Theoretical and experimental investigations of polyelectrolyte adsorption dependence on molecular weight

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Examples of how the ellipsometry measured adsorption of short chain PVNP on silica substrate varies with time are provided in SS1. The adsorption curves are reproducible, and the stable, clear plateau adsorption values were found in every salt concentrations.

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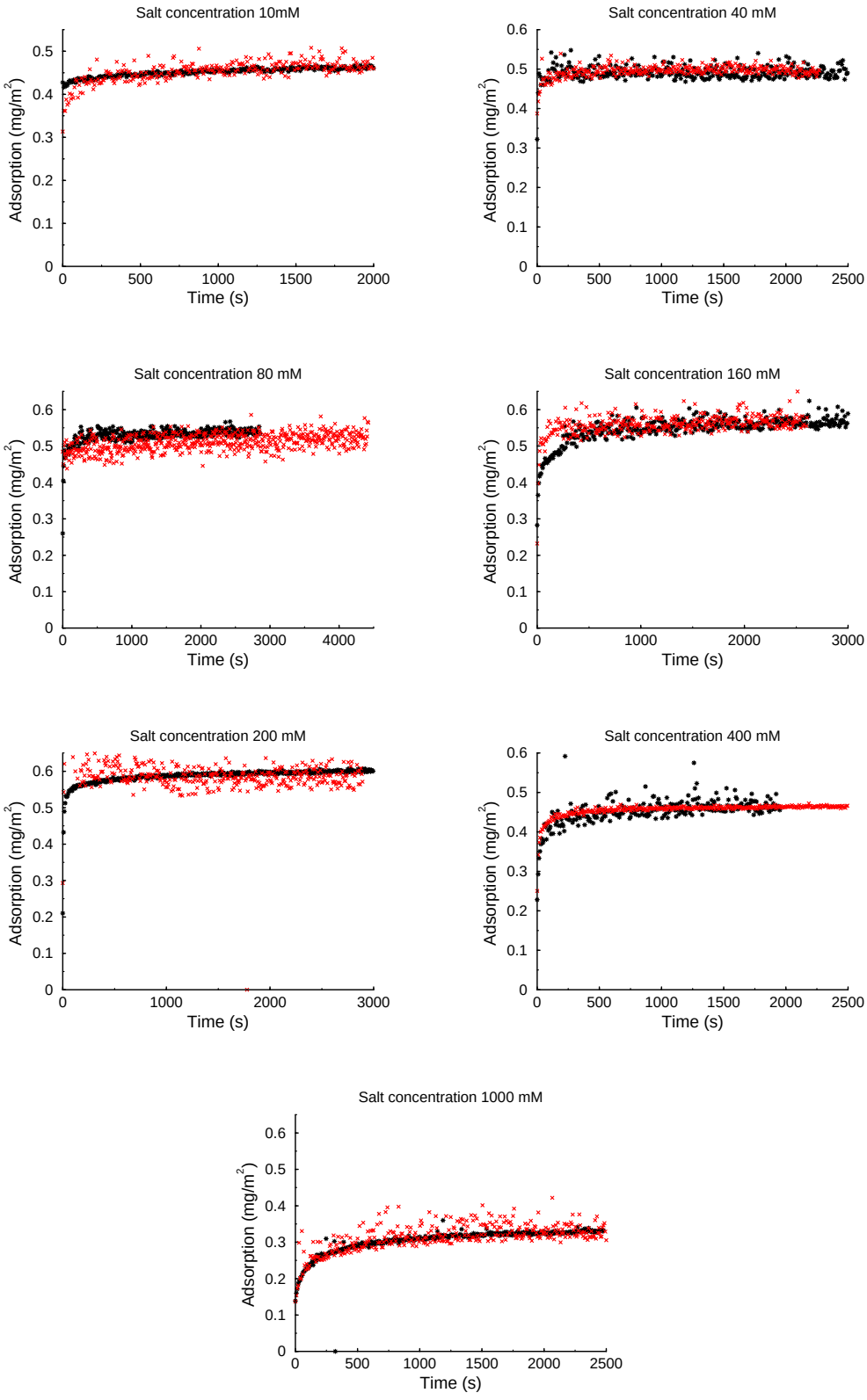

Figure S1: Adsorbed amount of short chain PVNP on silica surface as a function of time at different NaCl concentration at pH 9. Red and black curves indicate two reproducible measurements.

