

Supplementary Material

Persistence Length of Cylindrical Brush Molecules Measured by Atomic Force Microscopy

Nikhil Gunari, Manfred Schmidt^{*}, Andreas Janshoff^{*}

*Institut für Physikalische Chemie, Johannes-Gutenberg-Universität, Jakob-Welder-Weg 11,
55128 Mainz, Germany. Fax +49 6131 3922970.*

* to whom correspondence should be addressed:

E-mail: janshoff@mail.uni-mainz.de; mschmidt@mail.uni-mainz.de

Table 1: Characterization (molar mass M_w , radius of gyration R_g , hydrodynamic radius R_h) of the macro initiator poly-2-bromoisobutyryloxyethyl methacrylate (PBIEM) in THF.

$M_w/\text{g mol}^{-1}$	R_g/nm	R_h/nm	$M_w/M_n^{[1]}$	$f/\%^{[2]}$	$N_w^{\text{Br}}{}^{[3]}$	$L_w^{\text{LS}}/\text{nm}^{[4]}$
213000	20.8	10.5	1.37	94.7	744	196

^[1] Determined by GPC (polystyrene calibration), ^[2] Conversion of HEMA into bromoisobutyrate macro initiator, ^[3] Number of bromoisobutyrate groups per chain, ^[4] Contour length determined by light scattering ($L_w^{\text{LS}} = 0.25P_w$).

Table 2: Characterization of the PNIPAM brushes in water at 20°C and average contour length L_w^{AFM} of the molecules determined by AFM.

$M_w \times 10^{-6}/\text{g mol}^{-1}$	R_g/nm	R_h/nm	$L_w^{\text{AFM}}(T = 20 \text{ }^\circ\text{C})/\text{nm}$
10 ± 1	61.0	51.8	110

Scheme 1. Synthesis of the macro initiator and the cylindrical PNIPAM brush polymers.

