Supplementary Information

NMR Investigation of Water Molecular Dynamics in Sulfonated Polysulfone/Layered Double Hydroxide Composite Membranes for PEMFCs

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Spectral deconvolution has been carried out using Lorentzian peak function with the following characteristics:

Number of Parameters=4

Number of Independent Variables=1 (x)

Number of Dependent Variables=1 (y)

[FORMULA] => y = y0 + (2*A/pi)*(w/(4*(x-xc)^2 + w^2))

[Parameters Initialization] => xc = peak_pos(x_y_curve, &w, &y0, NULL, &A);

A *= 1.57*w;

Number of Duplicates=1

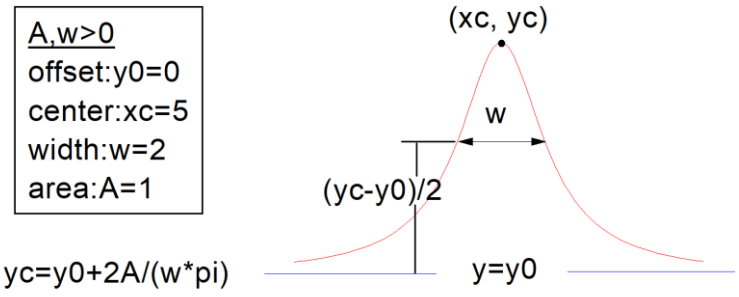
Duplicate Offset=2

Duplicate Unit=3

Peak Center=2

Peak Width=3

Peak Amplitude=4



Noteworthy, R2 value for the various spectral deconvolution ranged between 0.9943 and 0.9985 as a clear indication of the goodness of the mathematical fitting model used in this study.

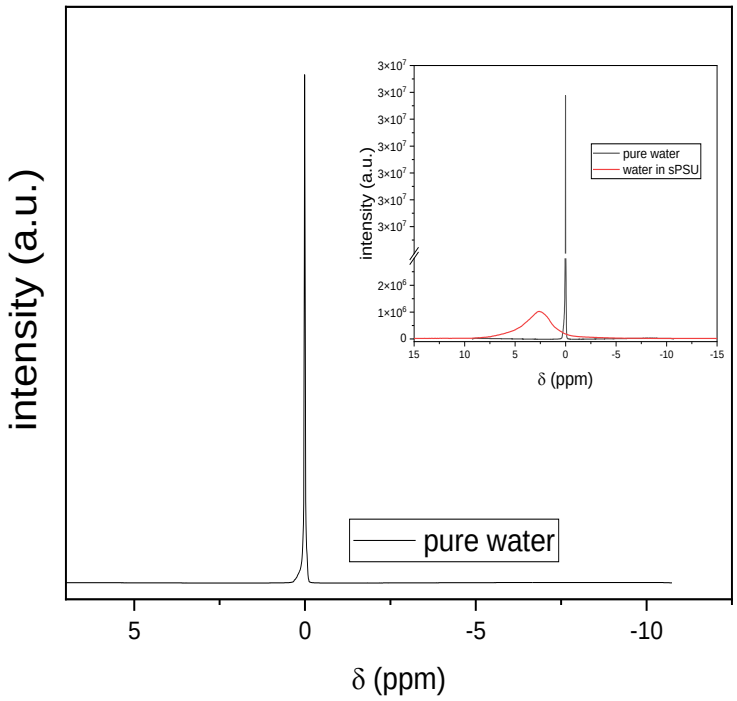


Figure S1. ^{1}H NMR spectra of pure water.

