# Tailoring nitrogen doping in metal-free mesoporous carbons derived from aminotriazine for superior oxygen reduction reaction

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**Table S1:** Summary of XPS deconvolutions

| Sample | C 1s | | | | N 1s | | |
|---|---|---|---|---|---|---|---|
| | C=C | C-N | C=N | C-O | Pyridinic N | Pyrrolic N | Graphitic N |
| NMC-AT-800 | 41.03 | 50.06 | 8.91 | | 47.69 | 49.08 | 3.23 |
| NMC-AT-900 | 52.28 | 36.37 | 11.35 | | 41.85 | 49.56 | 8.59 |
| NMC-AT-1000 | 65.36 | 26.89 | 7.75 | | 42.43 | 47.60 | 9.97 |
| NMC-AT-1100 | 54.4 | 16.83 | 20.39 | 8.38 | 31.11 | 37.7 | 31.19 |

**Table S2:** Comparison of the ORR activity of different N-doped carbon electrocatalysts with NMC-AT-1000 catalyst

| S.No | Electrocatalyst | On-Set potential (V) | Current density (mA/cm$^2$) | Electron transfer number | Reference |
|---|---|---|---|---|---|
| 1 | 3D-NG@$SiO_2$-2-900 | 0.91 | 4 | 3.9 | [1] |
| 2 | NPGC-950 | 0.91 | 4.8 | 3.8 | [2] |
| 3 | NG900 | 0.89 | 4.5 | 3.2 | [3] |
| 4 | N-RGO-800 | 0.86 | 5.0 | 3.8 | [4] |
| 5 | N-G-1000 | 0.83 | 5.1 | 3.9 | [5] |
| 6 | N-hG6 | 0.83 | 5.2 | 3.9 | [6] |
| 7 | NMC-AT-1000 | 0.87 | 5.1 | 4.02 | **This work** |

