

*Supporting Information for*

**Adsorption performance of composite MIL-101(Cr)/graphite oxide  
for a series of *n*-alkanes**

Xuejiao Sun, Yujie Li, Hongxia Xi, Qibin Xia\*

Physical characteristics

Powder X-ray diffraction (PXRD) data were recorded on a Bruker D8 Advance X-ray diffractometer with Cu K $\alpha$  emission at room temperature with a scan speed of 2° min<sup>-1</sup> and a step size of 0.02° in 2 $\theta$ . Thermogravimetric analysis (TGA) of samples was performed on a TA Q500 instrument heating from 303 to 873 K in nitrogen atmosphere at a rate of 10 K min<sup>-1</sup>.

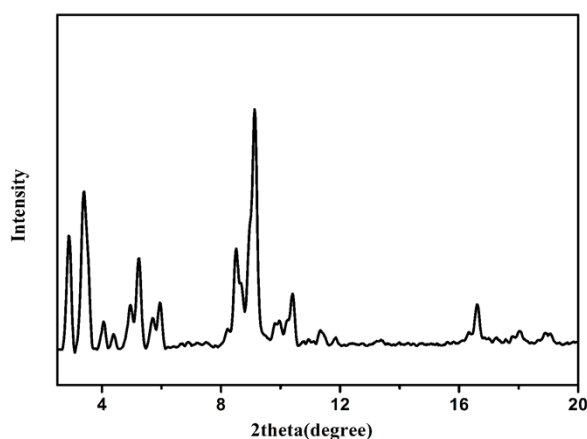


Fig. S1 XRD pattern of MIL-101@GO composite

Fig. S1 shows the powder XRD pattern of the synthesized MIL-101@GO composite. The main diffraction peaks appear at  $2\theta = 3.3^\circ, 5.2^\circ, 5.9^\circ, 8.4^\circ, 9.1^\circ, 10.4^\circ$  and  $16.6^\circ$ , consistent with those reported of the previously prepared one<sup>1</sup>.

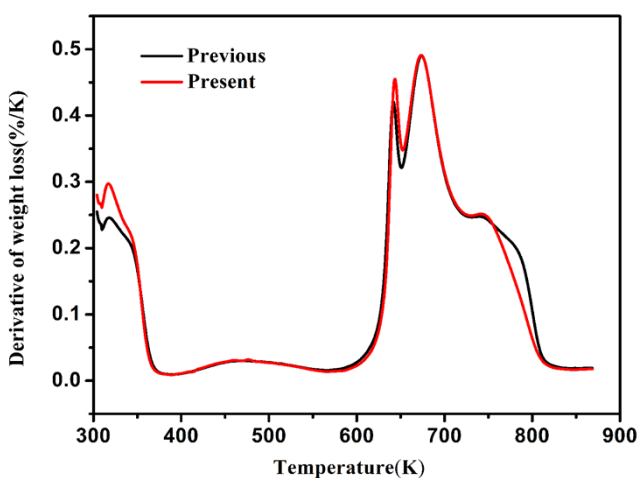


Fig. S2 DTG curves of the previous and present MIL-101@GO composites

The DTG curve of the present composite looks rather similar to the one of the previous composite (Fig. S2). The composites exhibit five steps of weight loss. The first weight loss below 373 K is attributed to physically adsorbed water. The second weight loss step is observed in the temperature range 373–573 K, which corresponds to the loss of the coordinated water molecules. The last three weight loss steps correspond to the structure collapse of MOF and the degradation of the organic linker<sup>2</sup>.

### Adsorption experiments

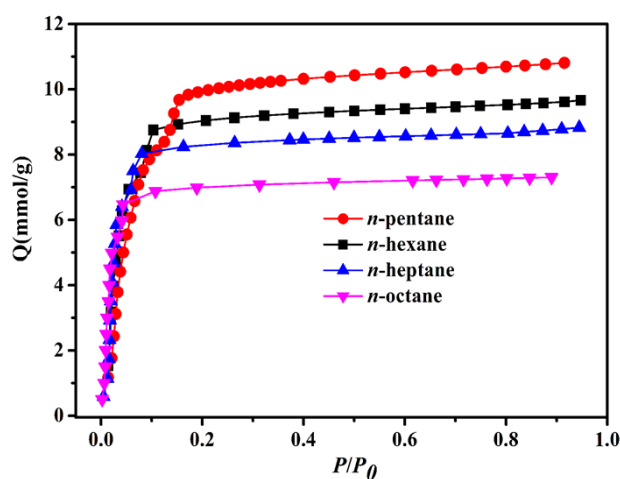


Fig. S3 Adsorption isotherms of  $n$ -alkanes on MIL-101 at 298 K

### References

- 1 X. J. Sun, Q. B. Xia, Z. X. Zhao, Y. W. Li and Z. Li, *Chem. Eng. J.*, 2014, **239**, 226-232.
- 2 K. Prasanth, P. Rallapalli, M.C. Raj, H. Bajaj, R.V. Jasra, *International Journal of Hydrogen Energy*, 2011, **36**, 7594-7601.