

## **FeNC Catalysts with High Catalytic Activity and Stability for Oxygen Reduction Reaction**

Yuan-Yuan Feng<sup>1\*</sup>, Hua-Shuai Hu<sup>1</sup>, Rui-Jie Liu<sup>1</sup>, Gao Deng<sup>1</sup>, Xiang-Yu Wang<sup>1</sup> and Meng Zhu<sup>1</sup>

<sup>1</sup>College of Chemistry and Chemical Engineering, Qufu Normal University, Qufu, Shandong 273165, China

\*Corresponding author. Prof. Yuan-Yuan Feng. E-mail: fengyy@qfnu.edu.cn

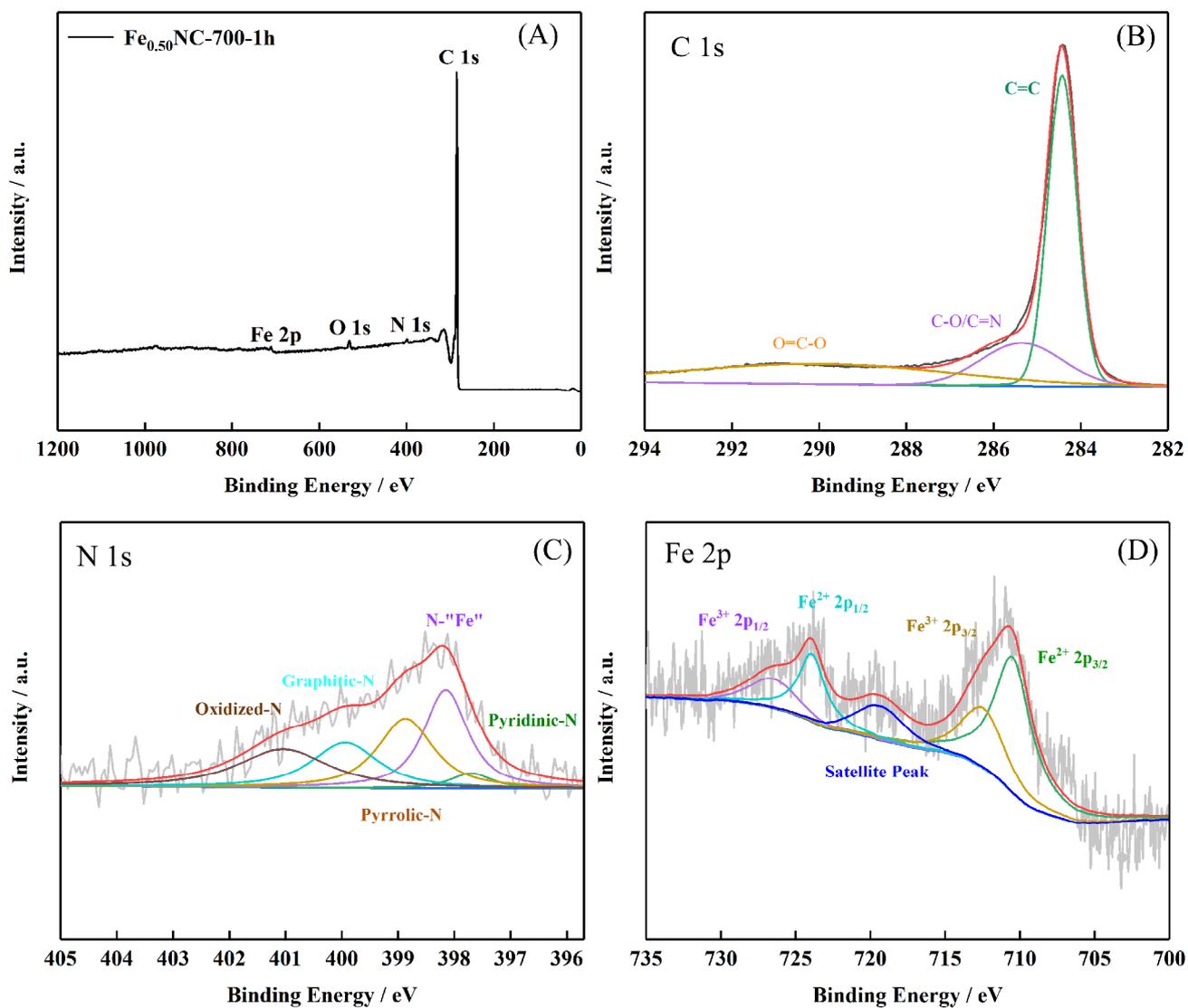


Figure S1. (A) Entire XPS spectra, (B) C 1s, (C) N 1s and (D) Fe 2p XPS spectra of  $\text{Fe}_{0.50}\text{NC-700-1h}$  sample (11.4 wt.% Fe).

