Supporting Information

The Graphitic Carbon Strengthened Synergetic Effect between Pt and FeNi for CO Preferential Oxidation in Excess Hydrogen at Low Temperature

Limin Chen[a,b*], Yunfeng Bao[a], Yuhai Sun[a], Ding Ma[b,c], Daiqi Ye[a], Bichun Huang[a]

[a]Guangdong Provincial Key Laboratory of Atmospheric Environment and Pollution Control, School of Environment and Energy, South China University of Technology, Guangzhou 510006, China

[b]State Key Laboratory of Catalysis, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Dalian 116023, China

[c]College of Chemistry and Molecular Engineering, Peking University, Beijing 100871, China

[*]Corresponding author. E-mail: liminchen@scut.edu.cn; Tel.: +86-20-39380516.

Experimental

Flake graphite sieved to 200 meshes was purchased from Qingdao Jinrilai graphite Co., Ltd., China, denoted as FG. Pt and FeNi catalysts were prepared by conventional wetness impregnation method at room temperature using ethanol solution of hexachloroplatinic acid or ethanol solution of ferric nitrate and nickel nitrate mixture, respectively, according to the metal loading. The obtained samples were further dried at 120 ^{o}C for 12 h, marked as Pt/FG and FeNi/FG, respectively. PM PtFeNi/FG catalyst was prepared by physically mixing the same weight of 6%Pt/FG (weight percentage if not specified) and 0.82%Fe0.70%Ni/FG catalysts via grinding, in order to obtain 3%Pt0.41%Fe0.35%Ni/FG (PM PtFeNi/FG) catalyst.

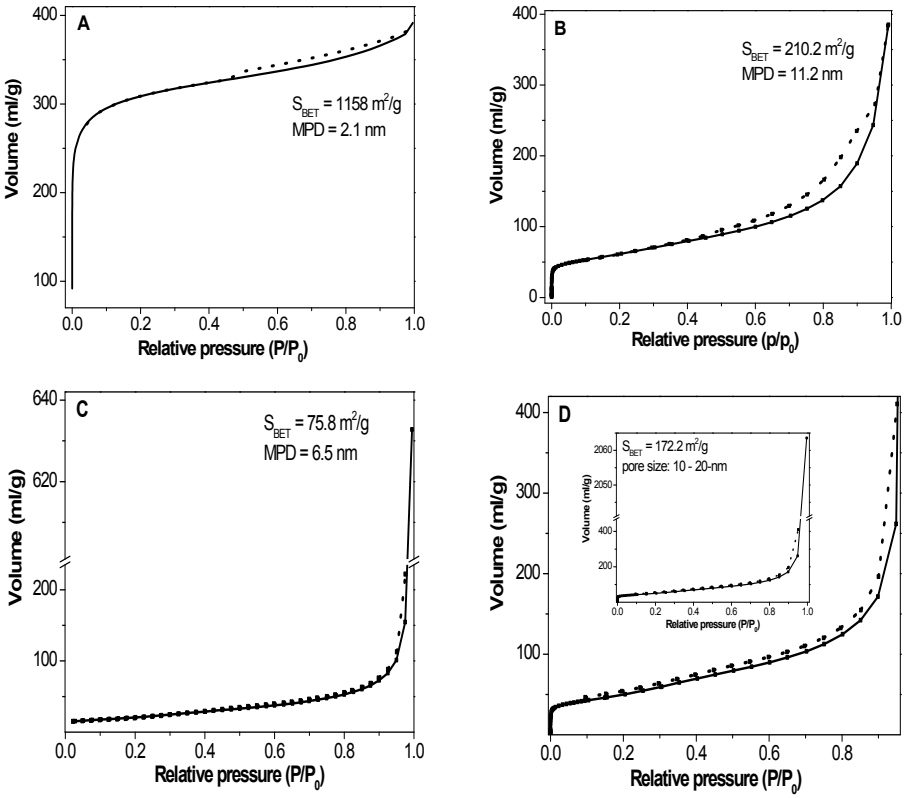

Fig. S1 The nitrogen adsorption/desorption isotherms of (A) AC; (B) CB-o; (C) CB, and (D) CNTs.

