SUPPORTING INFORMATION

Controlled and Tunable Design of Polymer Interface for Immobilisation of Enzymes: Does Curvature Matter?

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Table S1. List of the synthesized flat reference samples with their corresponding parameters.

Sample ID	thickness^{dry} [nm]	thickness^{swollen} [nm]	Swelling ratio	M_n [g/mol]	Grafting density [nm^{-2}]
Flat PDMAEMA-100	51.9	175.4	3.38	62 000	0.66
Flat PDMAEMA-50	25.3	102.0	4.03	59 000	0.34
Flat PDMAEMA-25	12.5	40.9	3.27	50 000	0.20
Flat PDMAEMA-10	4.2	9.5	2.25	62 000	0.05

Table S2. List of the synthesised core-shell particles with their corresponding parameters.

Sample ID	Core size	Size^{DLS} [nm]	Shell thickness^{TGA} [nm]	M_n [g/mol]	Grafting density [nm^{-2}]
800 nm-PDMAEMA-100	800 nm	3115	46	37 000	0.83
800 nm-PDMAEMA-50	800 nm	2933	20	61 000	0.21
800 nm-PDMAEMA-25	800 nm	2243	9	56 000	0.10
800 nm-PDMAEMA-10	800 nm	1549	2	40 000	0.04

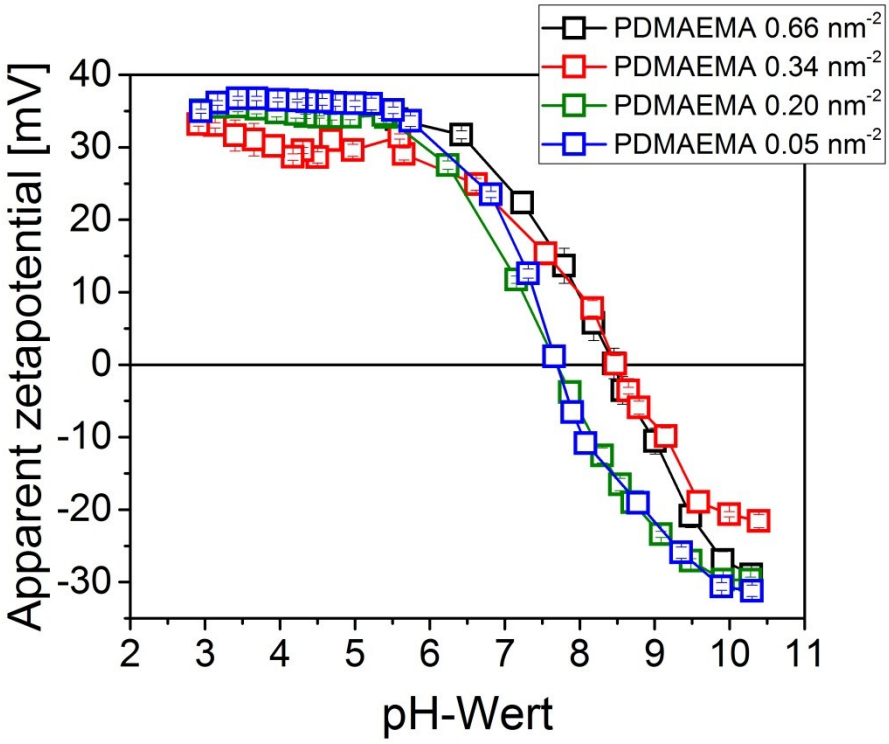

Figure S1. Apparent zetapotential as a function of pH for planar PDMAEMA brushes with different grafting densities.

