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Presentation Title:

Materials: Synthesis, Structure, Properties

Abstract:

With metallocsupramolecular coordination polyelectrolytes (MEPE) and their corresponding polyelectrolyte amphiphile complexes (PAC), novel components are readily available as functional modular elements in molecular based devices and materials. Metal ion induced self-assembly of ditopic ligands, based on bisterpyridines, and transition metal ions result in formation of water soluble MEPE, and their complexation with negatively charged amphiphiles results in PAC which are soluble in organic solvents and form liquid crystalline phases. The structure of MEPE is studied using analytical ultracentrifugation and electron diffraction. The molar mass of the MEPE depends on concentration. Langmuir monolayers and Langmuir-Blodgett multilayers of PAC were prepared, which are highly ordered and anisotropic, but show different structural characteristics, e. g. in the assembly of the amphiphiles. Finally, spin-coating of PAC on graphite results in perfectly straight nanostructures. The resulting materials show novel magnetic as well as electrochromic properties that will be discussed in detail. The modularity of the outlined approach to functional materials provides extensive control of structure and function and permits fabrication of architectures with structures at several length scales.

References :

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