Functional Metal-Organic Framework Materials: Design, New Synthesis Methods, and Processing

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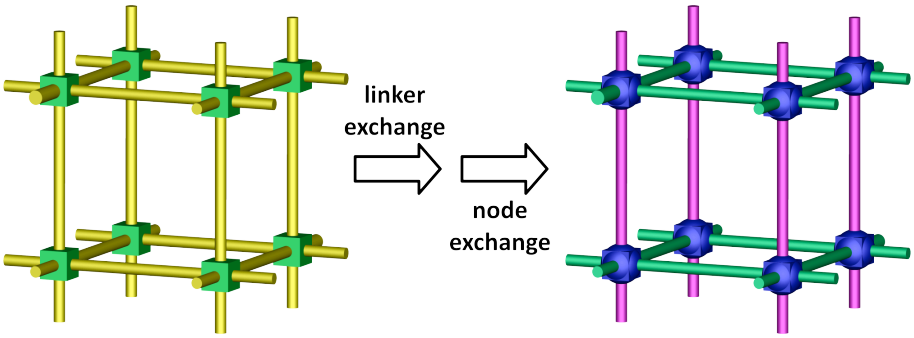
Metal-Organic Frameworks (MOFs) are an intriguing class of hybrid materials that are built by assembling metal centers with organic linkers. MOFs have shown promise in a wide range of applications ranging from gas storage to drug delivery due to their exquisite properties which include chemical tunability, uniform channels and cavities, and have large internal surface areas. This presentation will highlight recent advances in MOF synthesis and activation.[1-6] These advances are facilitating the construction of MOFs that show promise for energy-related applications, including high surface area for gas storage and catalysis.



References

1. Karagiaridi, O.; Lalonde, M. B.; Bury, W.; Sarjeant, A. A.; Farha, O. K.; Hupp, J. T. *J. Am. Chem. Soc.* **2012,** *134*, 18790–18796.
2. Mondloch, J. E.; Bury, W.; Fairen-Jimenez, D.; Kwon, S.; DeMarco, E. J.; Weston, M. H.; Sarjeant, A. A.; Nguyen, S. T.; Stair, P. C.; Snurr, R. Q.; Farha, O. K.; Hupp, J. T. *J. Am. Chem. Soc.* **2013**, *135*, 10294–10297.
3. Deria, P.; Mondloch, J. E.; Tylianakis, E.; Ghosh, P.; Bury, W.; Snurr, R. Q.; Hupp, J. T.; Farha, O. K. *J. Am. Chem. Soc.* **2013**, *135*, 16801–16804.
4. Karagiaridi, O.; Bury, W.; Mondloch, J. E.; Hupp, J. T.; Farha, O. K. *Angew. Chem. Int. Ed.* **2014**, *53*, 4530-4540.
5. Deria, P.; Mondloch, J. E.; Karagiaridi, O.; Bury, W.; Hupp, J. T.; Farha, O. K. *Chem. Soc. Rev.* **2014**, Advance Article. DOI: 10.1039/C4CS00067F.
6. Mondloch, J. E.; Karagiaridi, O.; Farha, O. K.; Hupp, J. T. *CrystEngComm* **2013**, *15*, 9258-9264.