

Electronic Supplementary Information (ESI)

Novel mild conversion routes of surface-modified nano
zirconium oxide precursor to layered proton conductors

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Results and discussion

Thermogravimetric behavior of ZrP, ZrSPP, and ZrS

Figure S1 and S2 shows the results of TG-MS spectra of ZrP and ZrSPP, respectively. Peaks for molecular mass 18 appear around the initiation temperature of the weight loss. This result indicates that the weight loss of ZrP and ZrSPP in Figure 6 is due to water evaporation. For ZrS, the similar TG result was reported in previous study, and the loss in weight below 473 K was solely attributed to the elimination of water.¹

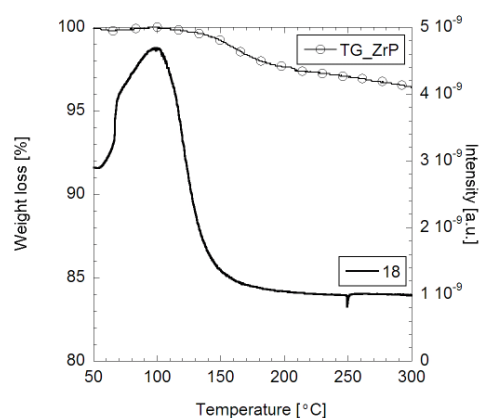


Fig. S1. TG-MS spectra of ZrP. The line with circle shows TGA curve. The bold line shows the mass signal of m/z 18 corresponding to water.

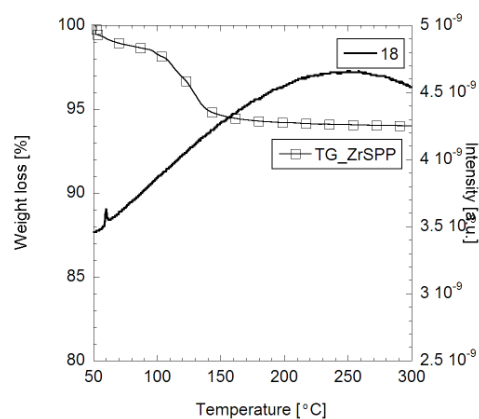


Fig. S2. TG-MS spectra of ZrSPP. The line with circle shows TGA curve. The bold line shows the mass signal of m/z 18 corresponding to water.

Reference (1) I. J. Dijs et al., *Phys. Chem. Chem. Phys.*, 2001, **3**, 4423-4429