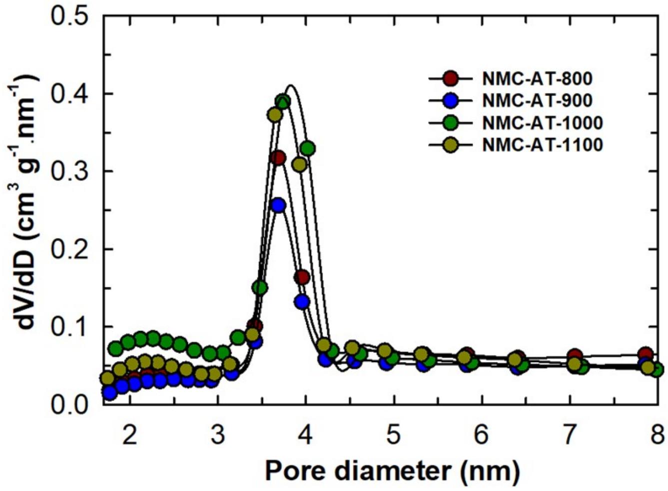


**Fig. S1** Pore size distribution of NMC-AT samples.

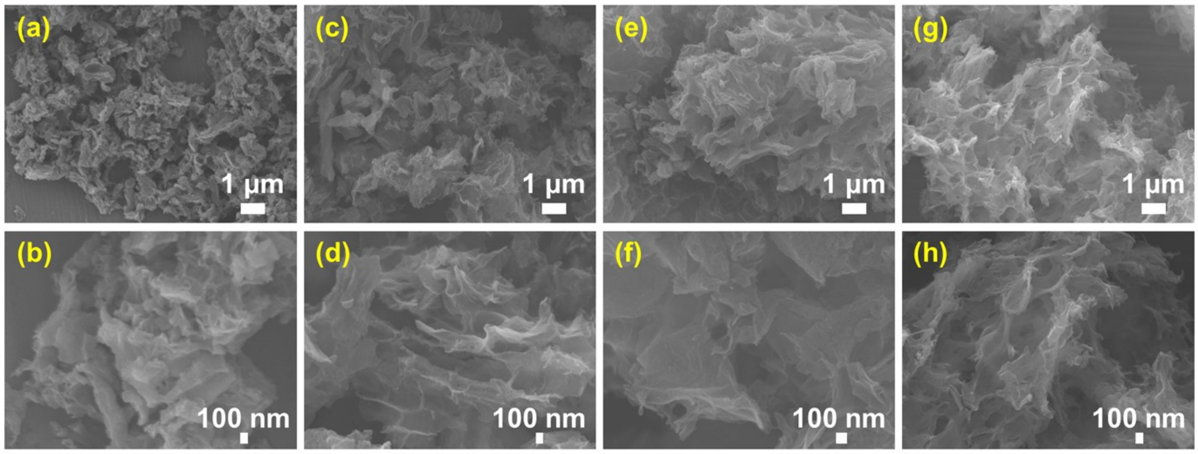


**Fig. S2** Low and high magnification SEM images of (a & b) NMC-AT-800, (c & d) NMC-AT-900, (e & f) NMC-AT-1000, and (g & h) NMC-AT-1100 samples

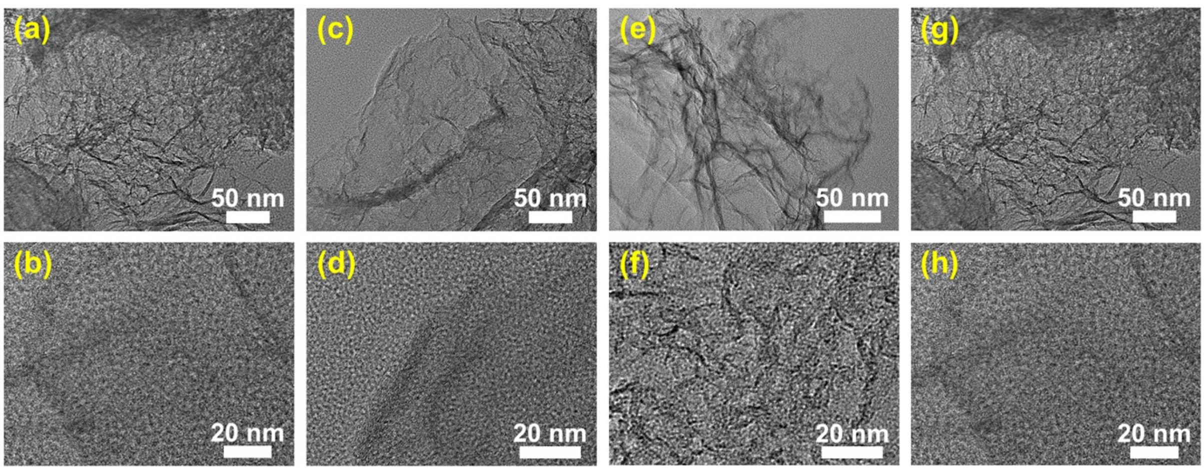


**Fig. S3** Low and high magnification TEM images of (a & b) NMC-AT-800, (c & d) NMC-AT-900, (e & f) NMC-AT-1000, and (g & h) NMC-AT-1100 samples.

