

Electronic supporting information

An open-framework manganese(II) phosphite and its composite membrane with polyvinylidene fluoride exhibiting intrinsic water-assisted proton conductance

Mei Wang,^a Hong-Bin Luo,^a Jin Zhang,^a Shao-Xian Liu,^a Chen Xue,^a Yang Zou,^a
Xiao-Ming Ren^{*a,b,c}

^a State Key Laboratory of Materials-Oriented Chemical Engineering and College of Chemistry and Molecular Engineering, Nanjing Tech University, Nanjing 210009, P. R. China

^bCollege of Materials Science and Engineering, Nanjing Tech University, Nanjing 210009, P. R. China

^cState Key Laboratory of Coordination Chemistry, Nanjing University, Nanjing 210093, P. R. China

Fax: 86-25-58139481

Tel: 86-25-58139476

E-mail: xmren@njtech.edu.cn

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Figure S9: Time-dependent Nyquist plots of **1@PVDF-55** measured at 336 K in water.

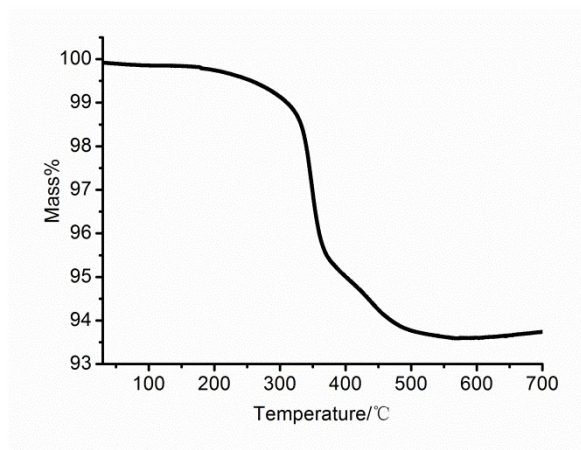


Figure S1: TG curves of 1.

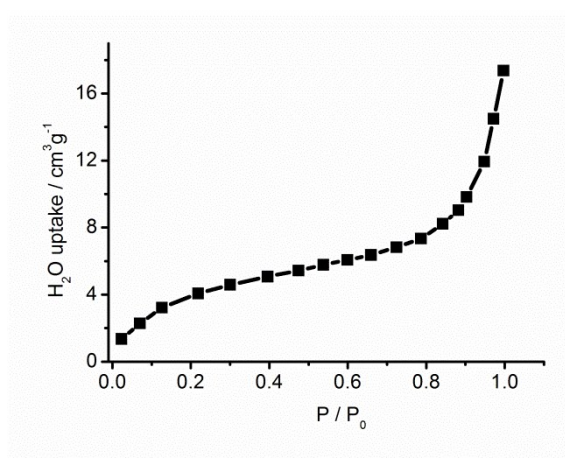
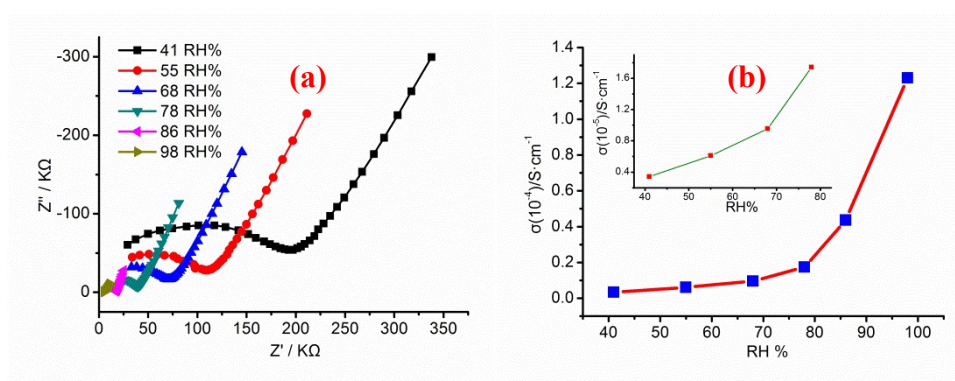


Figure S2: Water adsorption isotherms at 298 K of 1.



FigureS3:(a) Nyquist plots of 1at 298 K with different relative humidity and (b) humidity-dependent proton conductivity at 298 K.

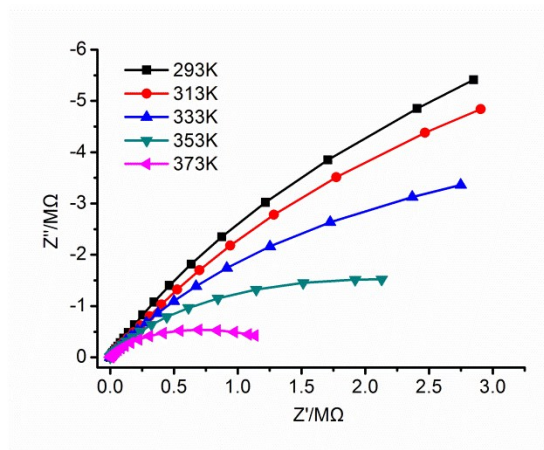


Figure S4: Nyquist plots of 1at selected temperature under anhydrous conditions.