Examples of how the ellipsometry measured adsorption of long chain PVNP on cellulose surfaces varies with time are provided in SS2.

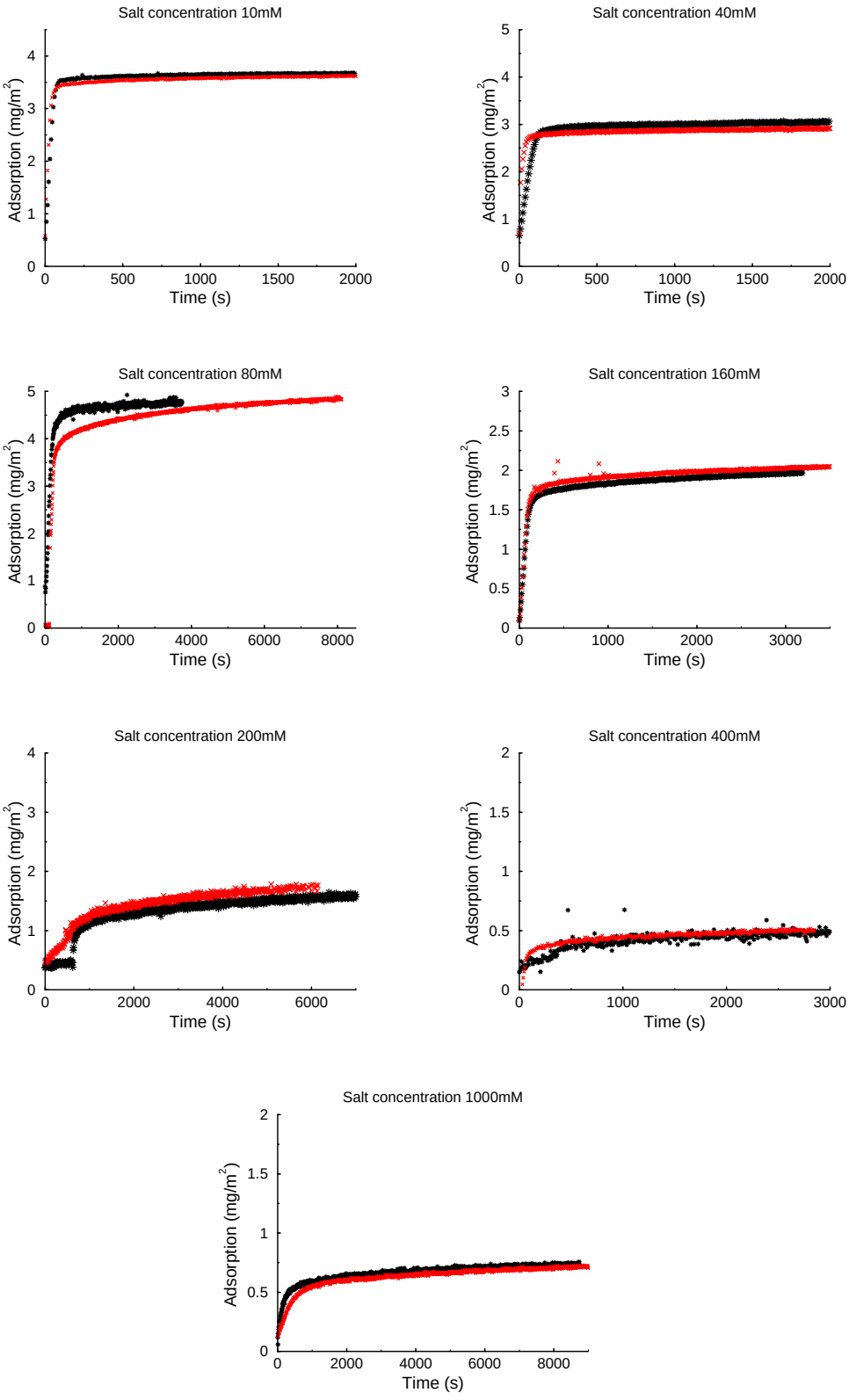

Figure S2: Adsorbed amount of long chain PVNP on cellulose surface as a function of time at different NaCl concentration at pH 9. Red and black curves indicate two reproducible measurements.

