

Supporting Information

A facile and general approach for the direct fabrication of N-rGO-Metal(Metal oxides)-Pt composites as electrocatalyst for oxygen reduction reactions

Xiaohong Chen^a, Zhaoyang Ning^c, Zongshang Zhou^b, Xundao Liu^a, Jianlong Lei^a, Supeng Pei^{*a,b}, Yongming Zhang^a

^a School of Chemistry and Chemical Engineering

Shanghai Key Lab of Electrical Insulation and Thermal Aging

Shanghai Electrochemical Energy Devices Research Center

Shanghai Jiao Tong University

No. 800 Dongchuan Rd., Minhang District, Shanghai 200240, China

^b School of Chemical and Environmental Engineering,

Shanghai Institute of Technology, Shanghai 201418, China.

E-mail: peisupeng@126.com

^c Shandong Fuyuan Energy conservation and Environmental protection

Engineering Co., Ltd., Jinan, 250000, China

Contents

Fig. S1. HRTEM images of N-rGO-Co/CoO-Pt, N-rGO-Fe-Pt, N-rGO-Mn oxides-Pt and N-rGO, the scale bar: 5 nm.

Fig. S2. XPS spectra of the (A) survey scan, (B) N1s region, (C) Mn2p region and (D) O1s region of the N-rGO-Mn oxides-Pt.

Fig. S3. Electrochemical impedance spectra of N-rGO-Co/CoO-Pt, N-rGO-Fe-Pt, N-rGO-Mn oxides-Pt and 20% commercial Pt/C

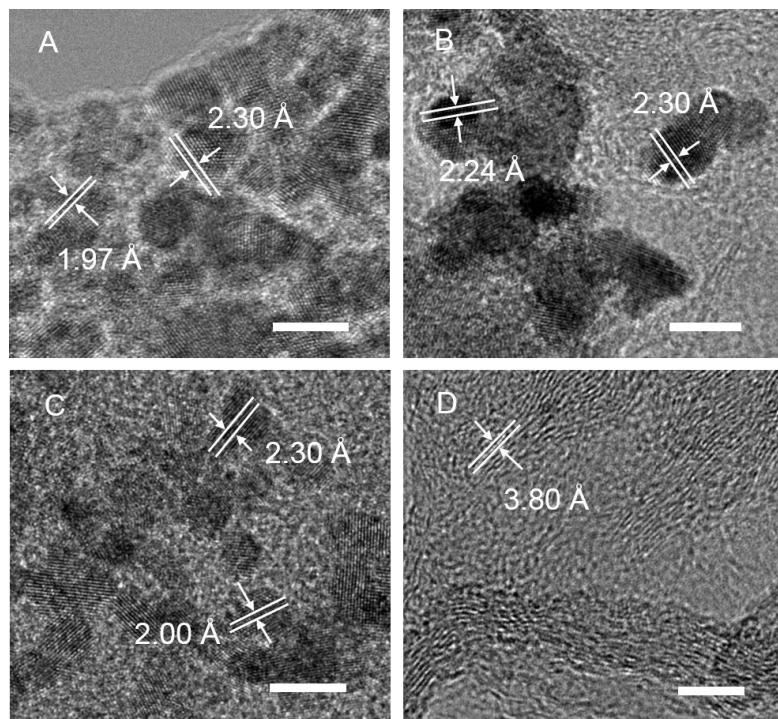


Fig. S1. HRTEM images of N-rGO-Co/CoO-Pt, N-rGO-Fe-Pt, N-rGO-Mn oxides-Pt and N-rGO, the scale bar: 5 nm.

