

## Amphiphilically equipped poly(para-phenylene)s with the potential to segregate lengthwise

### PMSE 228

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The self-assembly of amphiphiles in solution creates various supramolecular structures, such as thermotropic and lyotropic mesophases, micelles, vesicles, and ordered thin films. Generally the field has been subdivided into traditional surfactants and block copolymers (bcps). Common surfactants have low molecular weight and a compact polar head group, whereas bcps have polar linear blocks. The aggregation behavior of both classes has been extensively studied. Recently poly(para-phenylene)s (PPPs) were equipped amphiphilically both using ionic and non-ionic polar groups. These novel amphiphiles have, apart to the above systems, the potential to segregate lengthwise (along the backbone). Consequently an unprecedented aggregation behavior was to be expected and actually found. Figure 1 illustrates the aggregation of individual short and long chain PPPs into cylindrical bundles whereby the bundle's diameter is monodispers for a given set of conditions. An enormous increase of persistence length from approx. 13 nm for the individual chain to 260 nm for the assembly was observed.

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