

P12 – The Forces of Interaction Between Poly(2-vinylpyridine) Brushes as Measured by Optical Tweezers

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Forces of interaction within *single* pairs of poly(2-vinylpyridine) (P2VP) grafted colloids have been measured by optical tweezers (OT) with an extraordinary resolution of ± 0.5 pN [1]. Parameters to be varied are the concentration and type of salt (KCl, CaCl₂, and LaCl₃) of the surrounding medium as well as its pH. The observed force-distance relation is *quantitatively* described by the Jusufi model [*Colloid Polym. Sci.* **2004**, 282, 910-917] for spherical polyelectrolyte brushes which takes into account the entropic effect of the counterions and enables one to estimate the ionic concentration inside the brush [2]. The transition from an osmotic to the salted brush regime is analysed in detail. For the scaling of the brush height a power law is found having an exponent of 0.24 ± 0.01 which ranges between the values expected for spherical and planar brushes [3,4]. At pH 4 a strong transition from a brush to a pancake conformation takes place.

References

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