

**Supporting Information**

**for**

**Short versus long chain polyelectrolyte multilayers:  
a direct comparison of self-assembly and structural  
properties**

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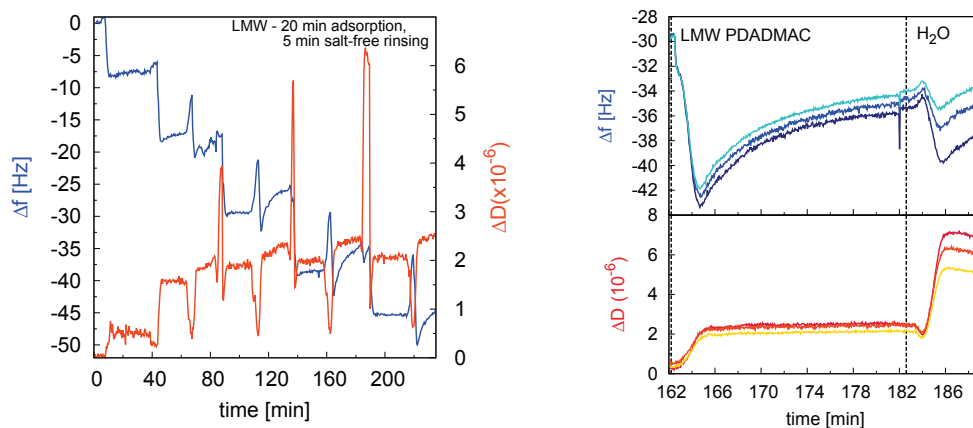


Figure S1:  $\Delta f$  and  $\Delta D$  recorded for the adsorption and salt-free rinse of LMW ( $\sim 30$  repeat units/chain) PDADMAC. The data refer to the adsorption of the VI layer, which is reported as an example for PDADMAC layers. Colors from darker to lighter correspond to increasing overtone number (from 5<sup>th</sup> to 9<sup>th</sup> overtone.)

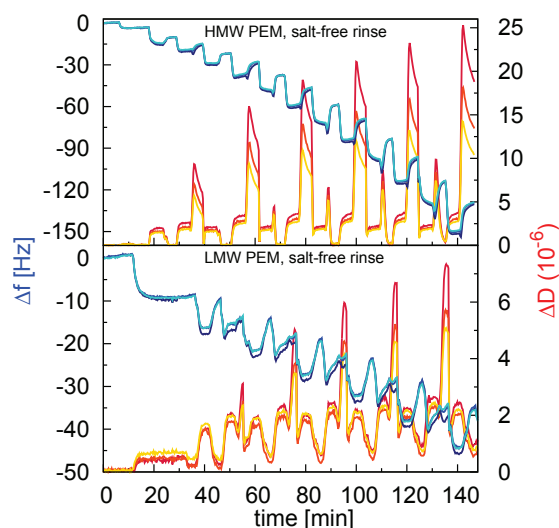


Figure S2:  $\Delta f$  and  $\Delta D$  recorded during the preparation of HMW ( $\sim 300$  repeat units/chain) and LMW ( $\sim 30$  repeat units/chain) PSS/PDADMAC PEMs, PE solutions 0.01 mol(mon)/L in 0.1 M NaCl and rinsing by salt-free water. Colors from darker to lighter correspond to increasing overtone number (from 5<sup>th</sup> to 9<sup>th</sup> overtone.)