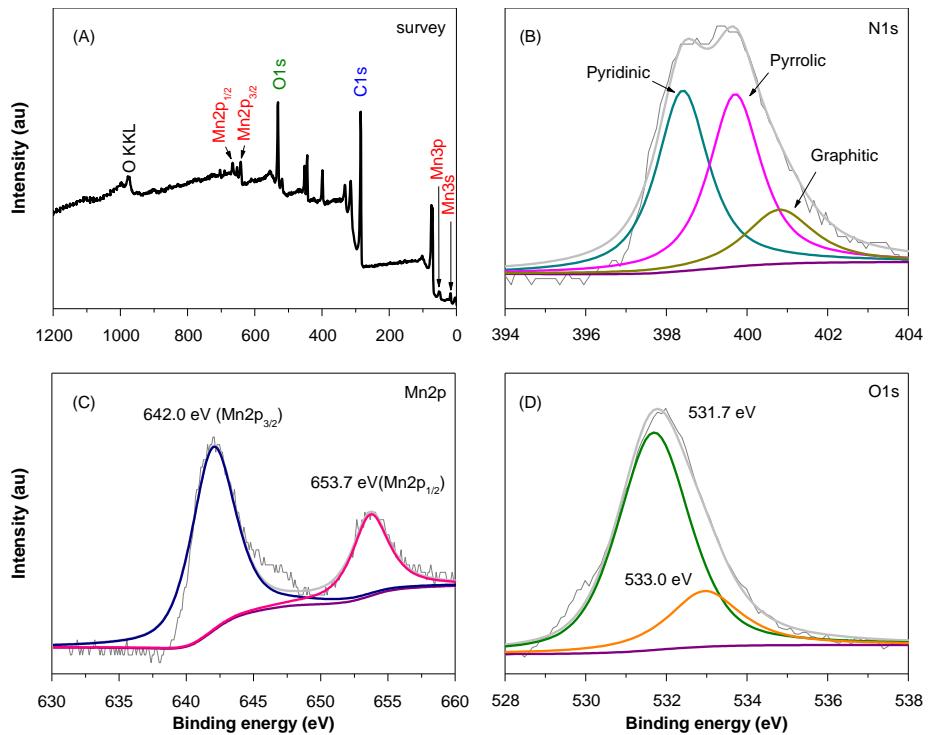


Fig. S2. XPS spectra of the (A) survey scan, (B) N1s region, (C) Mn2p region and (D) O1s region of the N-rGO-Mn oxides-Pt

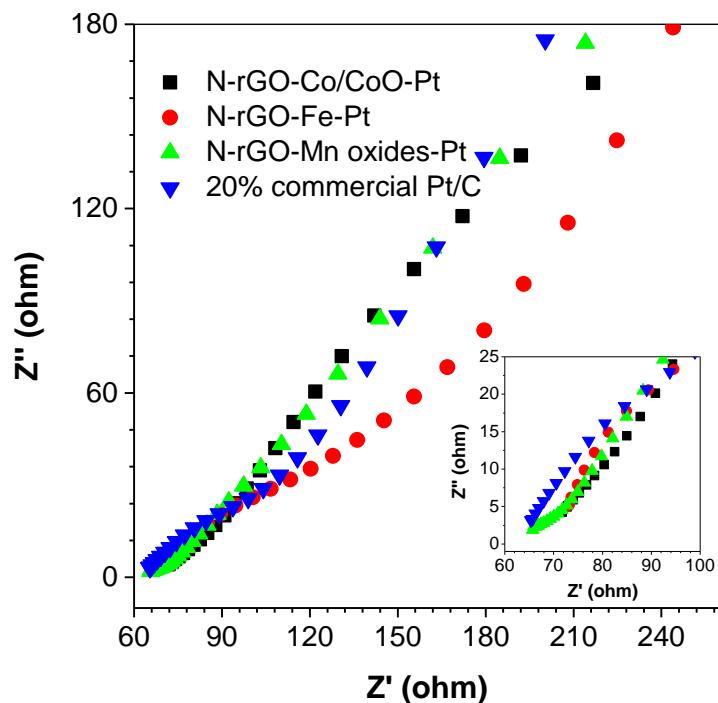


Fig. S3. Electrochemical impedance spectra of N-rGO-Co/CoO-Pt, N-rGO-Fe-Pt, N-rGO-Mn oxides-Pt and 20% commercial Pt/C

Table S1. Summary of electrochmical impedance performance of different samples

	N-rGO-Co/CoO-Pt	N-rGO-Fe-Pt	N-rGO-Mn oxides-Pt	20% commercial Pt/C
Resistance (ohm)	71.77	73.2	66.29	65.67