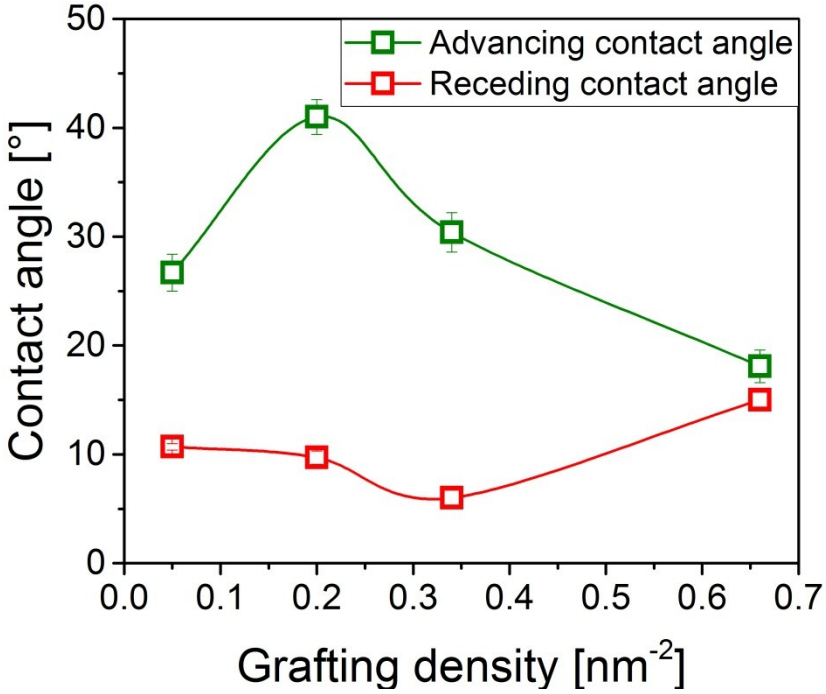

Figure S2. Advancing and receding contact angles on PDMAEMA-modified surfaces determined by ADSA captive bubble measurements at pH 3.