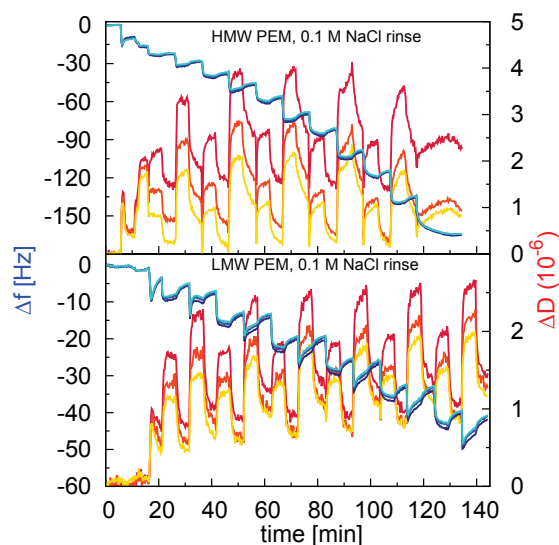


Figure S3:  $\Delta f$  and  $\Delta D$  recorded during the preparation HMW ( $\sim 300$  repeat units/chain) and LMW ( $\sim 30$  repeat units/chain) PSS/PDADMAC PEMs, PE solutions 0.01 mol(mon)/L in 0.1 M NaCl and rinsing by 0.1 M NaCl. Colors from darker to lighter correspond to increasing overtone number (from 5<sup>th</sup> to 11<sup>th</sup> overtone.)

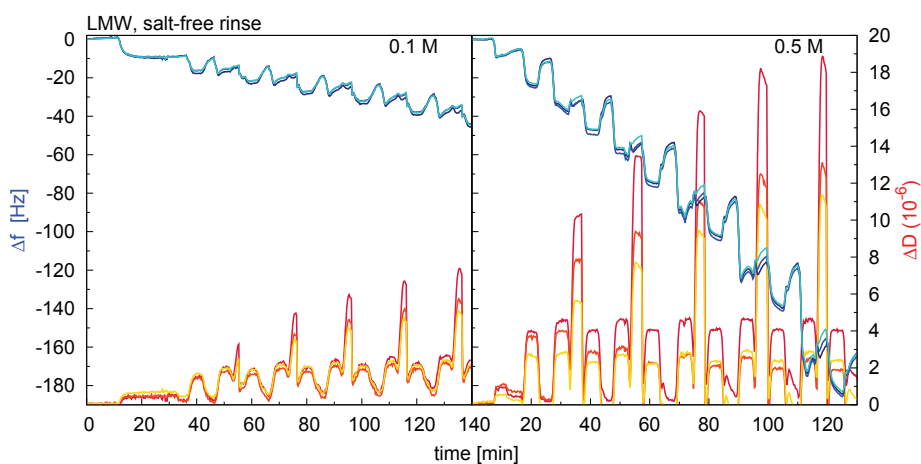


Figure S4:  $\Delta f$  and  $\Delta D$  recorded during the preparation of LMW PSS/PDADMAC PEMs, PE solutions 0.01 mol(mon)/L in 0.1 or 0.5 M NaCl and rinsing by salt-free water.

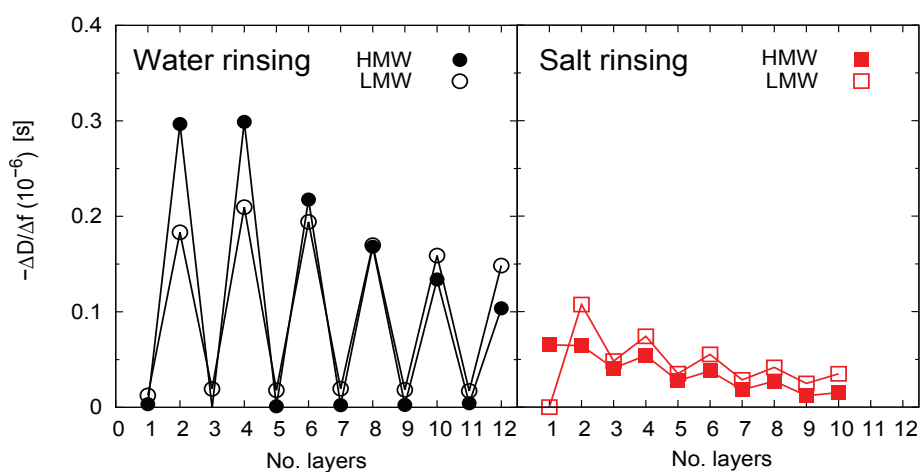


Figure S5:  $\Delta D/\Delta f$  ratio as a function of layer number for HMW and LMW PSS/PDADMAC PEMs prepared by PE solutions 0.01 mol(mon)/L in 0.1 M NaCl. Rinsing was done by a) salt-free water or b) NaCl rinsing. Odd layer numbers refer to PSS termination, even ones to PDADMAC termination.

