu, *Prog. Polym. Sci.* **2021**, 119, 101419
2. Y. Du, H. Liu *Dalton Trans.*, **2020**, 49, 5396-5405.
3. H. Liu, H. Liu, *J. Mater. Chem. A* **2017**, 5, 9156.
4. Q. Wang, M. Unno, H. Liu *ACS sustainable Chem. & Eng.*, **2022**, 10, 7309-7320.
5. Y. Du, H. Liu, *Macromol. Chem. Phys.* **2019**, 220, 1800536
6. M. Ge, H. Liu, *J. Mater. Chem. A*, **2016**, 4, 16714-16722