Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.

Supplementary Materials

Tailorable, 3D structured and micro-patternable ionogels for flexible and stretchable electrochemical devices

Yong Zhong[1, 2], Giao TM Nguyen[2], Cédric Plesse[2], Frédéric Vidal[2] and Edwin W.H. Jager[1]

(1) Sensor and Actuator Systems (SAS), Department of Physics, Chemistry and Biology (IFM), Linköping University, Linköping, Sweden;

(2) Laboratoire de Physicochimie des Polymères et des Interfaces, Institut des Matériaux, Université de Cergy-Pontoise, Cergy-Pontoise Cedex, France

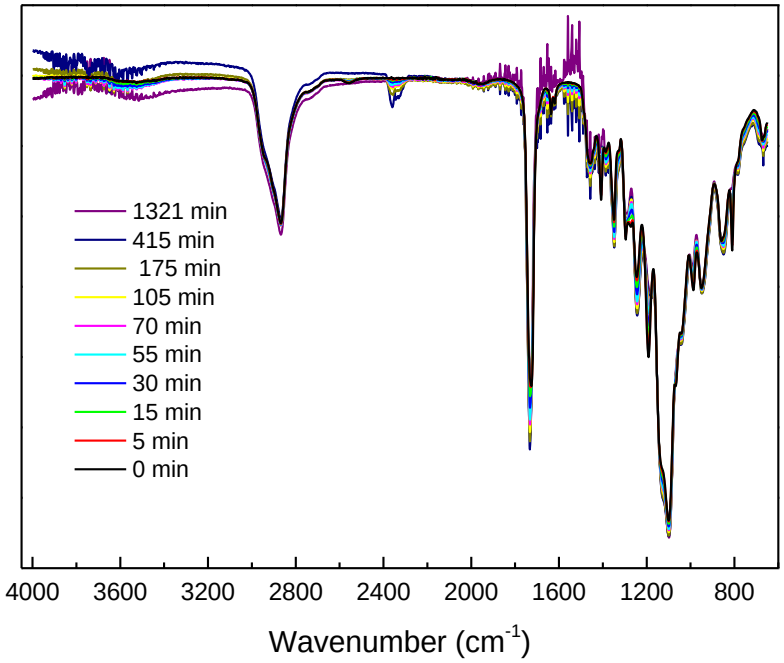
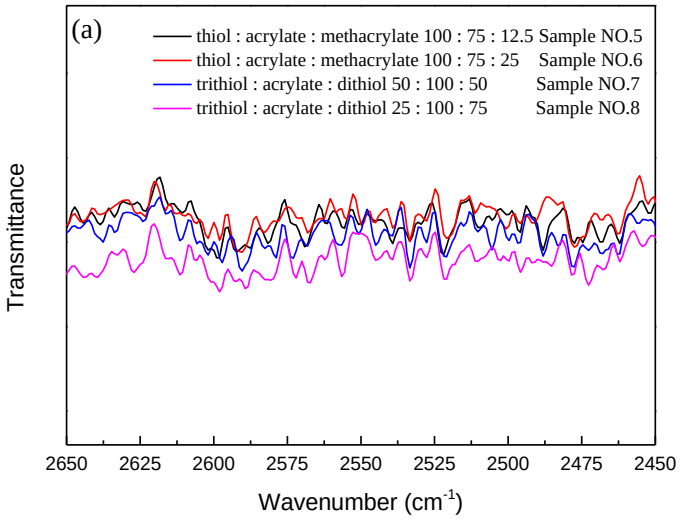


Figure S1. Time evolution of FTIR full spectra for 1:1 stoichiometric mixture of thiol acrylate with 1 wt% of TEA.



