**科技进步奖提名公示**

项目名称：重油催化裂化增产汽柴油的分子炼油关键技术及在60万吨/年工业装置上的应用

知识产权情况：授权发明专利3项

(1) 刘纪昌，沈本贤，孙辉，陈华，张前程. 一种烷烃吸附分离材料的制备方法. 专利号 201610965169. X.申请日 2016.10.31，授权日：2019.6.25

(2) 刘纪昌，沈本贤，孙辉，颜培坤. 一种催化裂化抗金属增液剂及其制备方法. 专利号：201910690096.1， 申请日：2019-07-29，授权日：2020.4.30

（3）陈小博，孙金鹏，刘熠斌，山红红，杨朝合，李春义. 2016，一种催化裂化再生器实验模拟方法及装置，专利ZL201510221027，申请日：2015.5.4 授权日：2016.12.20

发表论文著作情况：项目研究相关SCI论文19篇，中文核心期刊论文20篇，代表性论文见附件。

主要完成单位：华东理工大学、江苏常青树新材料科技有限公司、中国石油大学（华东）、中油国际（尼日尔）炼油公司

主要完成人：刘纪昌、沈本贤、赵基钢、陈小博、孙秋新、凌昊、孙辉、孙泽禄、王力、濮鑫

提名者：上海市教委

提名等级：科技进步二等奖

附件：

**1. 英文论文**

[1]**Jichang Liu**\*, Xuemei Yang, Cheng Wang, Lei Ye, **Hui Sun**. Synthesis of hierarchical 5A zeolites to improve the separation efficiency of n-paraffins. *Adsorpt. Sci. Technol.*, 2019,  37 (5-6): 530-544

[2] **Jichang Liu\***, Hua Chen, Zhipeng Pi, Yifeng Liu, **Hui Sun**, **Benxian Shen**. Molecular-level process model with feedback of the heat effects on a complex reaction network in a Fluidized Catalytic Cracking process. *Ind. Eng. Chem. Res.* 2017, 56(13): 3568-3577

[3] ***Jichang Liu\****, Zhenfei Cheng, James Wei, Qiancheng Zhang, Xiang Chen, Yuhao Cen, Linfeng Li. Mean stop paths and diffusion regimes of molecules in one-dimensional zeolite channels. *Chem. Eng. Sci.,* 2017, 172, 117-124

[4] **Jichang Liu**\*, Shimin Zhao, Xiang Chen, **Benxian Shen**. Upgrading FCC Gasoline through Adsorption Separation of Normal Hydrocarbons. *Fuel,* 2016,166: 467-472

[5]**Xiaobo Chen**, Yibin Liu, Shaojie Li; Xiang Feng, Honghong Shan, Chaohe Yang\*. Structure and composition changes of nitrogen compounds during the catalytic cracking process and their deactivating effect on catalysts. *Energ. Fuel.*, 2017,31(4):3659-3668

[6] Teng Li, Chaohe Yang, **Xiaobo Chen\***, Libo Yao, Wei Liang, Xuemei Ding. The correlation between nitrogen species in coke and NOx formation during regeneration. *Chinese. J. Chem. Eng.*, 2016,24(5): 606-611

[7] **Xiaobo Chen**, Teng Li, Li Xin, Yiqing Yang, Honghong Shan, Chaohe Yang\*. Inductive effect of basic nitrogen compounds on coke formation during the catalytic cracking process. *Catal. Commun.*, 2016,74:95-98

[8] Zhipeng Pi, **Benxian Shen\***, **Jichang Liu**, Yifeng Liu, **Jigang Zha**o. Reduction of NOx in fluid catalytic cracking flue gas over Mg-Al spinel modified with transition metal oxides. *Petrol. Sci. Technol.*, 2016,34(24): 1958-1963.

[9] Zhipeng Pi, **Benxian Shen\***, **Jigang Zhao**, **Jichang Liu**. CuO, CeO2 Modified Mg-Al Spinel for Removal of SO2 from FCC Flue Gas . *Ind. Eng. Chem. Res.*, 2015, *54* (43): 10622–10628

[10] Jinhong Zhang, Honghong Shan, **Xiaobo Chen\***, Wenjing Liu, Chaohe Yang. Synergistic process for high nitrogen content feedstocks catalytic cracking: a case study of controlling the reactions of nitrogen compounds in situ. *Ind. Eng. Chem. Res.*, 2014, 53:5718-5727

**2. 中文论文**

[1]陈华, 皮志鹏, 刘逸锋, **刘纪昌\***, **沈本贤**. 基于结构导向集总的催化裂化MIP工艺反应动力学模型Ⅰ.模型的建立和验证. 石油化工, 2017, 46(4): 395-402

[2]**刘纪昌\***,陈华,皮志鹏,刘逸锋,**沈本贤**.基于结构导向集总的催化裂化MIP工艺反应动力学模型Ⅱ.工业装置的计算与预测.石油化工,2017, 46(5):519-523

[3]陈翔,赵世敏,**刘纪昌\***,**沈本贤**,**孙辉**.多级孔道5A分子筛的合成及其对正构烷烃的吸附性能研究. 现代化工,2016,(6):87-91

[4]皮志鹏, **沈本贤\***, **刘纪昌**, 刘逸锋, **赵基钢**. 铜铈改性镁铝尖晶石作为助催化剂同时脱除FCC烟气Sox、NOx的研究. 化工进展. 2016, 35(10):3190-3195.

[5]刘逸锋, **沈本贤\***, 皮志鹏, 陈华, **赵基钢**. CeO2表面氧化转移FCC烟气中SO2的反应过程. 化工学报. 2016, 67(12)：5015-5023

[6]皮志鹏, **沈本贤\***, **刘纪昌**, 刘逸锋. 铜铈改性提高催化裂化烟气脱硫助催化剂性能研究.石油炼制与化工. 2016, 47(3): 36-41.

[7]李腾，**陈小博**，杨朝合**\***，李春义.催化裂化结焦反应的研究进展.化工进展, 2015, 34(2):370-375

[8]倪腾亚，**刘纪昌\***，**沈本贤**，**孙辉**. 基于结构导向集总的渣油分子组成矩阵构建模型.石油炼制与化工. 2015, 46(7): 15-22

[9]**陈小博**，辛利，李楠，李春义，杨朝合**\***，山红红.焦化蜡油中芳香分的催化裂化特性及其对饱和分裂化性能的阻滞作用.中国石油大学学报,2014,38(5):190-195

[10]祝然,**沈本贤\***,**刘纪昌**,周志龙. 基于结构导向集总方法考察减压蜡油掺炼地沟油催化裂化效果. 石油学报（石油加工）.2014，30（3）：484-492.