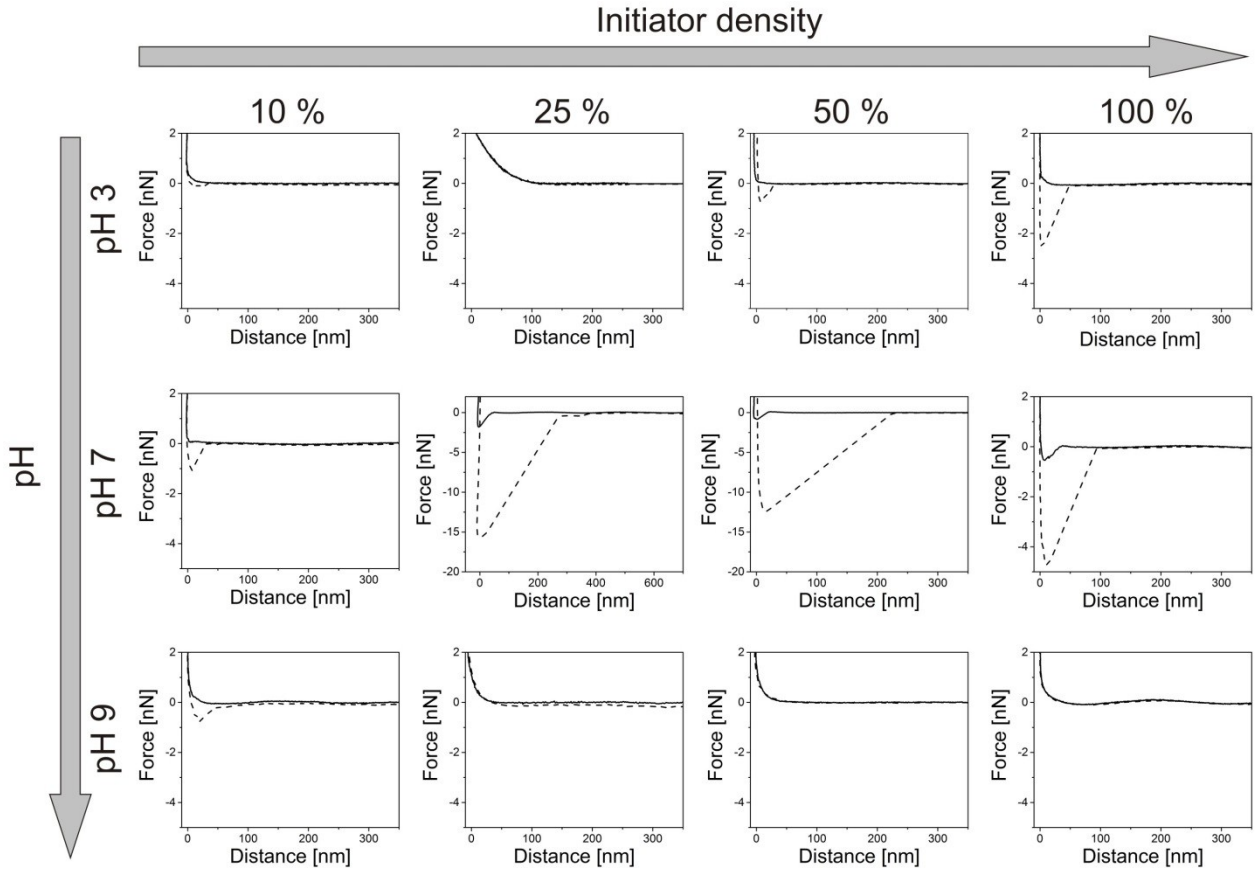

Figure S3. AFM force-distance curves taken measured at pH 3, 7 and 9 for PDMAEMA brushes with different grafting densities on planar substrates. Solid line: approaching curve; dashed line: retraction curve.

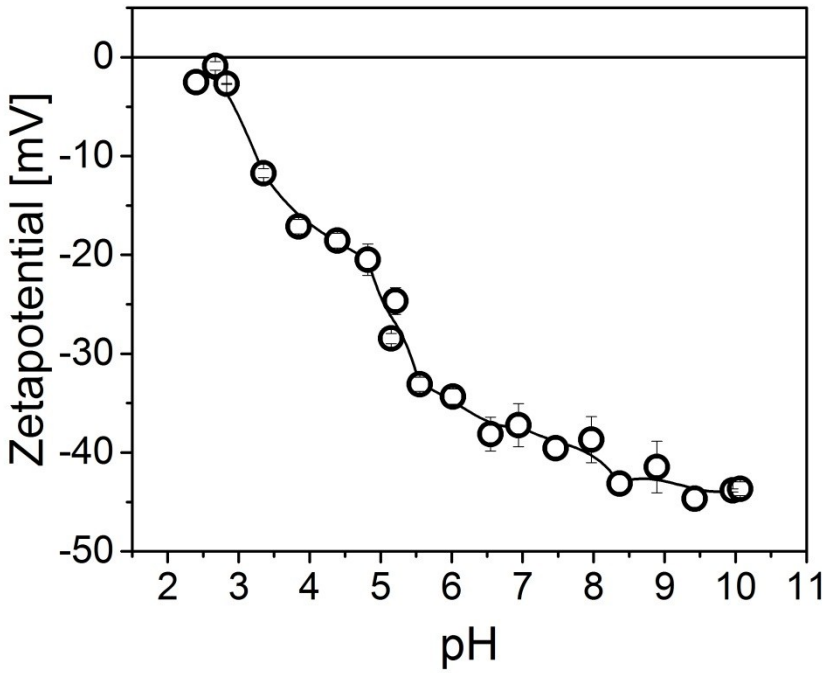

Figure S4. Zetapotential of laccase from *Trametes versicolor* versus pH.