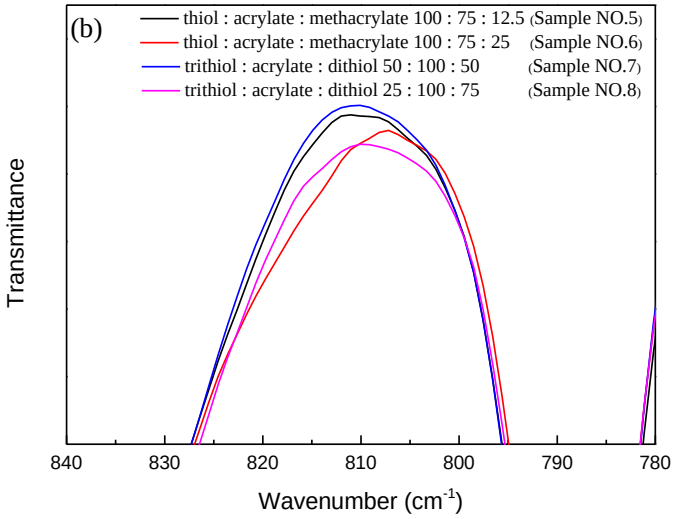
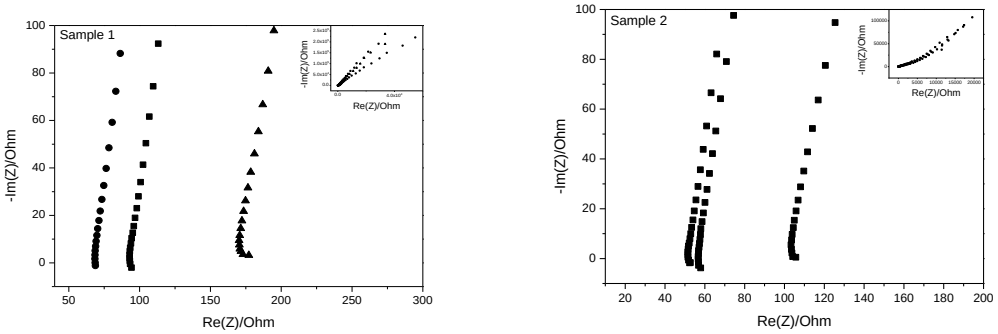


Figure S2. FTIR spectra after completion of polymerization for (a) thiol and (b) acrylate peaks in thiol acrylate mixture with various stoichiometric ratios of thiol acrylate functional groups. The composition of each sample is shown in Table 1.