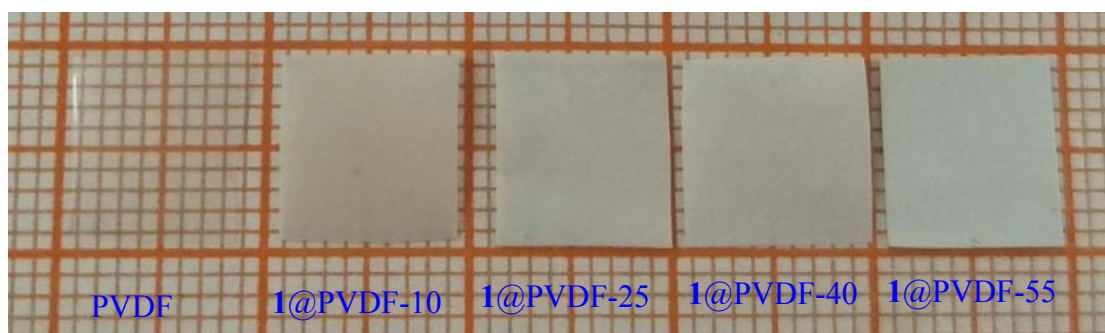


Figure S5: Optical images of the pure PVDF membrane and the composite membranes of 1@PVDF-X (X=10, 25, 40 and 55, respectively).