Examples of how the ellipsometry measured adsorption of short chain PVNP on cellulose surfaces varies with time are provided in SS3. In the higher salt concentrations, e.g. 200mM, 400mM and 1000mM, we adsorption curves look reproducible and reach to the plateau values. However, in the low salt regime, from 10mM to 160mM, it is hard to get the equilibrium adsorption data, the adsorption describe a monotonic increase in some salt concentration (40mM, 80mM and 160mM). This may indicate that the short chain PVNP has tendency to penetrate into the cellulose thus make the equilibrium process really slow.

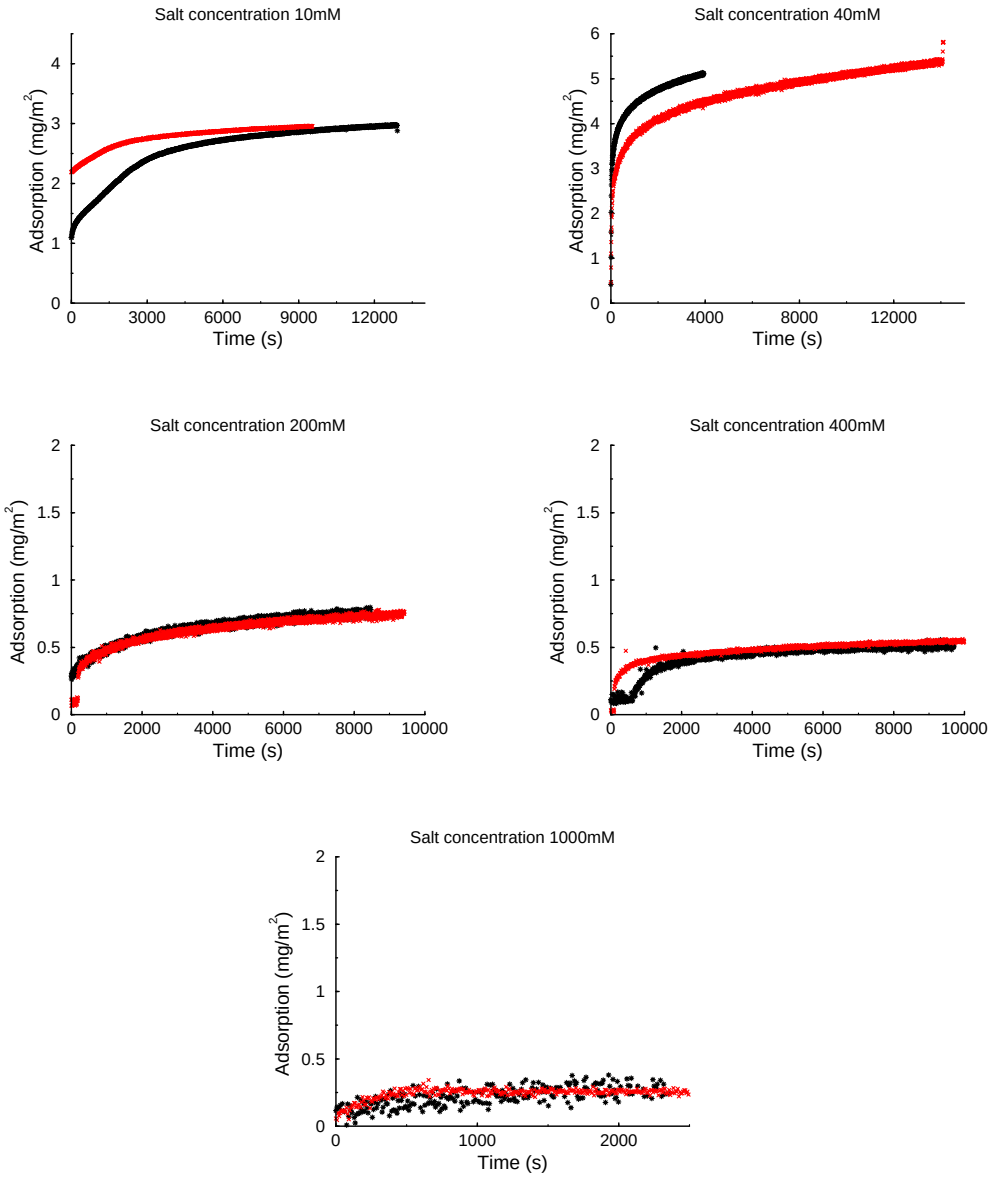

Figure S3: Adsorbed amount of short chain PVNP on cellulose surface as a function of time at different NaCl concentration at pH 9. Red and black curves indicate two reproducible measurements.