Electronic Supplementary Material (ESI) for Dalton Transactions.

Strategically improving the intrinsic proton conductivity of UiO-66-NH_2 by post-synthesis modification

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Supporting Information

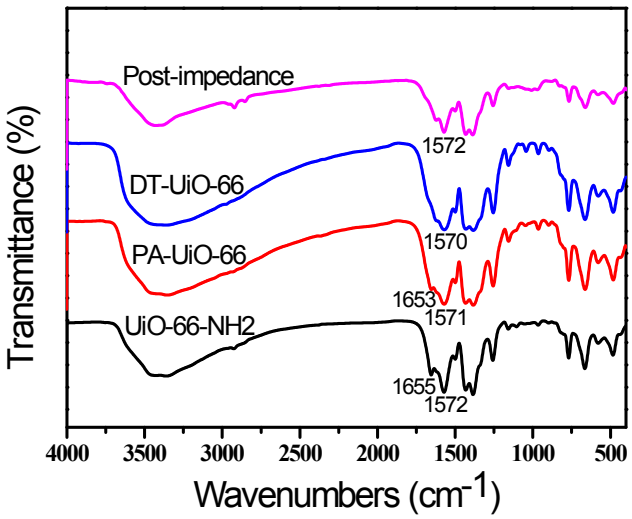

Fig. S1 The IR spectra of UiO-66-NH_2, PA-UiO-66 and DT-UiO-66 as well as the sample of DT-UiO-66 after the AC measurement.

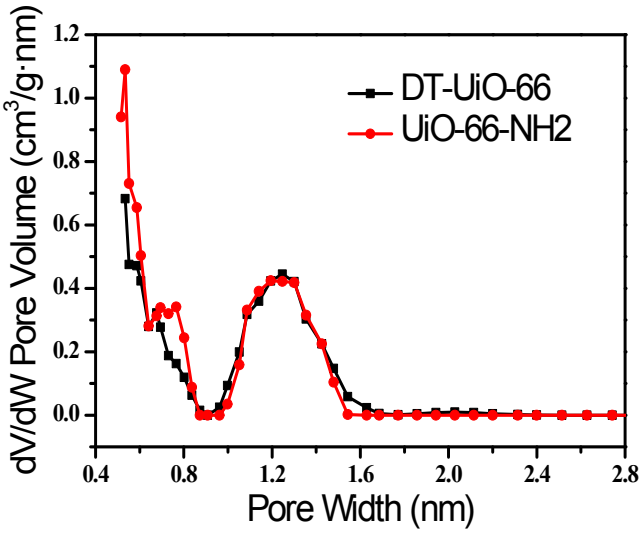

Fig. S2 The pore size distributions of UiO-66-NH_2 and DT-UiO-66 obtained by NLDFT model.

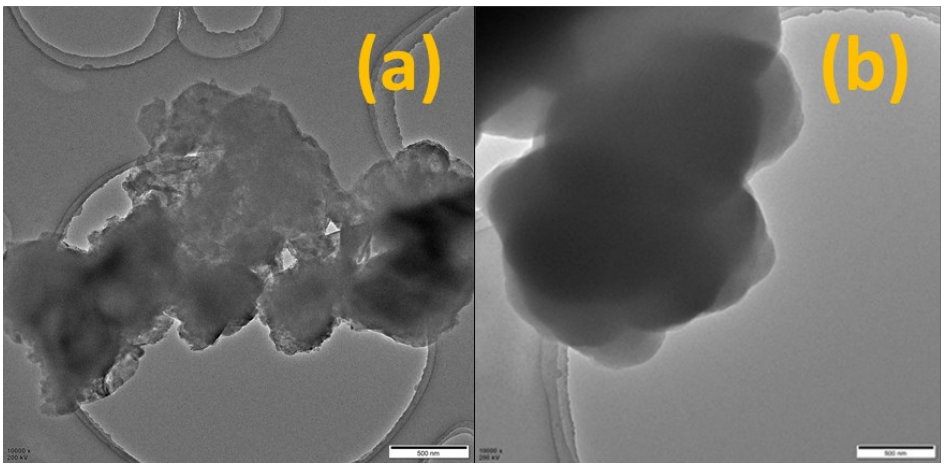

Fig. S3 TEM images of (a) UiO-66-NH_2 and (b) PA-UiO-66.

