

Support Information

Stretch-Induced Ion Complexation in Physical Polyampholyte Hydrogels

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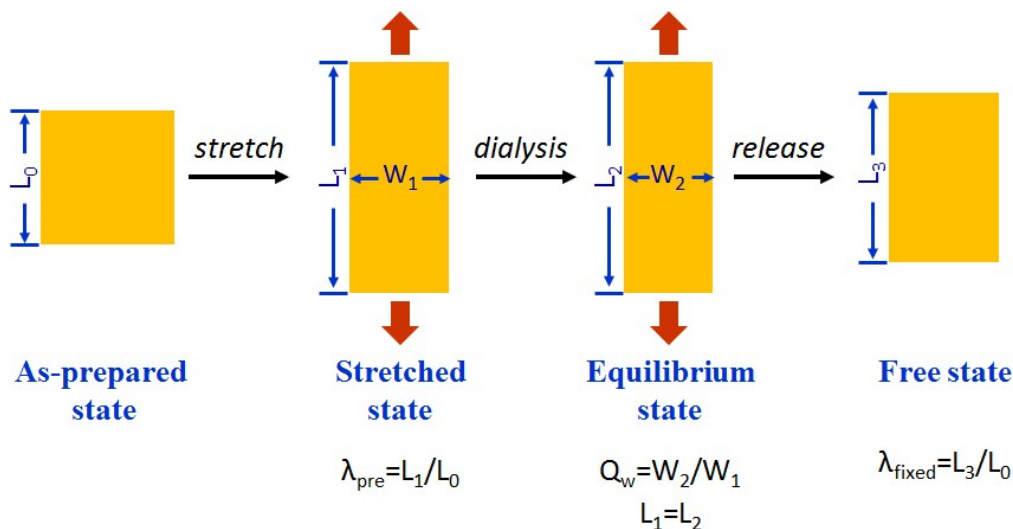


Figure S1. The schematic of experimental procedure. The as-prepared sample with length of L_0 was firstly pre-stretched to length of L_1 and width of W_1 . Then the stretched sample was immersed into water to dialyze for a week to reach equilibrium state. During dialysis process, the sample length was fixed at L_1 and the sample width shrunken to W_2 . After reaching equilibrium, the sample was released to free state with a shrunken length of L_3 .

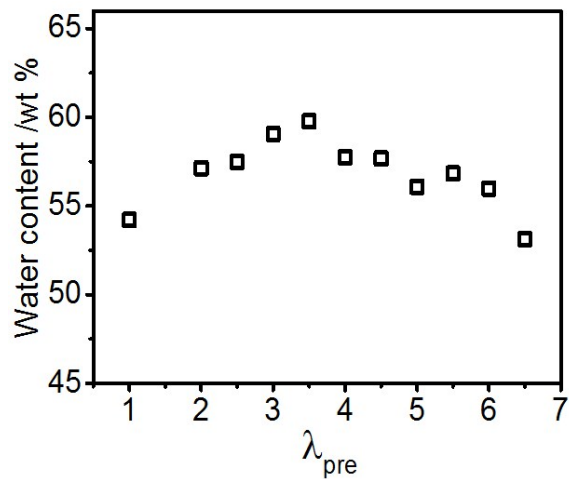


Figure S2. The pre-stretch ratio dependence of water content of PA hydrogels at free state. The water content has small change in the studied pre-stretch ratio range.

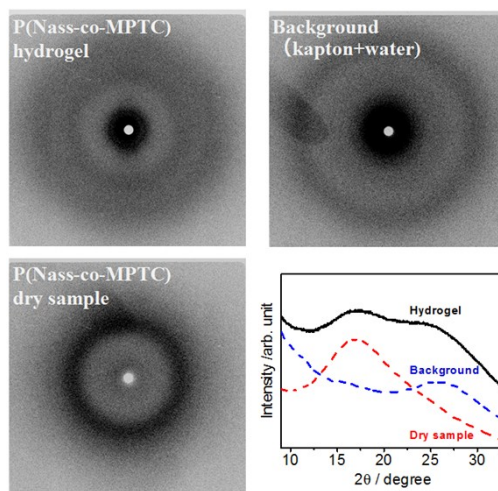


Figure S3. Wide-angle X-ray scattering (WAXS) measurement of PA hydrogels at free state. During measurement, the sample was covered by two pieces of Kapton film to fix the sample and prevent water evaporation. By measuring PA hydrogels, background scattering and dry gel, we can determine that the scattering peak of PA chain network is around 17 degree.

