

Abstract Submitted  
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**Effect of temperature on fd and M13 aggregation** QI WEN, JAY TANG, Brown University — Counterion induced aggregation of like-charged polyelectrolytes(PE) such as DNA, F-actin and fd viruses has been investigated extensively. It has been shown that the like-charge attraction is due to the correlation of counterions. The classic Oosawa model suggests that thermal fluctuations of counterions gives rise to a net attractive interaction between two parallel charged rods by inducing transient dipole moments on them. This attractive force is reminiscent of van de Waals interaction, and the interaction is expected to increase with temperature. Alternatively, positional correlations of counterions has been shown by Brownian Dynamics simulations to induce an attractive force that decreases with increasing temperature. In order to determine the dominant mechanism by which the counterions are correlated to induce attractive force, we measure the temperature dependence of threshold concentrations of divalent counterions that cause the aggregation of fd and M13 viruses. Our preliminary measurements favor the Oosawa type of mechanism, although specific chemical effects may affect the interpretation of the experimental results.

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