Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Supporting Information

Nitrogen-Rich Anthraquinone-Triazine Conjugated Microporous Polymer Networks as High-performance Supercapacitor

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PXRD Analysis

Crystallization characteristics of COF were analyzed by powder X-ray diffraction (PXRD) and characterized by Materials Studio (MS) 7.0, as shown in the Figure S1. There is no diffraction peak of the (100) crystal plane in the small angle region, and the (001) plane is significantly widened in the experimental background, indicating that it has certain crystallinity, short-range order and long-range disorder. Then, the crystal structure was simulated by Materials Studio software. The simulation results provided the hexagonal structure of P6/M space group. The cell parameters a = b = 24.15Å， c = 3.5 Å, α=β=90°, γ= 120°. In addition, the vertical distance between the two adjacent layers is approximately 3.5 Å. However, we tried to use two stacking methods (eclipsed stacking AA and staggered stacking AB) to determine its structure, but neither of them matched well with the simulation results. This may be related to other factors, which will be further studied in future work.

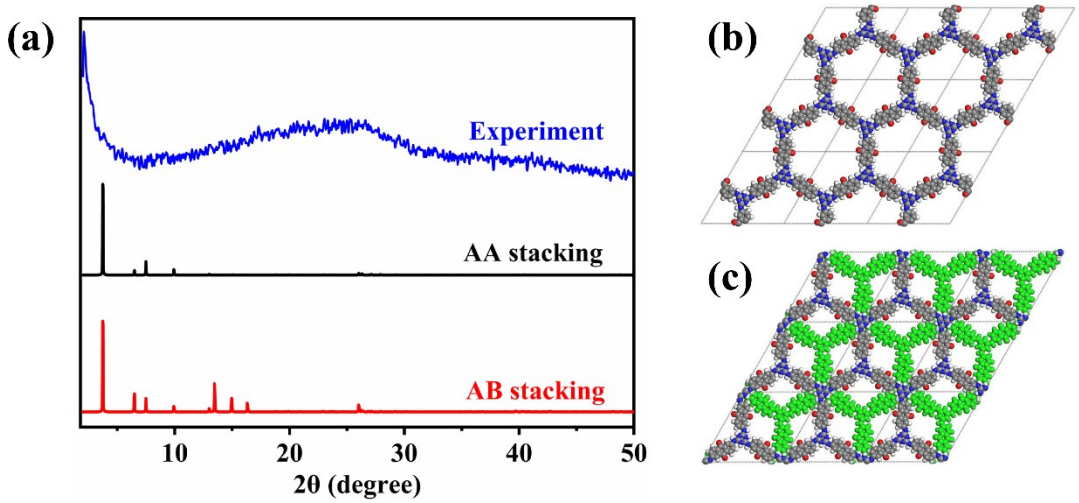

Figure S1 (a) Observed PXRD pattern (blue); Simulated PXRD pattern for eclipsed stacking (black); Simulated PXRD pattern for staggered stacking (red); (b) Eclipsed stacking model; (c) Staggered stacking model.

Thermogravimetric Analysis

Thermogravimetric analysis (TGA) showed that CC-DAQ-CMP material had good thermal stability, and the curves clearly reflected several major mass loss processes during thermal degradation (Figure 5). When the temperature is below 100 °C, the weight of the first stage decreases by 5% due to the desorption of water and ETOH solvents. In the range of 100-271 °C, about 2% of the weight loss is due to the desorption of DMSO solvents. As the temperature continues to rise, the aromatic structure begins to carbonize, and further damage and decomposition. The results show that CC-DAQ-CMP has good thermal stability.

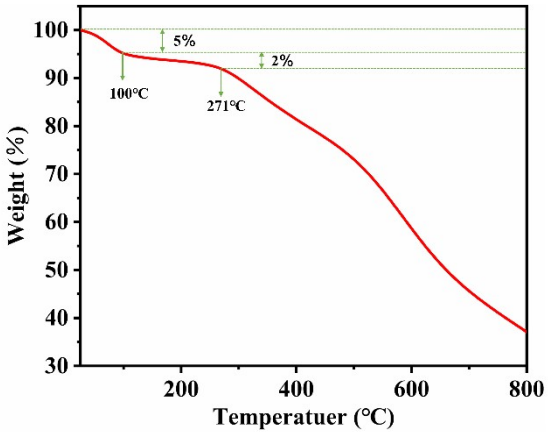

Figure S2.TGA curve of CC-DAQ-CMP