

Microporous Framework Materials for Gas Separation and Purification

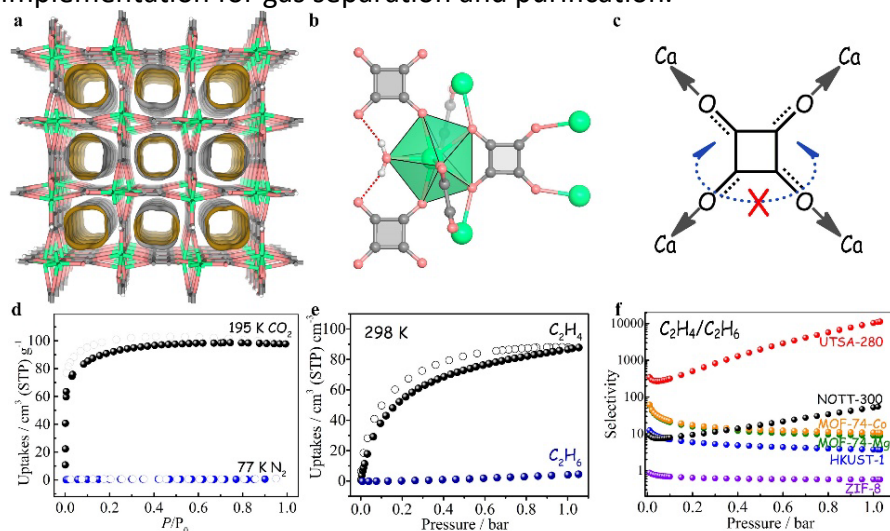
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Gas separation and purification is a very important but energy-intensive industrial process for manufacturing chemicals, fuels, plastics and polymers. The application of porous materials can fulfill the energy-efficient separation economy. Metal-organic frameworks (MOFs) and hydrogen bonded organic frameworks (HOFs), two new generation of porous materials, have been demonstrated for their potential and promise in addressing important gas separations. In this talk, we outline the uniqueness and basic principle of MOF and HOF chemistry for their gas separation in terms of their specific pore chemistry and molecular recognition. The finely tuned pores for the high sieving effects and the immobilized functional sites on the pore surfaces for their specific recognition of gas molecules have enabled us to develop variety of microporous MOFs and HOFs for many gas separations with both high gas separation selectivity and productivity. We highlight the major progress and achievements in this very important topic, which will further facilitate the extensive research endeavors and promote their industrial implementation for gas separation and purification.



References:

- [1], Lin, R. B.; Zhang, Z*; Chen, B.*, *Acc. Chem. Res.* **2021**, 54, 3362;
- [2] Zhang, Z.*; Ye, Y.; Xiang, S.; Chen, B.*, *Acc. Chem. Res.*, **2022**, 55, 3752.