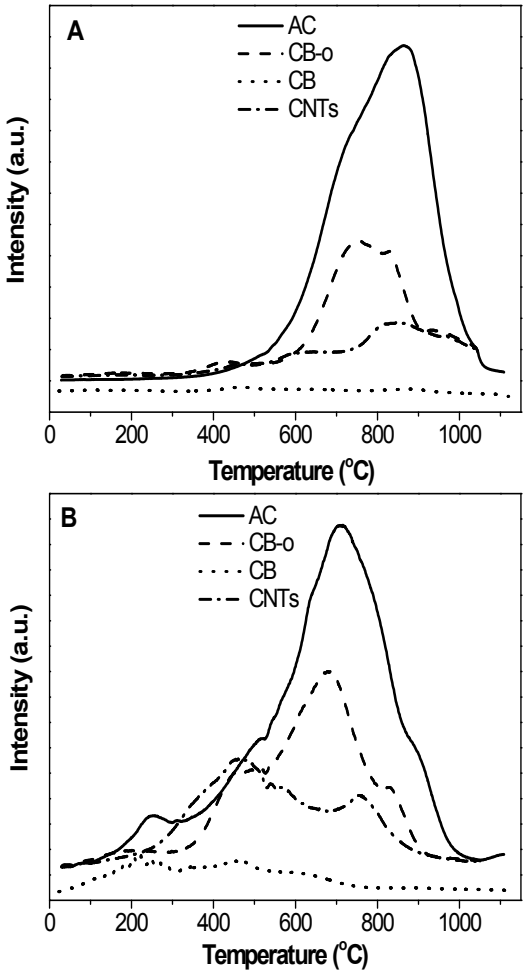

Fig. S2 The curves of CO (A) and CO_2 (B) evolution from different carbon supports in TPD experiments.

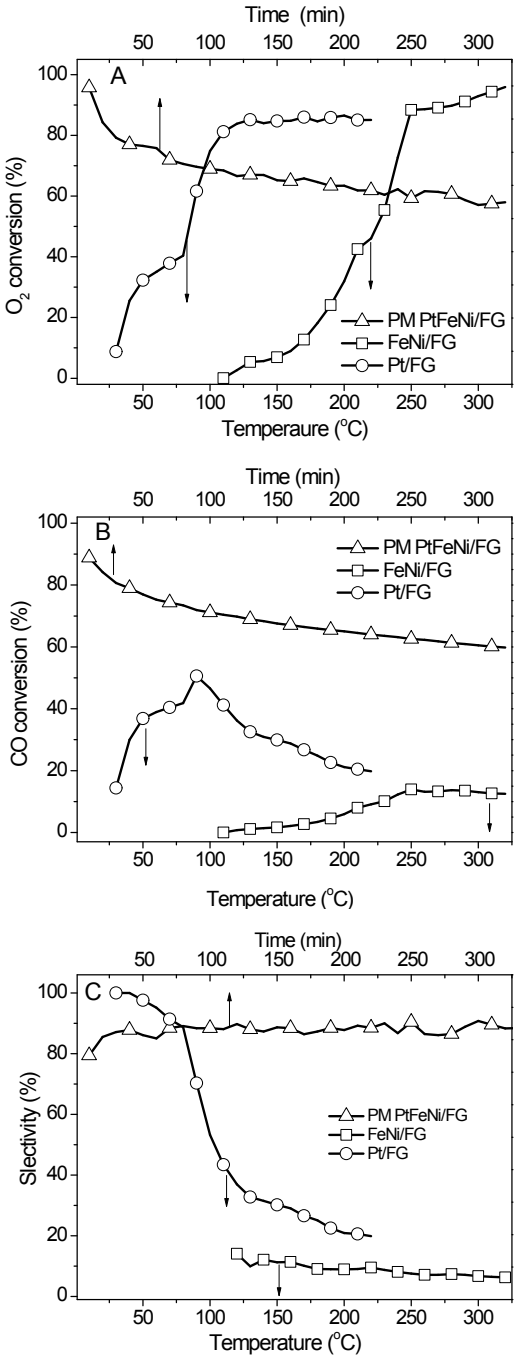

Fig S3. The catalytic stability of PM PtFeNi/FG catalyst at 26 °C and catalytic performance of Pt/FG and FeNi/FG catalysts along with the reaction temperature: (A) O_2 conversion, (B) CO conversion and (C) Selectivity.