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# Complex between cationic like-charged Polyelectrolytes/Surfactants systems

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## Abstract:

We report for the first time the complex formation between cationic like-charged polyelectrolytes and surfactant systems. The mechanism of attraction has been investigated through extensive coarse-grained molecular dynamic simulations and atomic force microscopy (AFM) experiments. The addition of a tetravalent salt is found to play a crucial role in the polyelectrolyte backbone properties. We found extended structures at low and high salt concentration values, whereas, for intermediate ones, the chains condensate. The combination of elements with the same charge has been investigated in three different regimes depending on the tetrasalt concentration: before condensation; at the condensation point and during the re-expansion. The mixture of polyelectrolytes and surfactants in salt free is also studied and compared to the mixture in a tetrasalt solution.

**Keywords:** simulation, Adhesion, Nanomaterials, Polymer blends, like-charge polymer complex.

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