Tailored N-doped porous carbon via a MOF assembly process for high-performance CO$_2$ uptake

Fangyuan Gai, \textsuperscript{a} Dongying Zhu, \textsuperscript{a} Yunhuan Wu, \textsuperscript{a} Xiaogang Zhao, \textsuperscript{a} Changhai Liang, \textsuperscript{b} Zhenguo Liu, \textsuperscript{d} Yunling Liu, \textsuperscript{c} and Tonghua Wang* \textsuperscript{b}

\textsuperscript{a} Advanced Institute of Materials Science, School of Chemistry and Biology, Changchun University of Technology, Changchun 130012, PR. China. Electronic address: gaifangyuan@dlut.edu.cn

\textsuperscript{b} State Key Laboratory of Fine Chemicals, Carbon Research Laboratory, School of Chemical Engineering, Dalian University of Technology, 2 Linggong Road, Dalian, 116024, China. Electronic address: wangth@dlut.edu.cn

\textsuperscript{c} College of Chemistry, Jilin University, Changchun 130012, China.

\textsuperscript{d} Research Institute of Jilin Petrochemical Co., Ltd., Petro. China, Jilin 132021, China

Scheme S1. The synthesis and the yield of 3D NPC

Fig. S1 XRD of ZIF-8 and ZIF-8-PP composites
Fig. S2 (A), (B) XPS of NPC-800-4 and (C) XPS of ZIF-8-PP composites

Fig. S3 The N\textsubscript{2} adsorption and pore size distribution of NPC and ZIF-8-PP composite

Fig. S4 The CO\textsubscript{2} capture of carbon derived from ZIF-8, PP-COOH and the mixture of ZIF-8 and PP-COOH at 800 °C
Fig. S5 The TPD of NPC-700-4

Fig. S6 8 cycles of CO$_2$ adsorption–desorption on NPC-800-4 at 25 °C