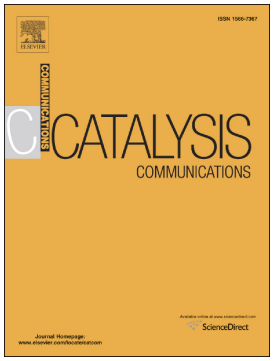

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Chemical fixation of carbon dioxide catalyzed by magnetically recoverable NH_2-MIL-101(Al) as an elegant nanoreactor

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Abstract- A new heterogeneous catalyst, magnetic amino-MIL-101(Al), was synthesized based on the reaction of NH_2-MIL-101(Al) and silica coated magnetic nanoparticles, $Fe_3O_4@SiO_2$. The prepared catalyst was characterized by UV-vis, FT-IR, X-ray diffraction (XRD), field emission scanning electron microscopy (FE-SEM), energy dispersive X-ray (EDX) and inductively coupled plasma (ICP) methods. The catalytic activity of this new catalyst was investigated in the fixation of carbon dioxide with epoxides under atmospheric pressure at 100 °C. Excellent yields, short reaction times and reusability without significant decrease in its initial activity are the advantages of this noble catalyst. Moreover, magnetic property of the catalyst allows easy separation by using an external magnetic field.

***Keywords**: Metal-organic framework; magnetic amino-MIL-101(Al); $Fe_3O_4@SiO_2$; CO_2 cycloaddition.*

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