

Facile Synthesis of Nanosheet-Stacked Hierarchical ZSM-5 Zeolite for Efficient Catalytic Cracking of n-Octane to Produce Light Olefins

Peng Wang¹, **Xia Xiao**^{1,*}, **Yutong Pan**¹, **Zhen Zhao**^{1,2,*}, **Guiyuan Jiang**^{2,*}, **Zhongdong Zhang**^{3,*}, **Fanfang Meng**³, **Yuming Li**², **Xiaoqiang Fan**¹, **Lian Kong**¹ and **Zean Xie**¹

¹ Institute of Catalysis for Energy and Environment, Shenyang Normal University, Shenyang 110034, China; pengw0511@163.com (P.W.); yutongpan2022@126.com (Y.P.); fanxiaoqiang@synu.edu.cn (X.F.); konglian@synu.edu.cn (L.K.); xiezean@synu.edu.cn (Z.X.)

² State Key Laboratory of Heavy Oil Processing, China University of Petroleum, Beijing 102249, China; liyuming@cup.edu.cn

³ Petrochemical Research Institute, PetroChina, Beijing 102206, China; mengfanfang@petrochina.com.cn

* Correspondence: xiaoxia@synu.edu.cn (X.X.); zhenzhao@cup.edu.cn (Z.Z.); jianggy@cup.edu.cn (G.J.); zhangzhongdong@petrochina.com.cn (Z.Z.); Tel.: +86-24-86579800 (Zhen Zhao)

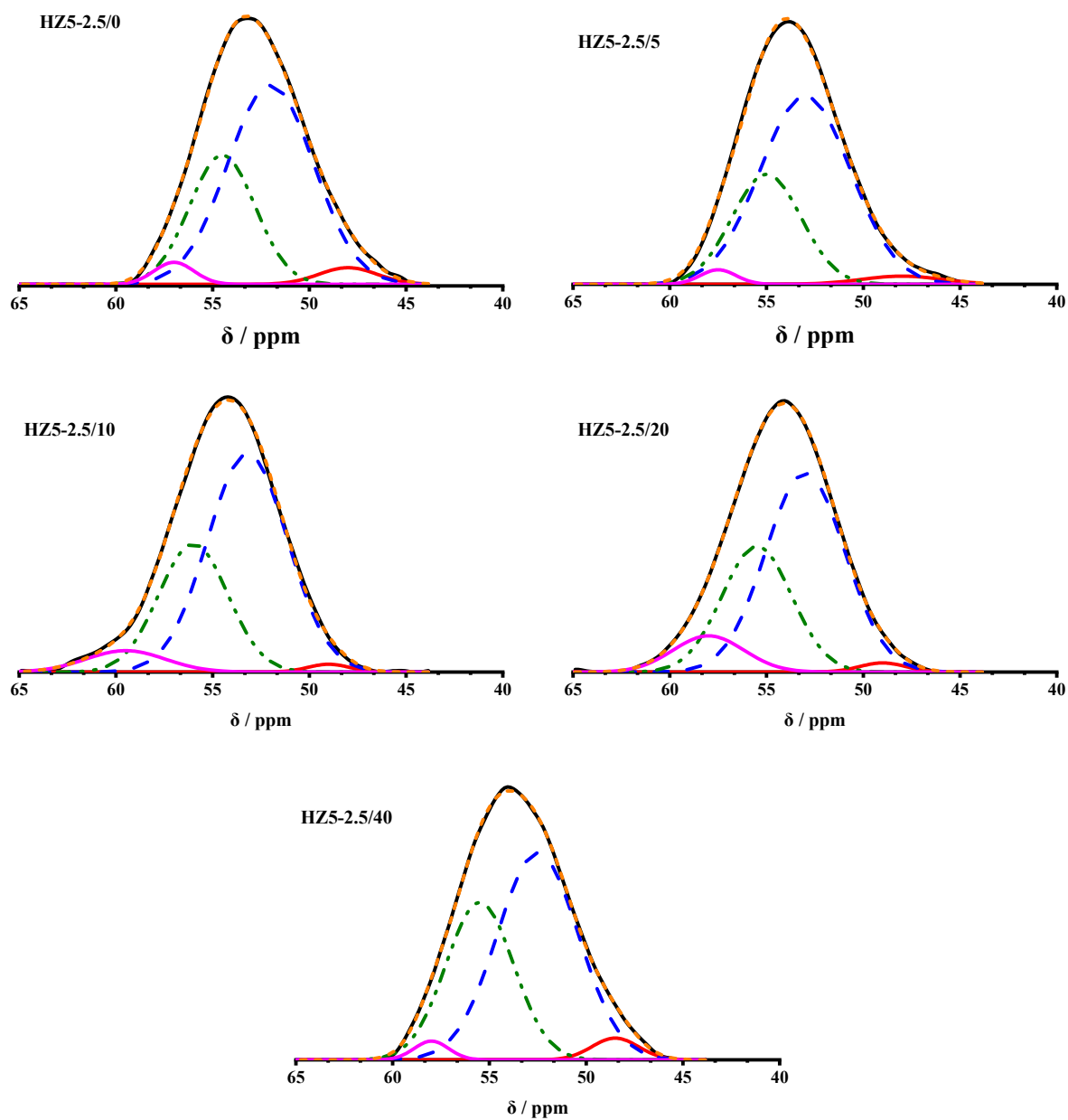


Figure S1. Deconvolution of the ^{27}Al MAS NMR spectra of the as-prepared ZSM-5 zeolites. The experimental spectra are in black line and the fitted spectra are shown in orange dashed line.

Table S1. Distribution of Al species determined by deconvolution of the ^{27}Al MAS NMR spectra of the as-prepared ZSM-5 zeolites.

Scheme .	Relative peak areas (%)			
	Al(49) ^a	Al(53) ^a	Al(56) ^a	Al(58) ^a
HZ5-2.5/0	3.5	62.4	30.9	3.2
HZ5-2.5/5	2.5	66.0	29.5	2.0
HZ5-2.5/10	1.2	61.7	31.2	6.0
HZ5-2.5/20	1.5	57.3	31.9	9.3
HZ5-2.5/40	3.5	57.7	36.6	2.2

^a The values in the brackets are corresponding to the chemical shift (ppm) of Al species.