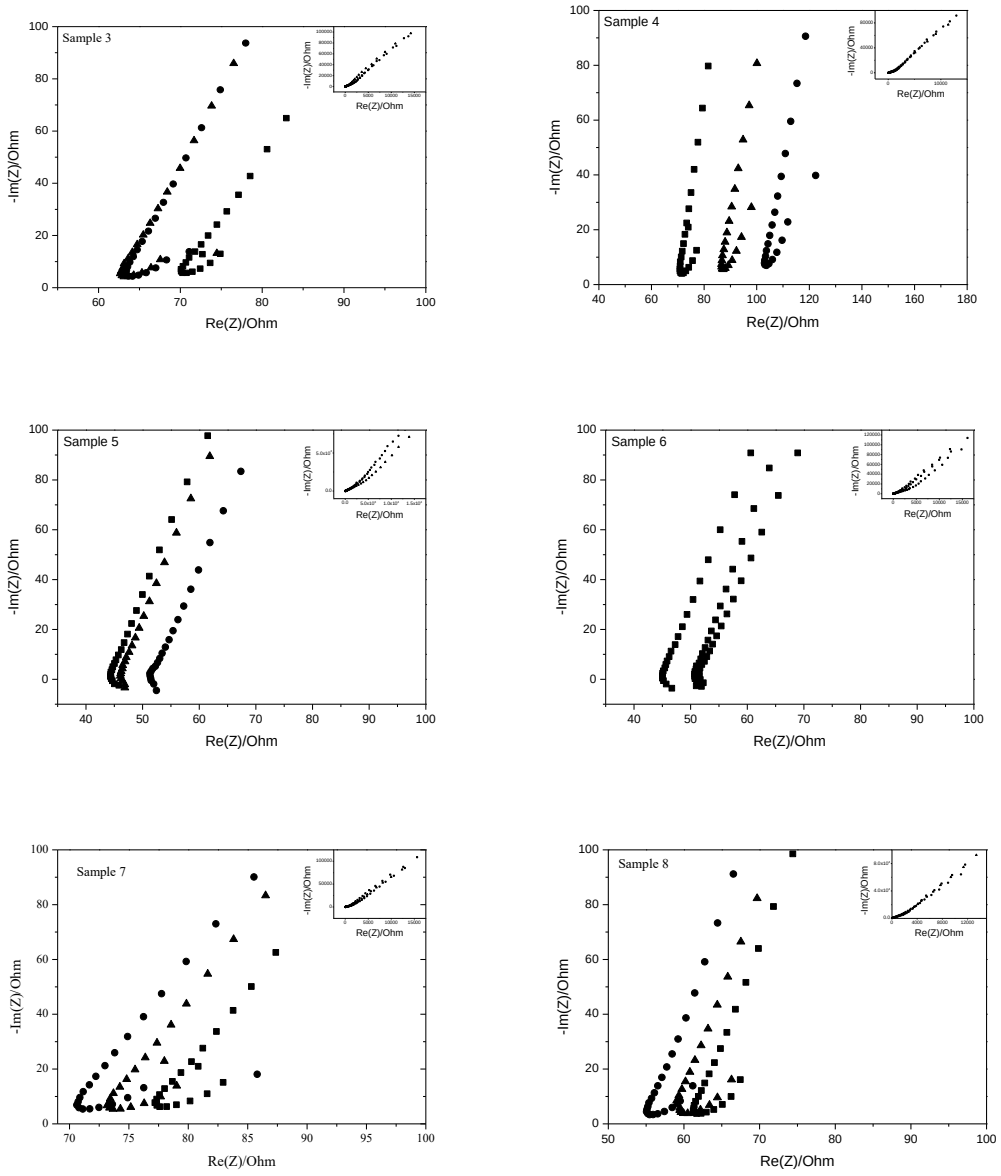


Figure S3. Nyquist plots of electrochemical impedance spectroscopy results in high frequency range for sample 1 to 8. Each sample was repeated 3 times. Inset shows the full range scan results.

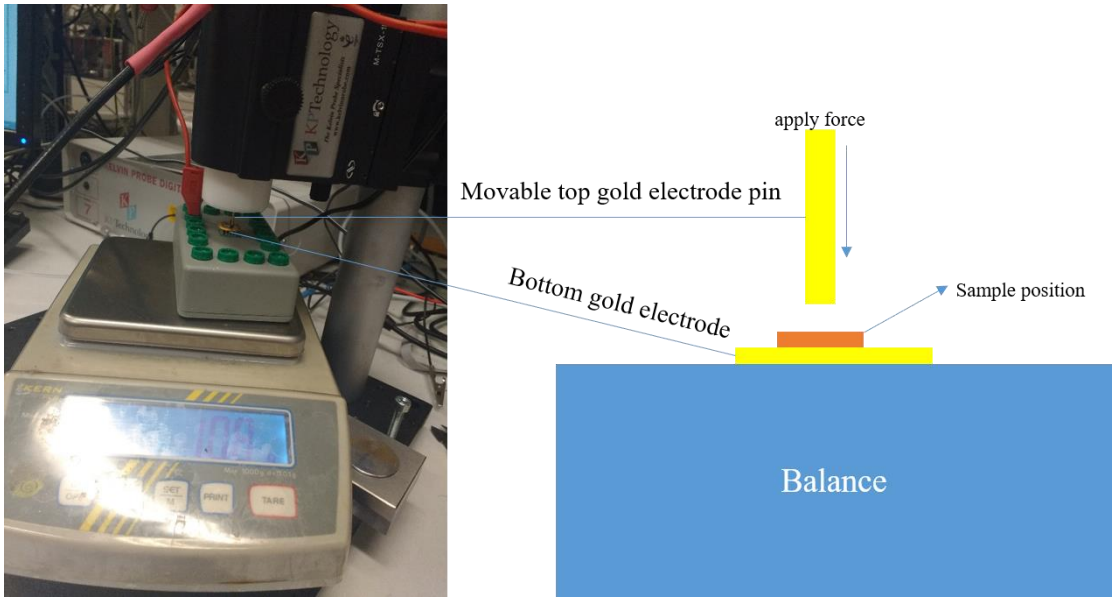


Figure S4. Photograph and schematics of the capacitance force measurement setup.