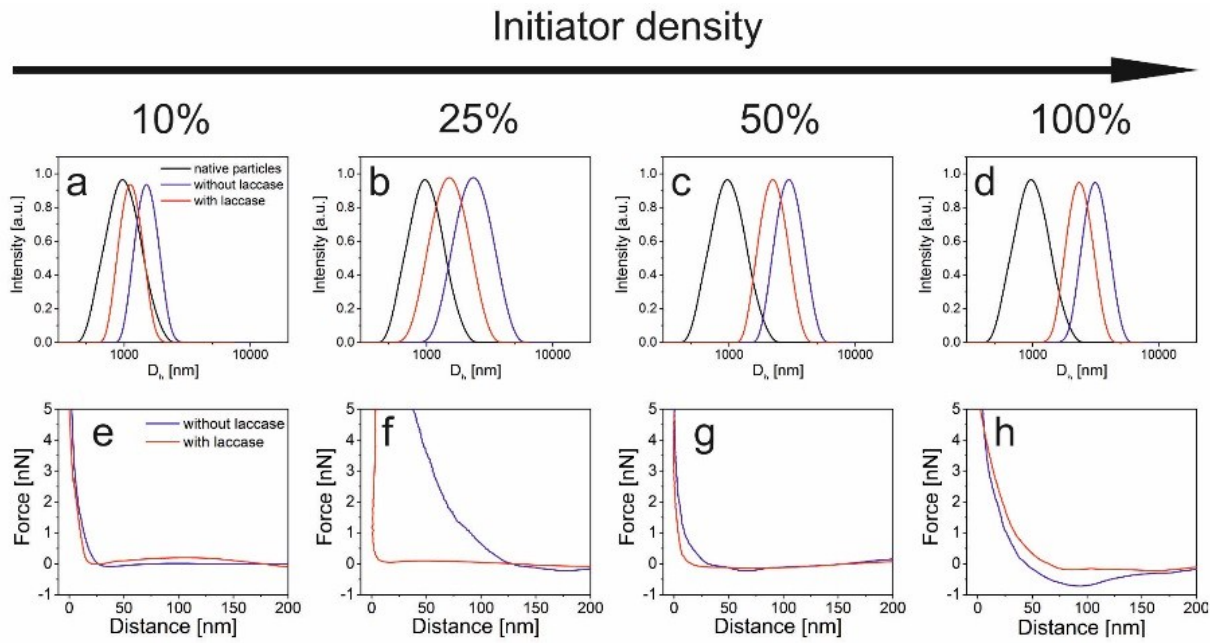

Figure S5. Particle size distributions (DLS) (S4a-d) and force distance curves (S4e-h) of PDMAEMA-modified particles (core diameter 800 nm) with different grafting densities before (blue lines) and after immobilisation (red lines) of laccase. All measurements were carried out in acetate buffer solution 10^{-2} M at pH 4.

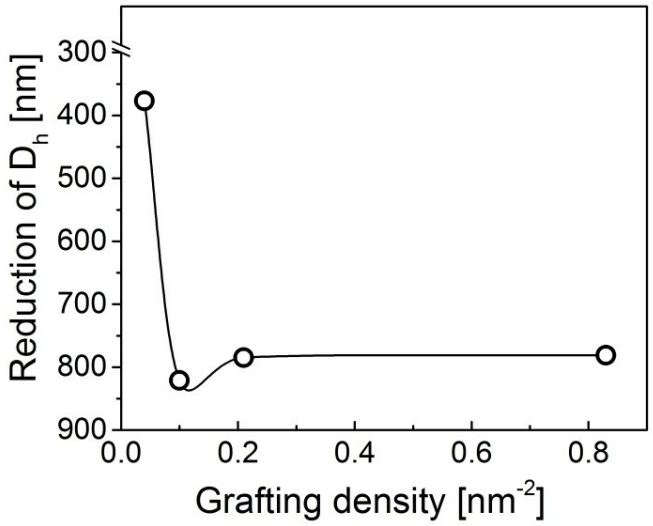

Figure S6. Change of the hydrodynamic diameter of PDMAEMA-modified particles (core diameter 800 nm) after loading with laccase versus grafting density.