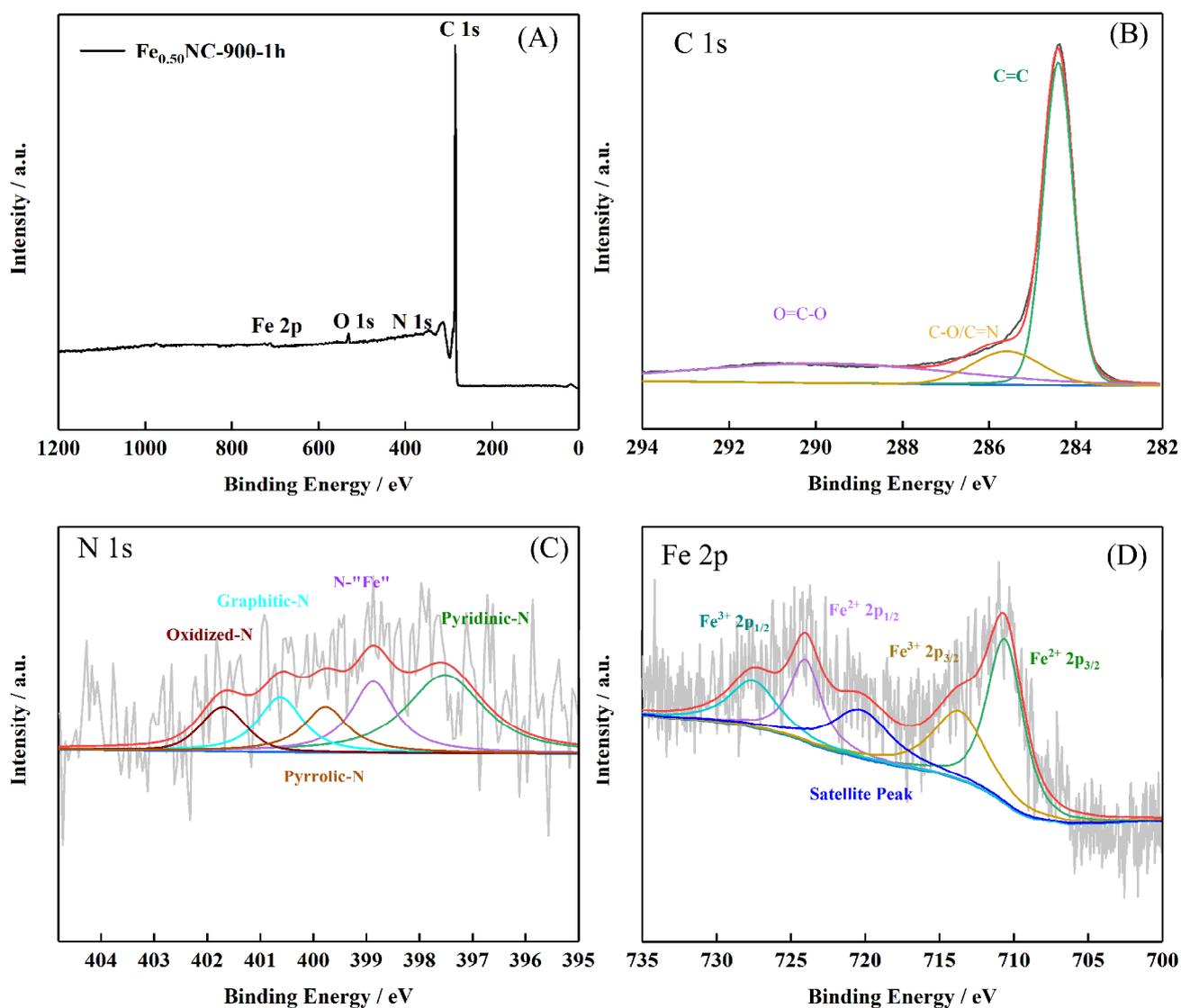
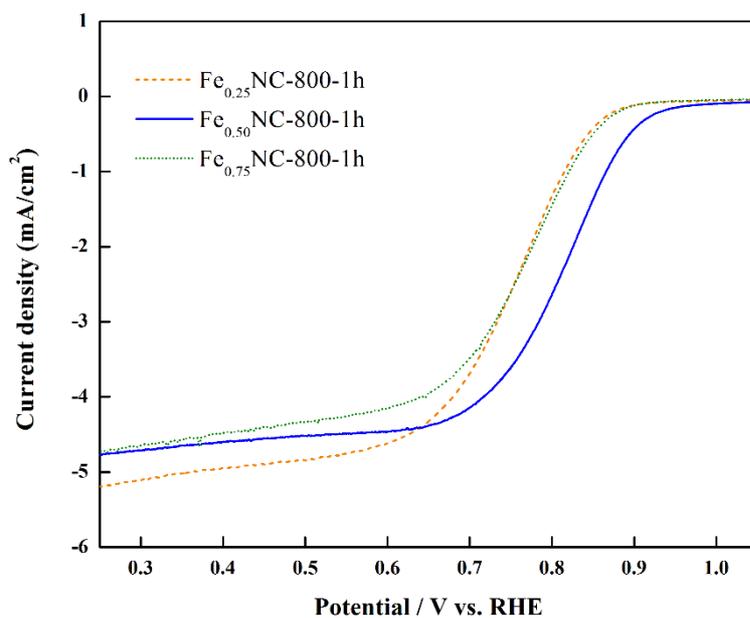