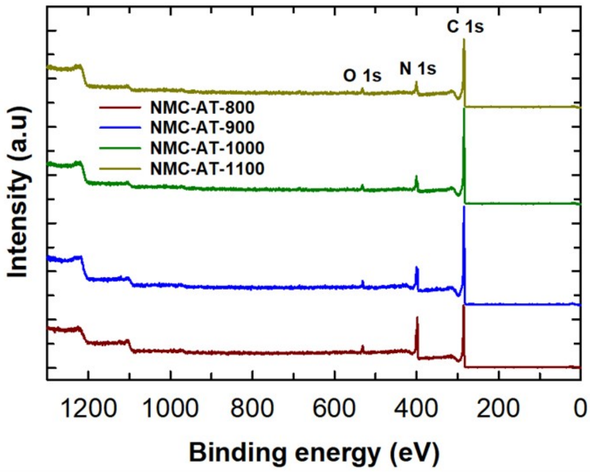


**Fig. S4** Survey spectrum of NMC-AT samples

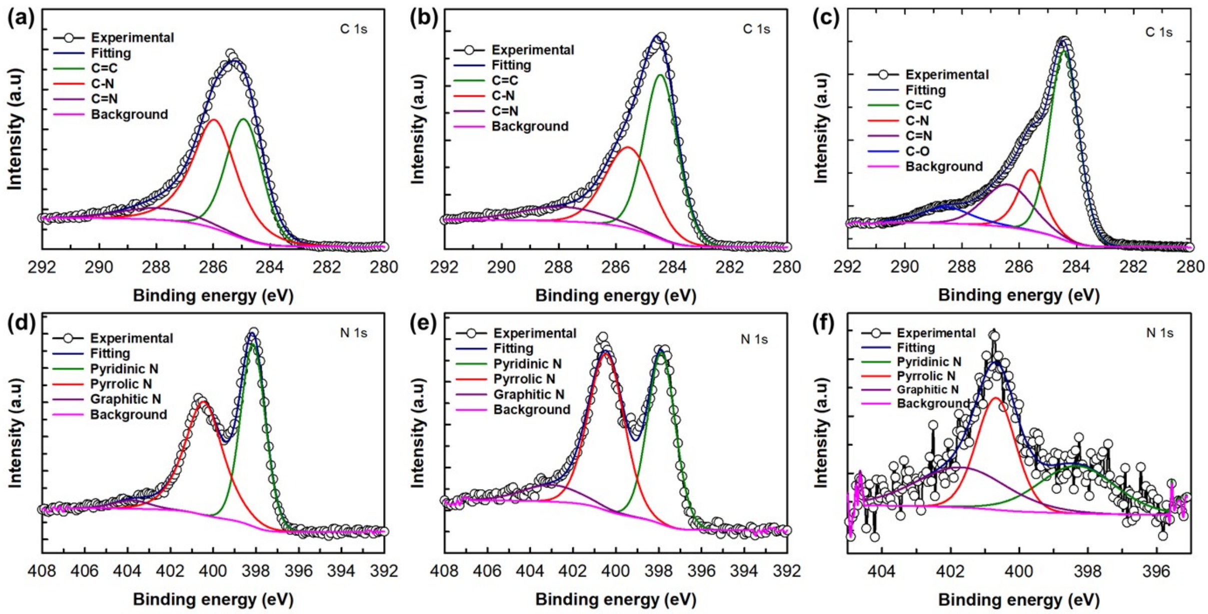


**Fig S5** XPS deconvolutions of C 1s and N 1s spectra (**a & d**) NMC-AT-800, (**b & e**) NMC-AT-900, and (**c & f**) NMC-AT-1100 samples.

