Electronic Supplementary Information (ESI†)

High nitrogen-doped carbon/Mn₃O₄ hybrids synthesized from nitrogen-rich coordination polymer particles as supercapacitor electrode

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Fig. S1 XRD patterns of the as-synthesized CPP-3 and simulated bulk-crystals of {Mn₂(BDC)₂(DMF)₂}ₙ.

Fig. S2 The crystal structure unit of {Mn₂(BDC)₂(DMF)₂}ₙ.
Fig. S3 XRD patterns of the as-synthesized CPP-2 and simulated bulk-crystals of \{\text{Mn}_2(\text{PDC})_2(\text{H}_2\text{O})_3\}_n.

Fig. S4 IR spectra for coordination polymer precursor of CPP-1.
**Fig. S5** The one-dimensional crystal structure of \( \{\text{Mn}_2(\text{PDC})_2(\text{H}_2\text{O})_3\}_n \).

**Fig. S6** (a-d) SEM images of carbon/Mn$_3$O$_4$ spindles obtained from precursor CPP-3.

**Table S1** Summary of N-doped inorganic materials reported in recent papers.

<table>
<thead>
<tr>
<th>Sample</th>
<th>N (Wt%)</th>
<th>N (At%)</th>
<th>Reference</th>
<th>Method</th>
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</thead>
<tbody>
<tr>
<td>NC/Mn$_3$O$_4$-1</td>
<td>29.87</td>
<td>38.35</td>
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<td>precursors</td>
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<td>NC/Mn$_3$O$_4$-2</td>
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<td>2.33</td>
<td>in this work</td>
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<tr>
<td>C/Mn$_3$O$_4$</td>
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<td>0.17</td>
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<td>precursors</td>
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<td>N-GO</td>
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<td>5.0</td>
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<td>NH$_3$ treatment</td>
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<td>/</td>
<td>8.9</td>
<td>25</td>
<td>CVD $^a$</td>
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<td>N plasma treatment</td>
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<td>N-ZnO</td>
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<td>12.0</td>
<td>28</td>
<td>sputtering</td>
</tr>
</tbody>
</table>

$^a$ CVD: Chemical Vapor Deposition.