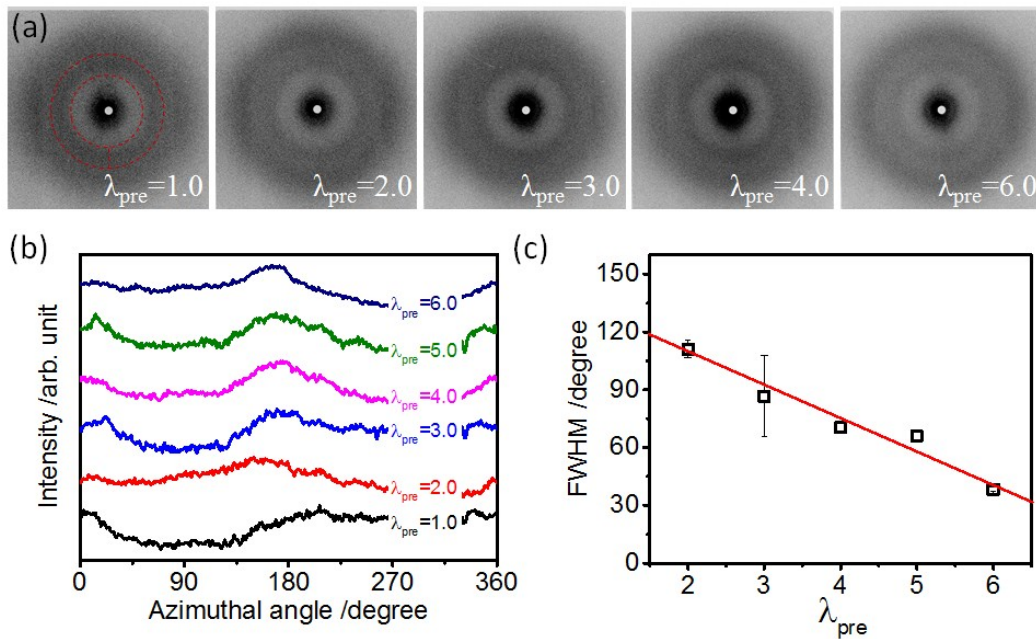


Figure S4. (a) 2D WAXS images of PA hydrogels under different pre-stretch ratio at free state. (b) the corresponding 1D integrated intensity curves as a function of azimuthal angle. The concentric circles marked by red dot line in (a) show the integrated region. (c) The calculated full width at half maximum (FWHM) at peak around 180 degree based on (b).

0.2 mol/L NaCl solution

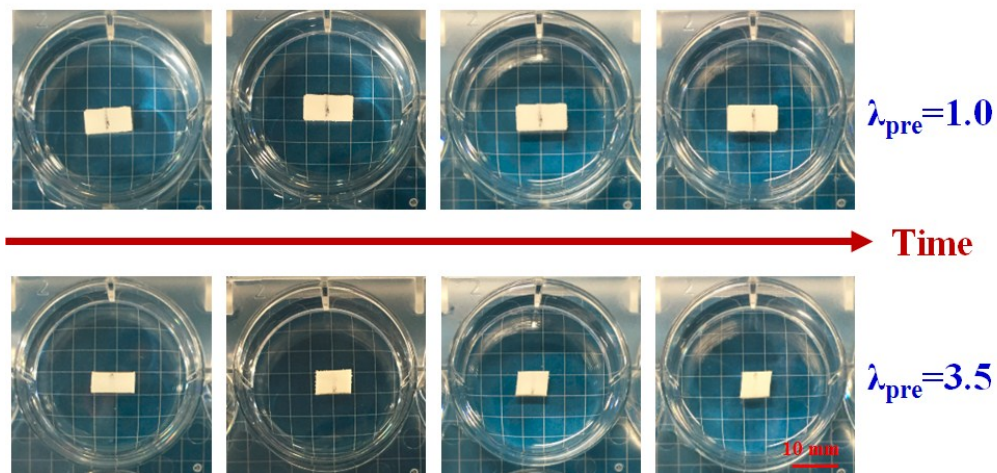


Figure S5. The evolution of sample dimension with time in salt solution of PA hydrogels at free state. Without pre-stretch, the sample size keeps almost constant. While obvious shrunken in pre-stretch direction is observed for the pre-stretched sample.