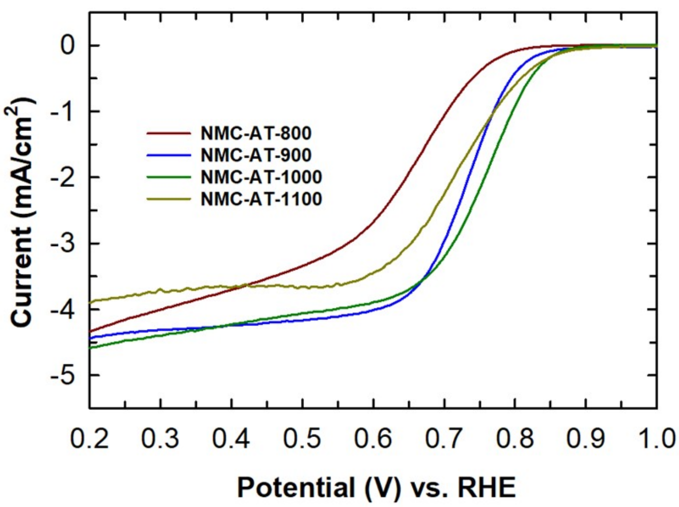


**Fig. S6** LSV curves of the NMC-AT samples at a scan rate of 5 mV/s.

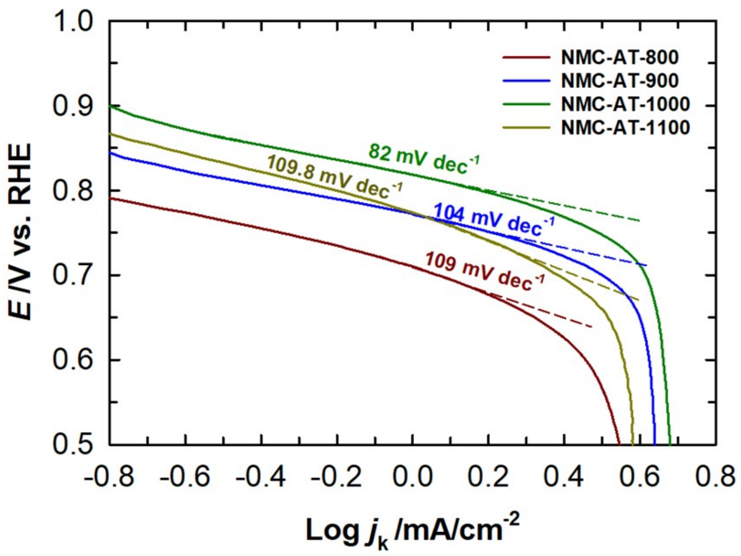


**Fig. S7** Tafel slope of NMC-AT samples.

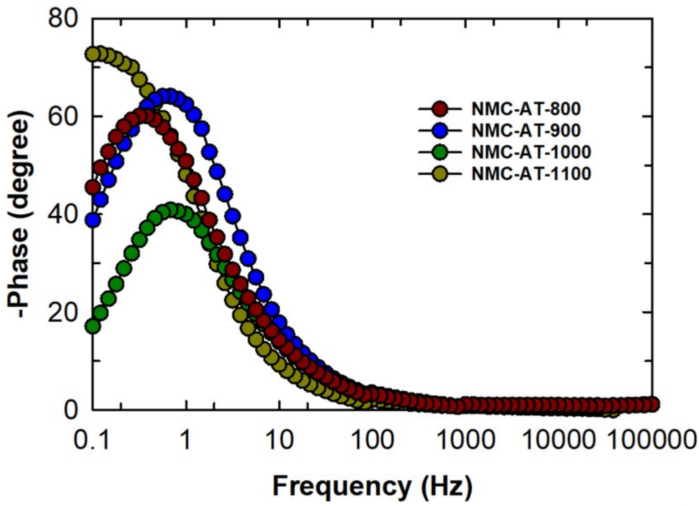


**Fig. S8** Bode-plot of NMC-AT samples.

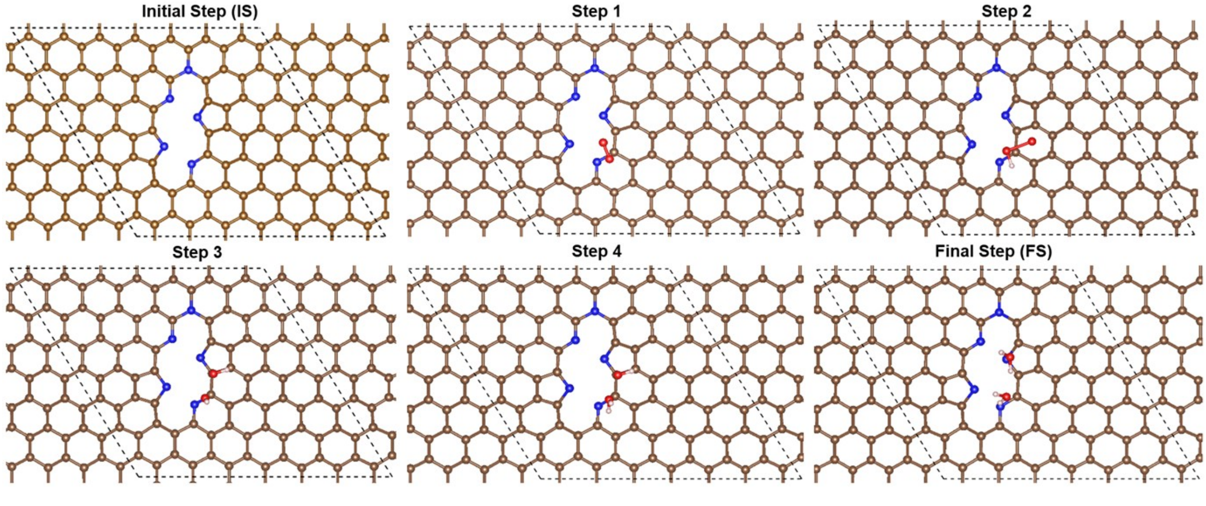


**Fig. S9** Electrochemical ORR four-electron pathway of NMC-AT sample.

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