Figure S2. (A) Entire XPS spectra, (B) C 1s, (C) N 1s and (D) Fe 2p XPS spectra of  $\text{Fe}_{0.50}\text{NC-900-1h}$  sample (12.1 wt.% Fe).

**Table S1.** Percentage Contents of Different N Species in Total N Amount for Fe<sub>0.5</sub>NC-T-1h

N species	Pyridinic N (%)	N-Fe (%)	Pyrrolic-N (%)	Graphitic-N (%)	Oxidized-N (%)
Fe <sub>0.5</sub> NC-700-1h	4.1	28.1	25.2	19.7	22.9
Fe <sub>0.5</sub> NC-800-1h	8.9	39.3	11.6	20.6	19.6
Fe <sub>0.5</sub> NC-900-1h	16.7	8.8	35.7	15.7	23.1



**Figure S3.** LSVs of ORR (1600 rpm) on the series of Fe<sub>x</sub>NC-800-1h catalysts with different input amounts of Fe precursor in O<sub>2</sub>-saturated 0.1 M KOH solution.

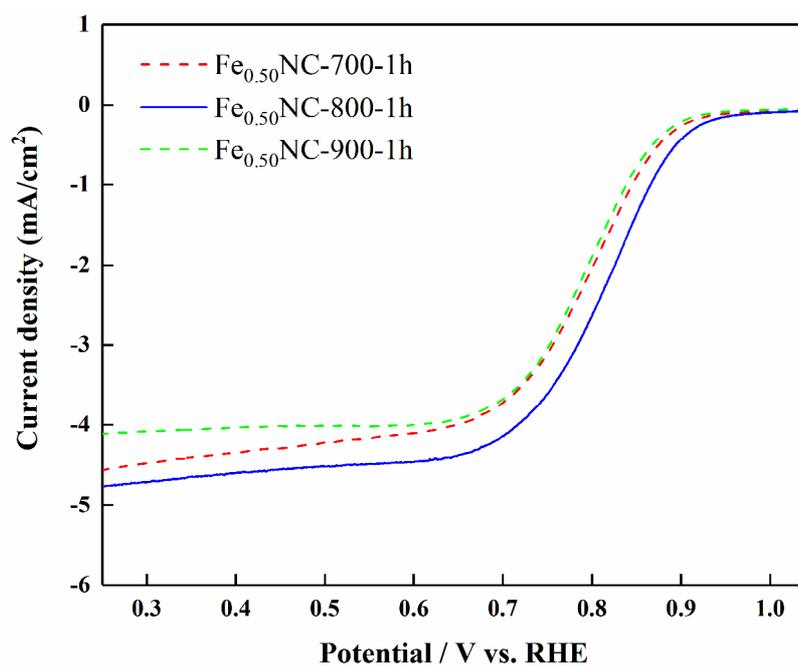


Figure S4. LSVs (1600 rpm) of the Fe<sub>0.50</sub>NC-T-1h catalysts pyrolyzed at different temperatures in O<sub>2</sub>-saturated 0.1 M KOH solution.