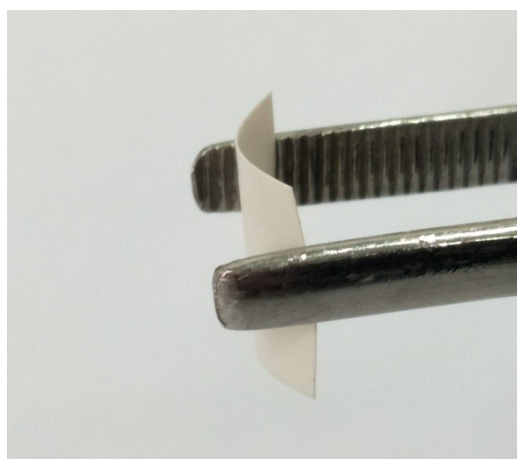
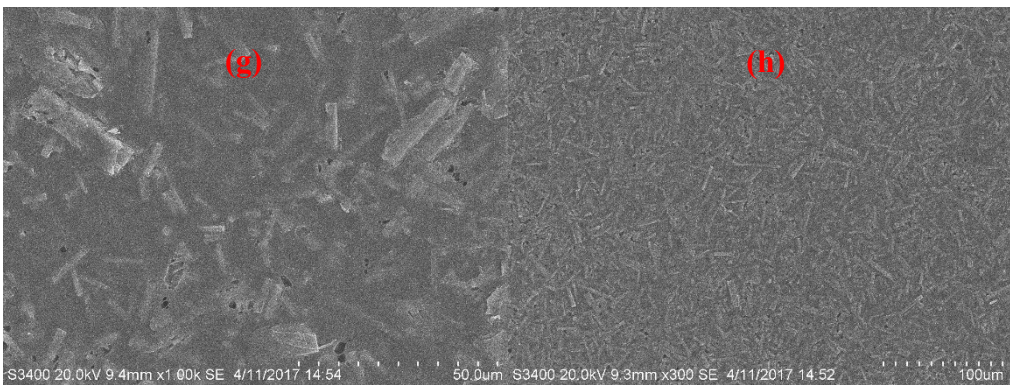
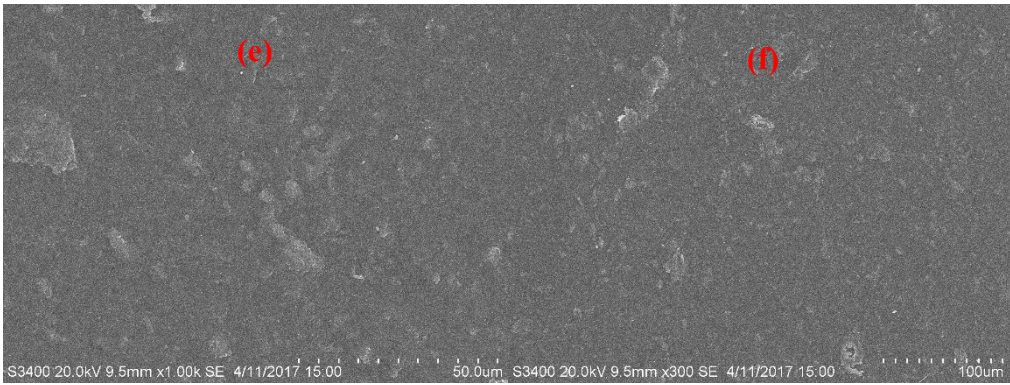
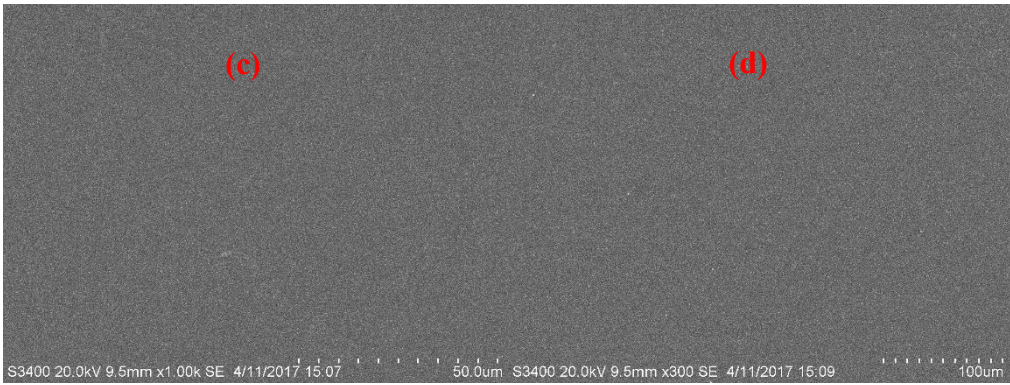
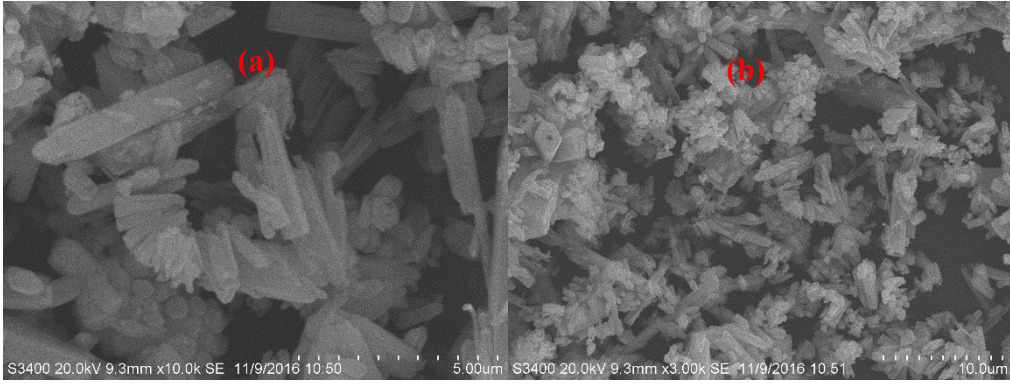


Figure S6: Optical images of 1@PVDF-55



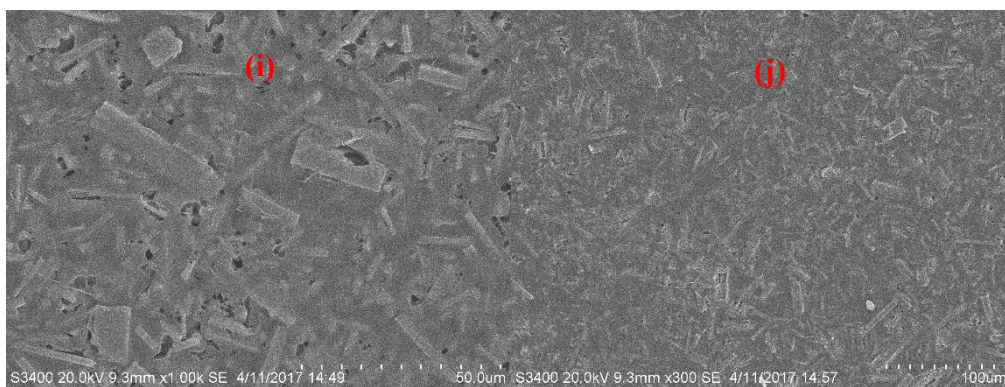


Figure S7: SEM images of (a, b) crystal particles **1** (c, d) pure PVDF (e, f) **1**@PVDF-10 (g, h) **1**@PVDF-25 (i, j) **1**@PVDF-40.