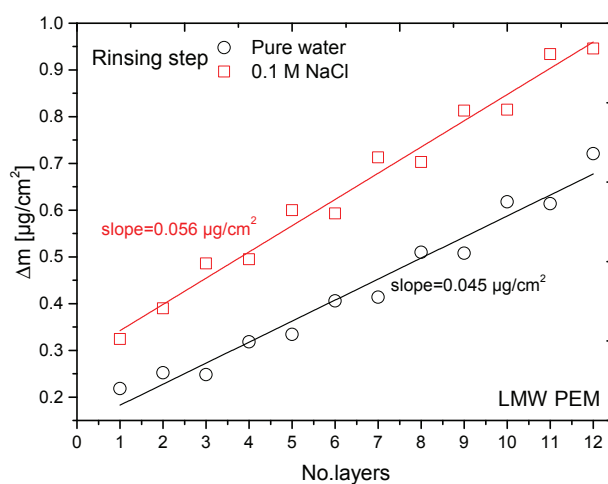


Figure S6: Sensed mass as a function of layer number for LMW PEM prepared by salt-free and NaCl rinsing. Solid lines are the linear fits on the experimental data.

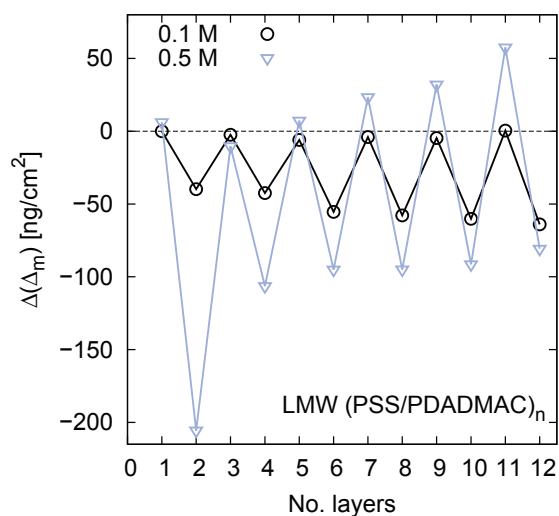


Figure S7: Absolute mass change during layer equilibration as a function of number of layers for LMW multilayers at different salt concentration. Odd layer numbers refer to PSS layers, even ones to PDADMAC.

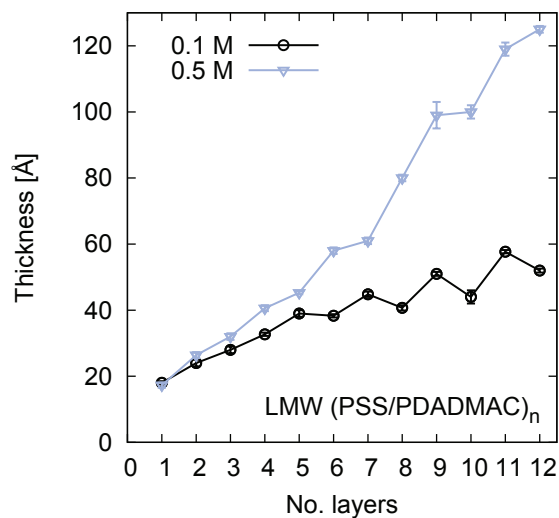


Figure S8: Ellipsometry measurements in ambient condition on LMW PSS/PDADMAC multilayers prepared on silicon wafers by dipping method. Odd layer numbers refer to PSS layers, even ones to PDADMAC. The same preparation protocol (5 minutes dipping time, pure water rinsing) and PE solutions (0.01 mol(mon)/L in 0.1 M and 0.5 M NaCl) were used as for QCM-D measurements.