Beitrag ID: **4** Typ: **Talk**

Wetting of Surface Grafted Hydrophilic-b-Hydrophobic Block Copolymer Brushes

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We studied the wetting of diblock copolymer brushes by water. Goal of this work is to understand how the thickness of the bottom and top copolymer block affect the wetting behavior, respectively. For the synthesis of diblock copolymer brushes we grafted the bottom block, a hydrophilic poly(2-hydroxyethyl methacrylate) (PHEMA) brush from a silanized silicon wafer. Than we grafted the top block, a hydrophobic polystyrene (PS) or poly(2-ethylhexyl methacrylate) (PEtHexMA) from the PHEMA block. Hereby, we obtained a hydrophilic-b-hydrophobic diblock copolymer. The top copolymer block determined the advancing contact angle of the copolymer brushes in their pristine state. The receding contact angle depends on the thickness of the top and bottom copolymer block. For a top copolymer thickness < 30 nm the receding contact angle decreased. An increase of the thickness of the bottom block to 35 nm decreased the receding contact angle as well. By exposing our diblock copolymer brush with a thickness of the top block >30 nm to warm water the wetting properties switched from a hydrophobic to a hydrophilic. The surface switched back to the hydrophobic state by exposing it to toluene and subsequent temperature annealing.

Hauptautoren: LEIBAUER, Benjamin; Dr. DE LOS SANTOS PEREIRA, Andres (Institute of Macromolecular Chemistry, Prague); Herr DORADO DAZA, Diego Fernando (Institute of Macromolecular Chemistry, Prague); Dr. POP-GEORGIEVSKI, Ognen (Institute of Macromolecular Chemistry, Prague); Prof. BUTT, Hans-Jürgen (MPIP); Dr. BERGER, Rüdiger (MPIP)

Vortragende(r): LEIBAUER, Benjamin

Sitzung Einordnung: Short Talks