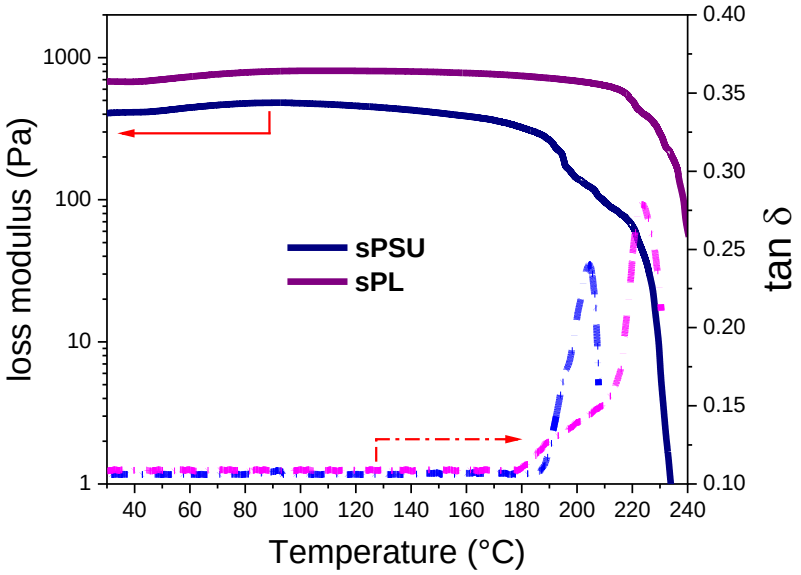


Figure S2. Dynamic Mechanical Analysis characterization on sPSU and sPL membranes

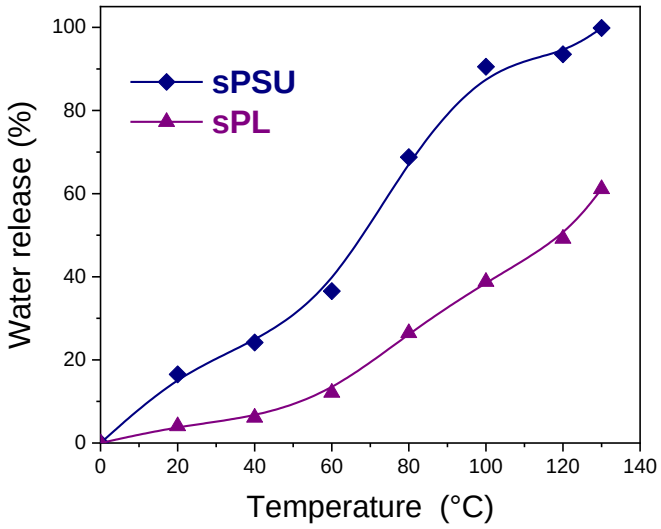


Figure S3. Water release behaviors of the sPSU-based membranes as a function of the temperature.

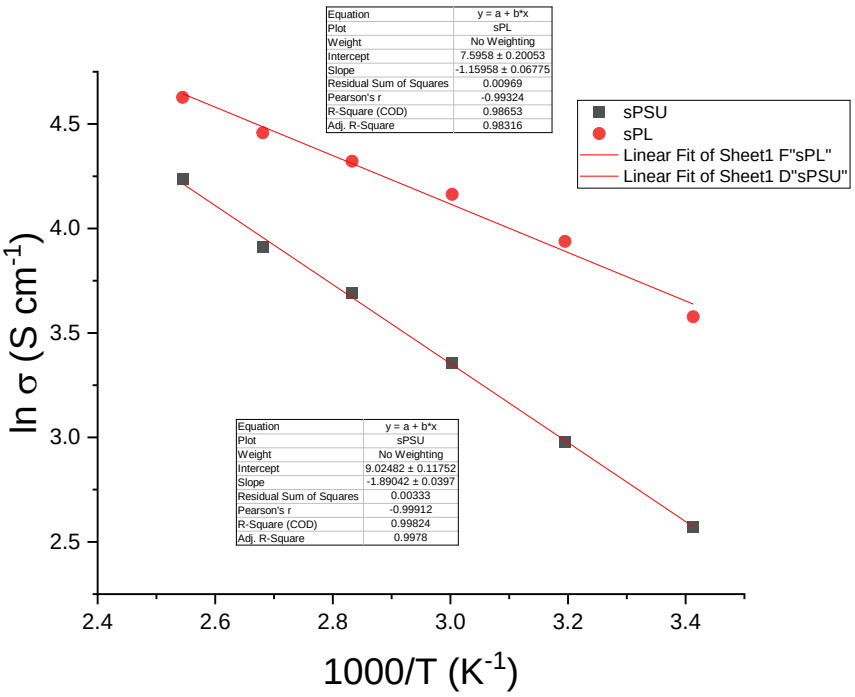


Figure S4. Arrhenius plot (ln σ *vs.* 1000/T) for proton conductivity of sPSU and sPL membranes