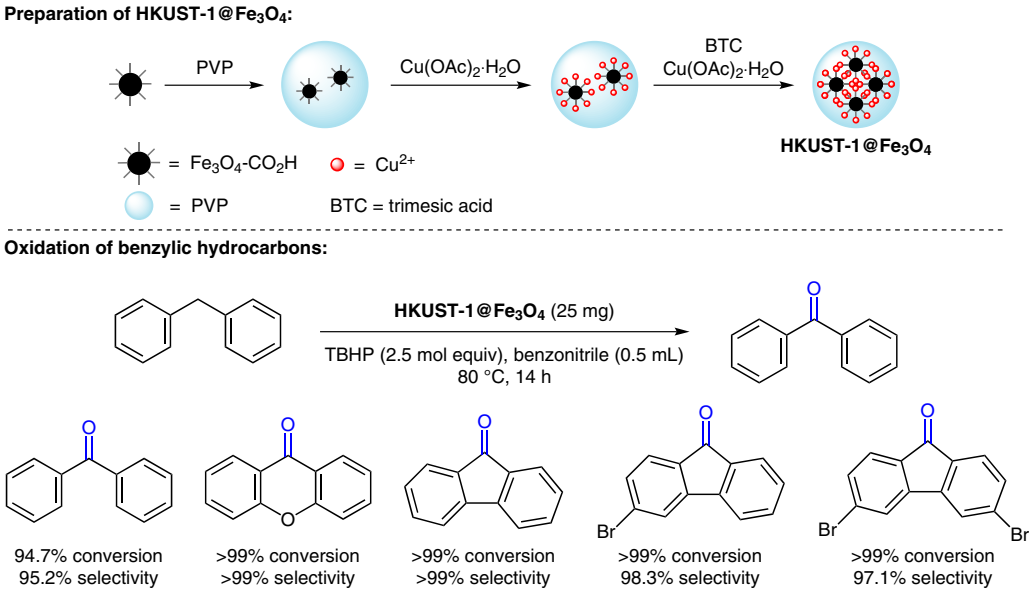
C. HU,* B. WANG* ET AL. (BEIJING INSTITUTE OF TECHNOLOGY AND LIAOCHENG UNIVERSITY, P. R. OF CHINA)

Facile Fabrication of Magnetically Recyclable Metal-Organic Framework Nanocomposites for Highly Efficient and Selective Catalytic Oxidation of Benzylic C–H Bonds
Chem. Commun. **2014**, *50*, 8374–8377.

Oxidation of Benzylic C–H Bonds with HKUST-1@Fe_3O_4



Significance: The magnetic core–shell nanocomposites HKUST-1@Fe_3O_4 were prepared from Fe_3O_4-CO_2H (Φ 20 nm), polyvinylpyrrolidone (PVP), $Cu(OAc)_2$, and trimesic acid (BTC), in which the iron-based nanoparticles were encapsulated by the resulting HKUST-1 shell [for the copper-organic framework of $Cu(OAc)_2$ and trimesic acid, see: Chui et al. *Science* **1999**, *283*, 1148]. The oxidation of benzylic C–H bonds was carried out with HKUST-1@Fe_3O_4 and TBHP to give the corresponding desired carbonyl products in up to >99% conversion and >99% selectivity.

Comment: The catalyst was characterized by SEM, HR-TEM, PXRD, BET, and FT-IR analyses. Elemental analysis revealed a ratio of copper and iron of 19.34% and 28.63%. The catalyst was recovered by an external magnet and reused twice without significant loss of the catalytic activity.

SYNFACTS Contributors: Yasuhiro Uozumi, Yoichi M. A. Yamada, Heeyoel Baek
Synfacts 2014, 10(10), 1101 Published online: 17.09.2014
DOI: 10.1055/s-0034-1379194; **Reg-No.:** Y10314SF

Category
Polymer-Supported Synthesis

Key words
metal-organic framework
oxidation
iron oxide
heterogeneous catalysis