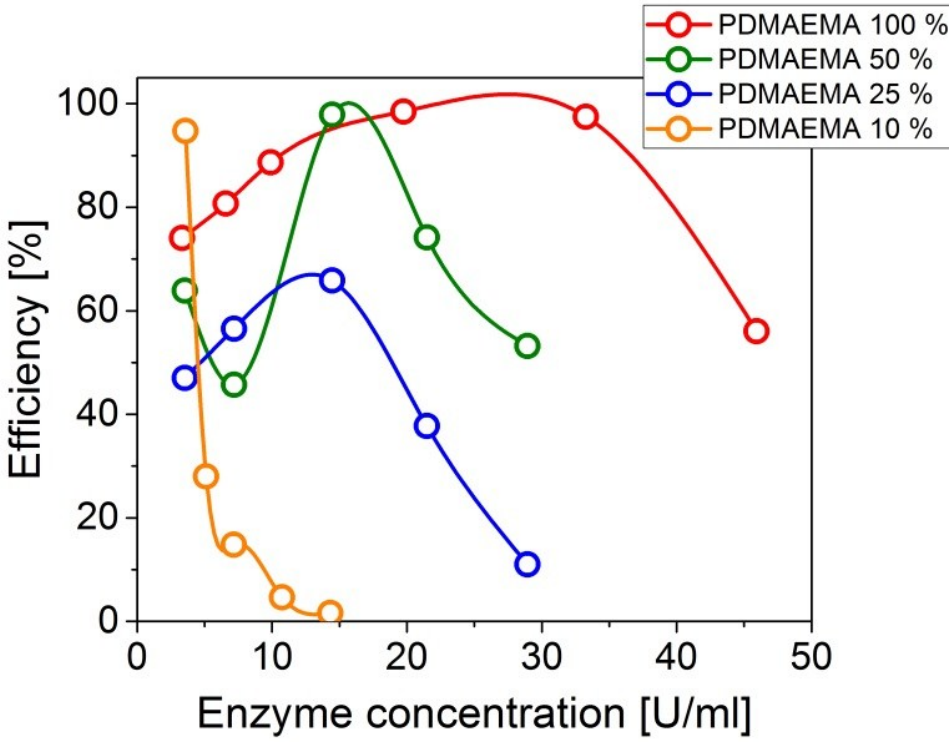

Figure S7. Efficiency of the immobilisation on PDMAEMA-modified particles (core diameter 800 nm) versus enzyme concentration.

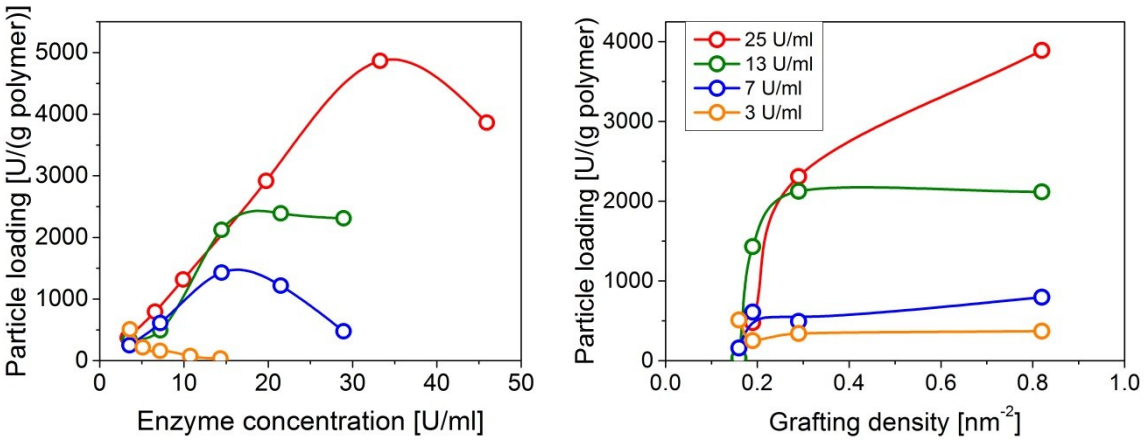

Fig. S8. Particle loading with laccase versus enzyme concentration (left) and grafting density (right).