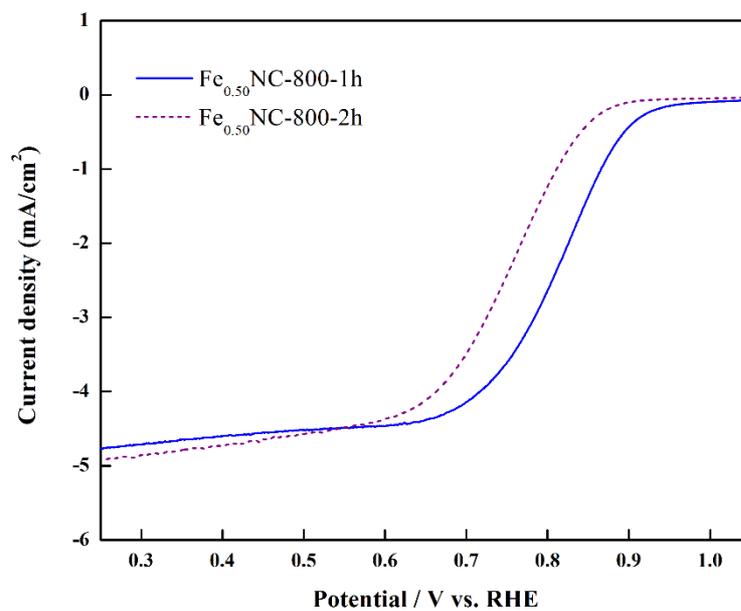


Figure S5. LSVs (1600 rpm) of Fe<sub>0.50</sub>NC-800-*t* catalysts pyrolyzed for different time in O<sub>2</sub>-saturated 0.1 M KOH solution.

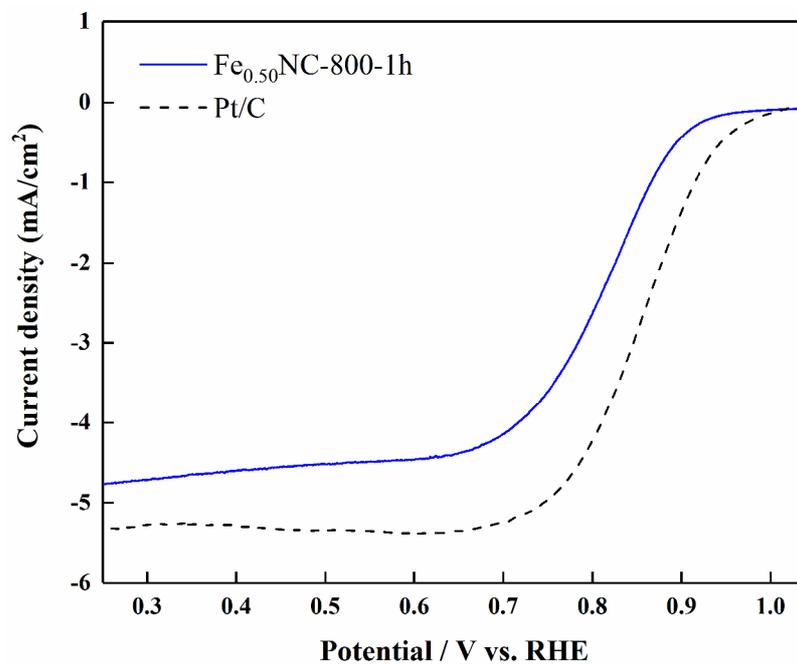


Figure S6. LSVs (1600 rpm) of Fe<sub>0.50</sub>NC-800-1h and Pt/C catalysts in O<sub>2</sub>-saturated 0.1 M KOH solution.

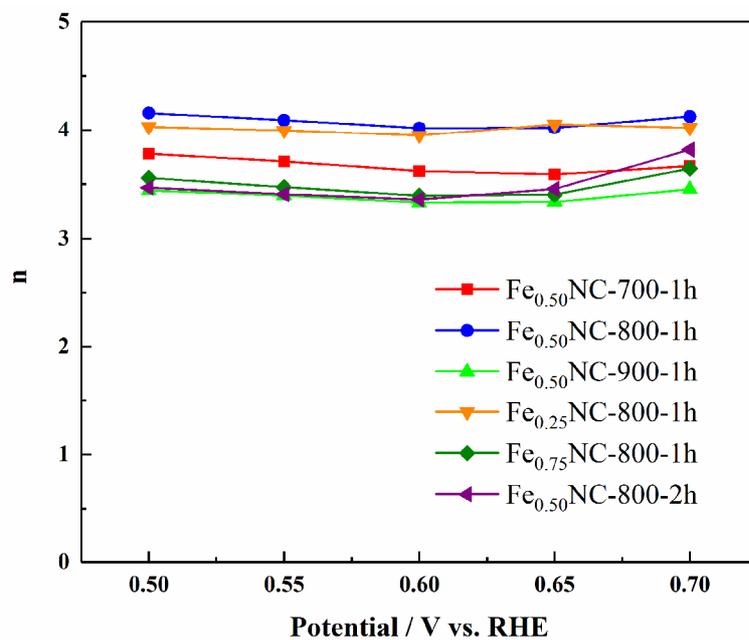


Figure S7. Electron transfer number ( $n$ ) of  $\text{Fe}_x\text{NC-T-t}$  catalysts.