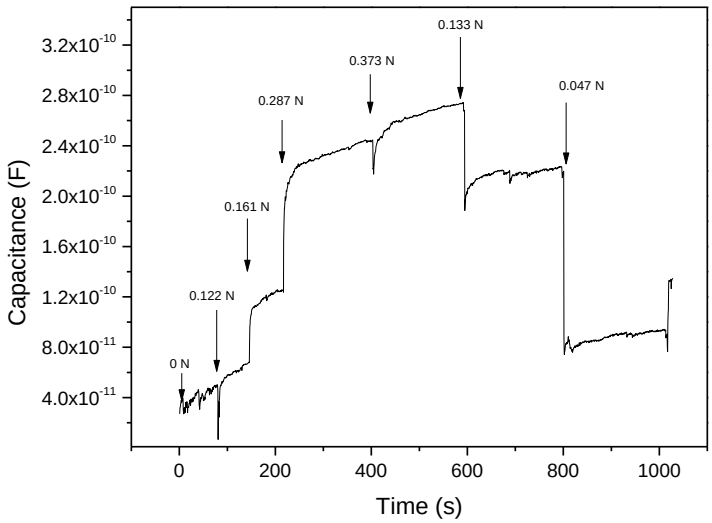
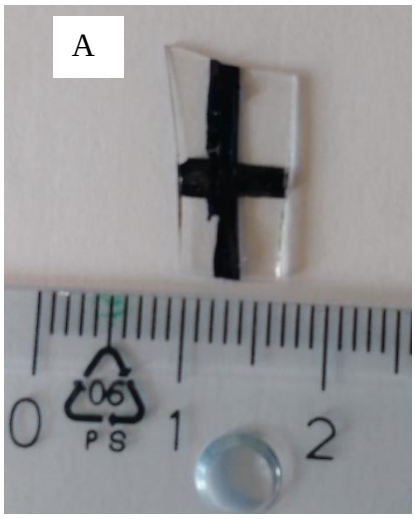


Figure S5. The transient of the capacitance response with the applied force for ionogel with a "box" structure as shown in Figure 9a.



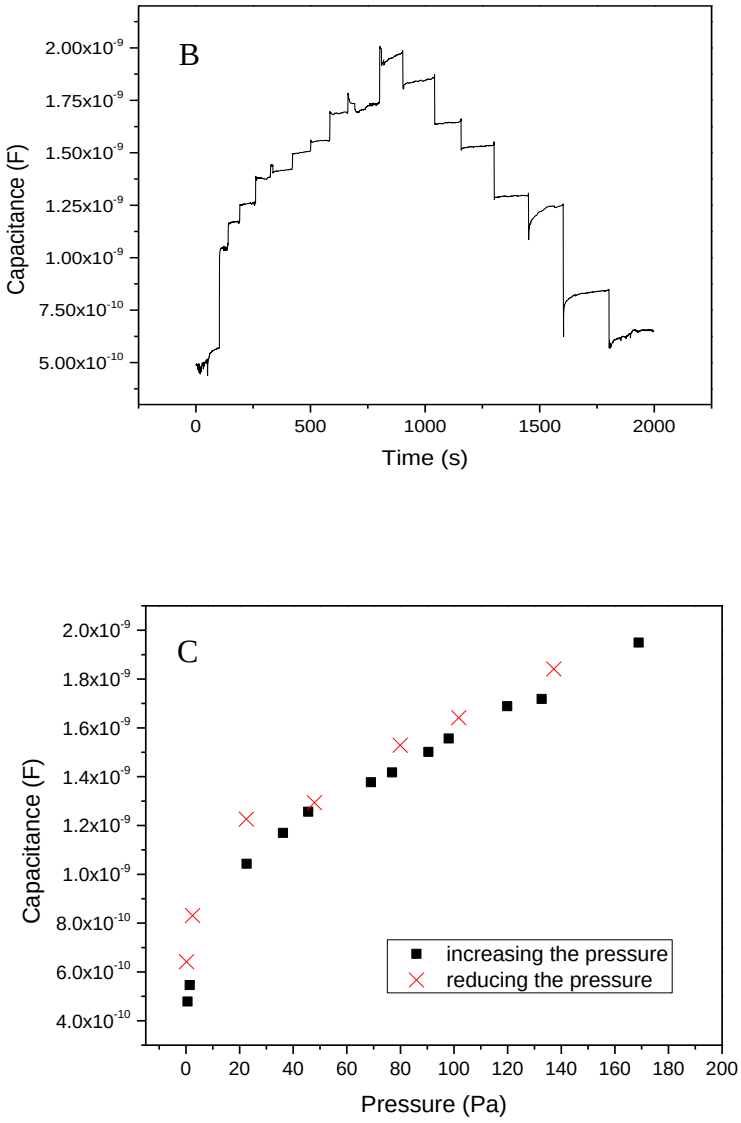


Figure S6. (a) Photograph of another pressure sensor made from ionogel with two PEDOT-PSS electrodes with a line width of 2mm (b) The transient of the capacitance response with the applied force and (c) the plot of capacitance versus the applied pressure both in the forward (increasing the pressure) direction and reverse direction (reducing the pressure).

Movies S7 and S8 to Figure 8