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**Switchable Adhesion from Bicomponent Polymeric Brushes**

HARIS RETSOS, ESPCI, PARIS, GANNA GORODYSKA, ANTON KIRIY, MANDRED STAMM, IPF, Dresden, COSTANTINO CRETON, ESPCI, PARIS — We investigated the adhesive and wetting properties of bicomponent polymeric brushes made from end functionalized hydrophilic and hydrophobic polymer chains. The molecular organization of the mixed brush could be varied reversibly by exposure to selective solvents for the two polymers. Adhesive properties were tested by debonding a flat ended probe from soft pressure-sensitive-adhesives (hydrophobic & hydrophilic) and wetting properties were tested by contact angle measurements of water & diiodomethane droplets. The bicomponent brushes were chemically grafted on silicon wafers from end-functionalized chains. Wetting experiments were done directly on the wafers while for adhesion experiments, the wafers were glued on the flat end of the probe prior to the tests. In all cases the organization of the bicomponent brush could be modified reproducibly and reversibly by exposure to selective solvents. Following this strategy we succeeded to create remarkably stable adaptive polymer surfaces that can modify their adhesion and wetting reversibly and also tune them by varying the ratio of the bicomponent brush layer.

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