## Supporting Information

### Table S1 the preparation details of the corresponding CNF@NiMo samples

| Samples     | NiNO$_3$·6H$_2$O /mmol | Na$_2$MoO$_4$·2H$_2$O /mmol | H$_2$O /ml | CH$_3$CH$_2$OH /ml |
|-------------|------------------------|-----------------------------|------------|--------------------|
| CNF@NiMo-0.5 | 0.5                    | 0.5                         | 15         | 15                 |
| CNF@NiMo-1  | 1                      | 1                           | 15         | 15                 |
| CNF@NiMo-2  | 2                      | 2                           | 15         | 15                 |
| CNF@NiMo-3  | 3                      | 3                           | 15         | 15                 |
Figure S1. Typical SEM images of carbon nanofibers: (a) low magnification; (b) high magnification
Figure S2. (a) N\textsubscript{2} adsorption-desorption isotherms of CNF@NiMo-0.5, CNF@NiMo-1, CNF@NiMo-2, CNF@NiMo-3 and (b) the corresponding pore size distributions.
Figure S3. (a) N$_2$ adsorption-desorption isotherms of pure CNFs before NiMoO$_4$ grown and (b) the corresponding pore size distributions.
Figure S4. TGA curves of the CNF@NiMo-0.5, CNF@NiMo-1, CNF@NiMo-2, CNF@NiMo-3 and CNFs

Figure S5. XRD pattern of the TGA residue
Figure S6. The characterization of TGA residue, (a) SEM image and (b) the corresponding EDS spectroscopy.
Figure S7. (a) the CV curves and (b) the Galvanostatic charge/discharge voltage profiles of pure NiMoO$_4$ synthesized by the same procedure with CNF@NiMo-2.
Figure S8. (a) the CV curves and (b) the Galvanostatic charge/discharge voltage profiles of pristine CNFs electrode
Figure S9. (a) the CV curves and (b) the Galvanostatic charge/discharge voltage profiles of activated carbon.
Table S2 Summary of the reported NiMoO₄ based materials (in term of the specific surface area, the specific capacitance and the rate capability)

| Materials                        | Specific Surface Area | Specific Capacity (1 A g⁻¹) | Rate Capability (20 A g⁻¹) | Reference |
|----------------------------------|-----------------------|-----------------------------|----------------------------|-----------|
| NiMoO₄ Nanospheres               | 58.2 m² g⁻¹           | 974 F g⁻¹                   | 84% 10 A g⁻¹               | [1]       |
| NiMoO₄ Nanosheet/NF              | 79 m² g⁻¹             | 1221 F g⁻¹                  | 79% 20 A g⁻¹               | [2]       |
| NiMoO₄·H₂O nanoflake/NF          | 14.1 m² g⁻¹           | 1300 F g⁻¹                  | 73% 10 A g⁻¹               | [3]       |
| NiMoO₄ nanosheets                | 107.4 m² g⁻¹          | 1200 F g⁻¹                  | <75% 20 A g⁻¹              | [4]       |
| NiMoO₄·H₂O nanotubes             | 128.5 m² g⁻¹          | 864 F g⁻¹                   | 70% 4 A g⁻¹                | [5]       |
| NiMoO₄ nanorod/rGO               | 50.8 m² g⁻¹           | 1274 F g⁻¹                  | 45% 10 A g⁻¹               | [6]       |
| CNF@NiMo-2                       | 283 m² g⁻¹            | 1840 F g⁻¹                  | 81% 10 A g⁻¹               | This Work |
|                                  |                       |                             | 78% 20 A g⁻¹               |           |
| Reference | Author(s)                                                                 | Journal/Book                                                                 | Page/Volume                                                                 |
|-----------|---------------------------------------------------------------------------|------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| [1]       | D. Cai, D. Wang, B. Liu, Y. Wang, Y. Liu, L. Wang, H. Li, H. Huang, Q. Li, T. Wang | ACS Applied Materials & Interfaces 5 (2013)                                   | 12905                                                                     |
| [2]       | S. Peng, L. Li, H.B. Wu, S. Madhavi, X.W. Lou                             | Advanced Energy Materials 5 (2015)                                            | 1401172                                                                   |
| [3]       | C. Qing, Y. Liu, X. Sun, X. Ouyang, H. Wang, D. Sun, B. Wang, Q. Zhou, L. Xu, Y. Tang | RSC Advances 6 (2016)                                                        | 67785                                                                     |
| [4]       | D. Cai, B. Liu, D. Wang, Y. Liu, L. Wang, H. Li, Y. Wang, C. Wang, Q. Li, T. Wang | Electrochimica Acta 115 (2014)                                               | 358                                                                       |
| [5]       | Z. Yin, S. Zhang, Y. Chen, P. Gao, C. Zhu, P. Yang, L. Qi                  | Journal of Materials Chemistry A 3 (2015)                                     | 739                                                                       |
| [6]       | T. Liu, H. Chai, D. Jia, Y. Su, T. Wang, W. Zhou                           | Electrochimica Acta 180 (2015)                                               | 998                                                                       |