

Abstract Submitted
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Cylindrical Polyelectrolyte Brushes¹ RIKKERT NAP, IGAL SZLEIFER, Department of Chemistry, Purdue University, 560 Oval Drive West-Lafayette, IN 47907 — Polyelectrolytes tethered to a cylindrical surface are investigated. The surface can either be formed by e.g. another polymer, a carbon nanotube, or protein chain. The cylindrical polyelectrolyte brush is of interest to us because it forms a model system for the description of the properties of aggrecan, which is one of the main components of cartilage. We used a molecular theory to theoretically investigate the properties of aggrecan. We computed the potential of mean force between two aggrecan molecules. The influence of the cylindrical geometry, the salt concentration, and the pH of the solution upon the conformation of the aggrecans, was investigated. The findings for cylindrical electrolyte brushes were contrasted with the behavior of planar electrolyte brushes, which revealed a large influence of the geometry upon the properties of the brush layer.

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