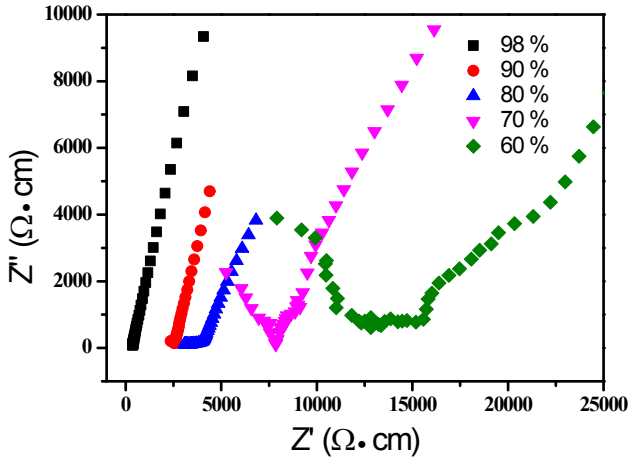

Fig. S4 Plots of the impedance plane for DT-UiO-66 at different relative humidity and 363 K.

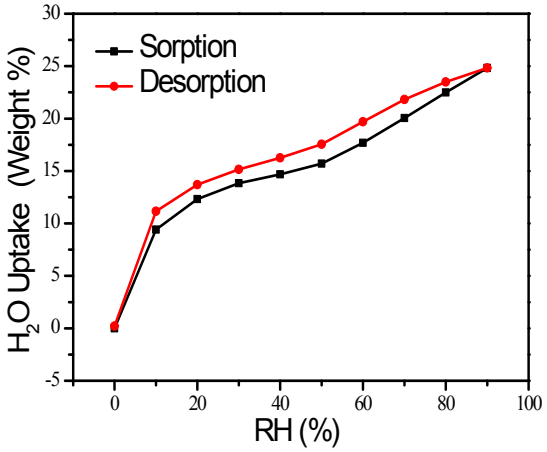

Fig. S5 Water adsorption–desorption isotherms (298 K) for the activated sample of DT-UiO-66 in a vacuum at 80 °C for 12 h.

Table S1 The resistance (R) and conductivity (σ) of DT-UiO-66 under different temperature and 98% RH. The values of pellet dimensions including sample thickness (*l*) and diameter are 500 um and 2 mm, respectively.

Temperature (K)	R (Ω)	σ (S/cm)
293	1325.32	1.20×10^{-3}
303	1175.68	1.35×10^{-3}
313	1016.34	1.57×10^{-3}
323	828.53	1.92×10^{-3}
333	734.36	2.17×10^{-3}
343	579.42	2.75×10^{-3}
353	471.53	3.38×10^{-3}
363	367.35	4.33×10^{-3}

Table S2 The resistance (R) and conductivity (σ) of DT-UiO-66 under different relative humidity and 363 K.

RH (%)	R (Ω)	σ (S/cm)
60	15195.83	1.05×10^{-4}
70	8231.36	1.93×10^{-4}
80	3970.42	4.01×10^{-4}
90	2529.45	6.30×10^{-4}
98	367.35	4.33×10^{-3}

Table S3 The resistance (R) and conductivity (σ) of DT-UiO-66 (373 K and 100% RH) under different time.

Time (h)	R (Ω)	σ (S/cm)
0	356.36	4.47×10^{-3}
4	360.34	4.42×10^{-3}
8	363.60	4.38×10^{-3}
12	367.12	4.34×10^{-3}
16	366.85	4.34×10^{-3}