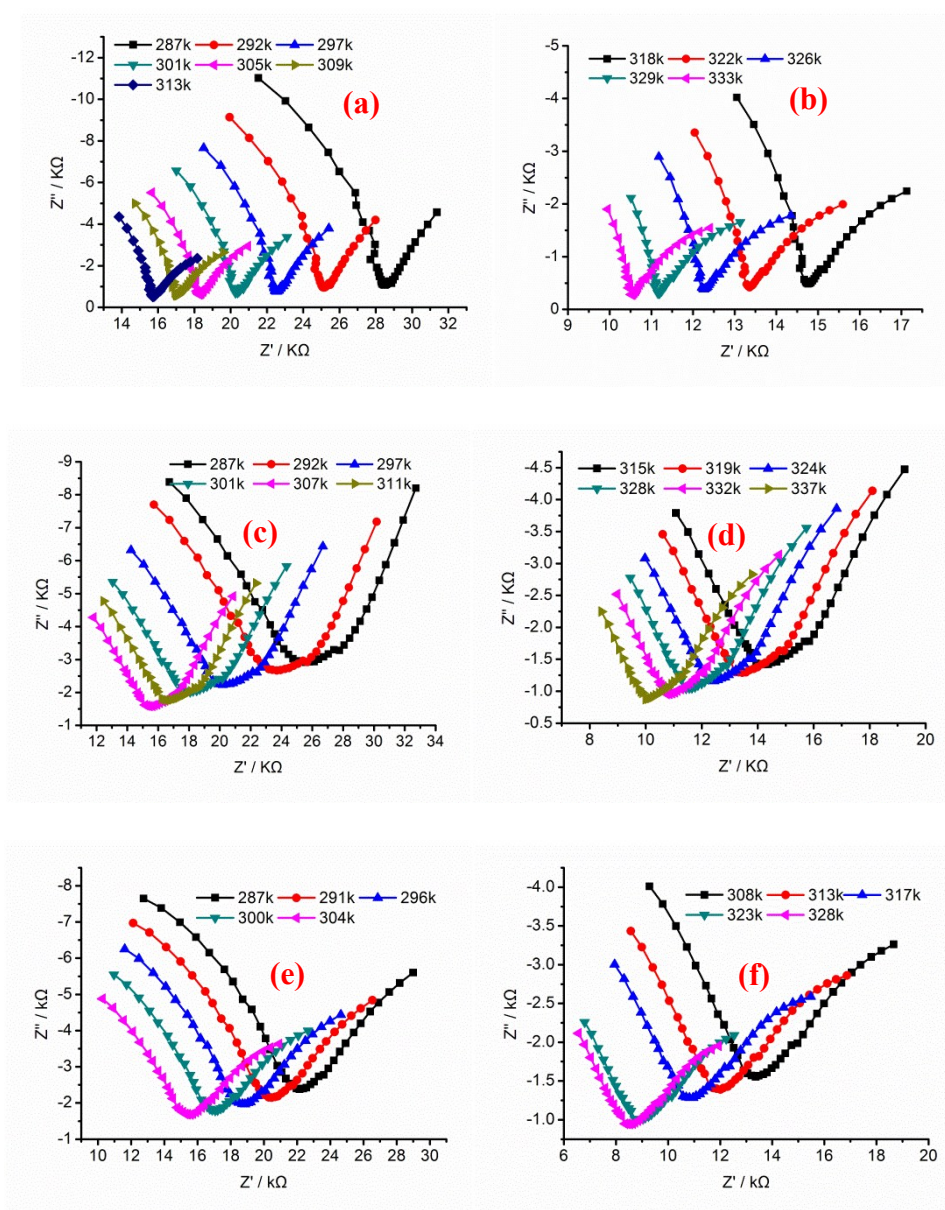
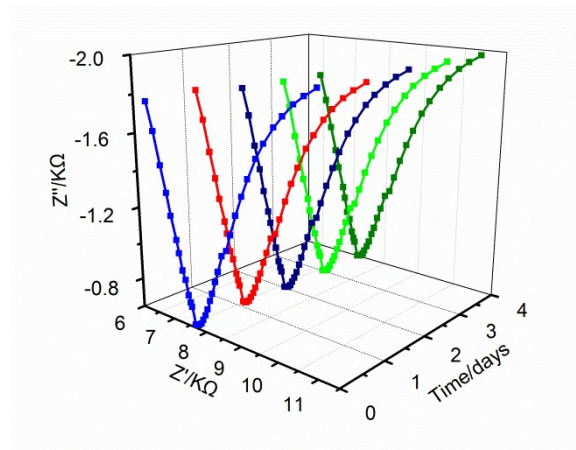


Figure S8: Nyquist plots of **1**@PVDF-10 (a, b), **1**@PVDF-25 (c, d) and **1**@PVDF-40

(e, f) in water at selected temperatures.



FigureS9: Time-dependent Nyquist plots of 1@PVDF-55 measured at 336 K in water.