## Category

Polymer-Supported Synthesis

## Key words

mesoporous copper(I) oxide

photocatalytic aza-Henry reaction

visible light

oxvaen

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Cu<sub>2</sub>O Mesoporous Spheres with a High Internal Diffusion Capacity and Improved Catalytic Ability for the aza-Henry Reaction Driven by Visible Light

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## Visible-Light-Promoted aza-Henry Reaction Using Mesoporous Cu<sub>2</sub>O

**Significance:** Mesoporous copper(I) oxide spheres with different pore sizes (5 nm for SP-Cu<sub>2</sub>O and 15 nm for LP-Cu<sub>2</sub>O) were prepared and applied to the visible-light-promoted aza-Henry reaction. The reaction of N-aryl tetrahydroisoquinolines  $\mathbf{1}$  with nitroalkanes  $\mathbf{2}$  was carried out in the presence of LP-Cu<sub>2</sub>O and molecular oxygen under the irradiation of blue LEDs to afford the corresponding coupling products  $\mathbf{3}$  in 83–90% yield. The reaction without catalyst gave  $\mathbf{3a}$  in only 5% yield under otherwise similar conditions.

**Comment:** The catalysts were characterized by SEM, TEM, XRD, and N<sub>2</sub> adsorption–desorption analyses. For the formation of **3a**, LP-Cu<sub>2</sub>O was recovered by centrifugation and reused four times without significant loss of catalytic activity. SEM observation of LP-Cu<sub>2</sub>O after the fifth run showed no change of its morphology. The preparation of mesoporous Cu<sub>2</sub>O spheres with small pore size was previously reported by Shang, Zhang and Guo (*J. Mater. Chem.* **2012**, *22*, 856).

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