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Supplementary Information for the Article

Thermally induced gradient of properties on a superhydrophobic magnesium alloy surface

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Table S1 lists the electrochemical parameters for reference sample S0 and test samples S1 to S4 (corrosion potentials and currents, as well as catodic (b_c) and anodic (b_a) Tafel slopes) derived from the potentiodynamic polarization curves presented in the Figure 1a in the main text of the Article.

Figures S1 and S2 present AFM images for test samples and different locations on the gradient sample, respectively.

Table S1. Summary of electrochemical parameters of fabricated samples derived from the potentiodynamic polarization curves (Figure 1a)

Sample #	Corrosion potential, V vs Ag/AgCl	Corrosion current, A cm^{-2} °	Tafel slopes, V/decade	
			b_c	b_a
S0	−1.490	2.8×10^{-5}	−0.120	0.032
S1	−1.703	2.5×10^{-6}	−0.112	0.134
S2	−1.555	2.0×10^{-9}	−0.093	0.112
S3	−1.589	3.0×10^{-10}	−0.128	0.101
S4	−1.275	8.0×10^{-12}	−0.239	0.236

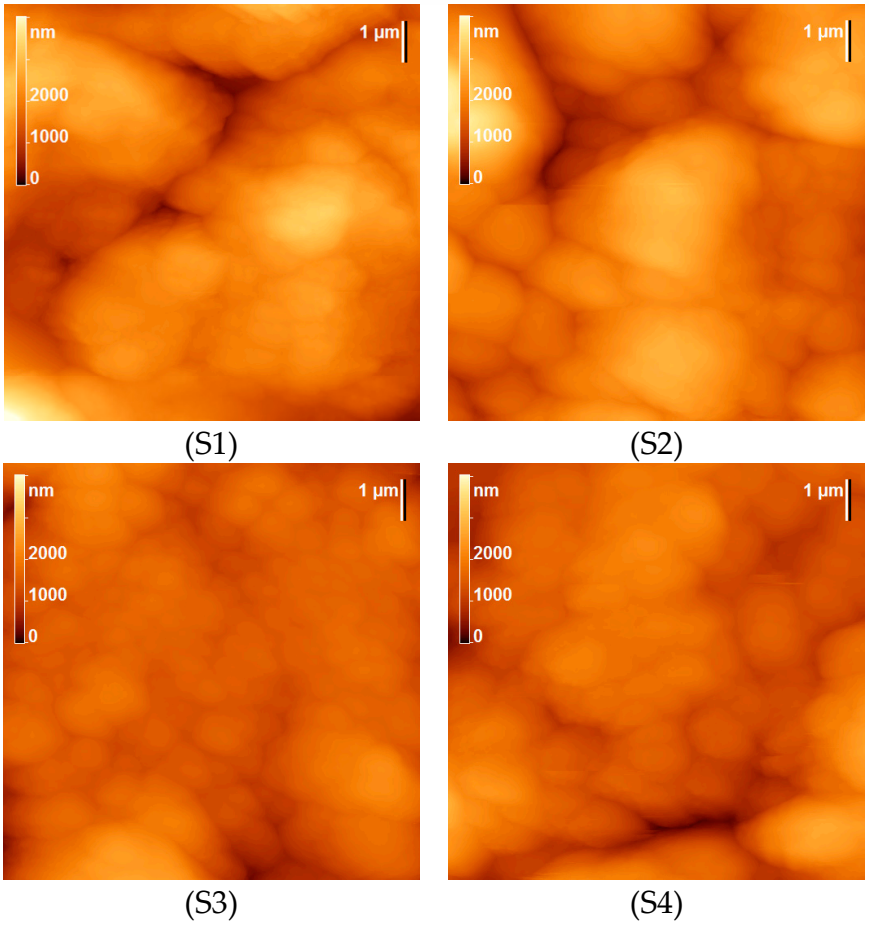

Figure S1. AFM images of the fabricated samples S1 to S4.

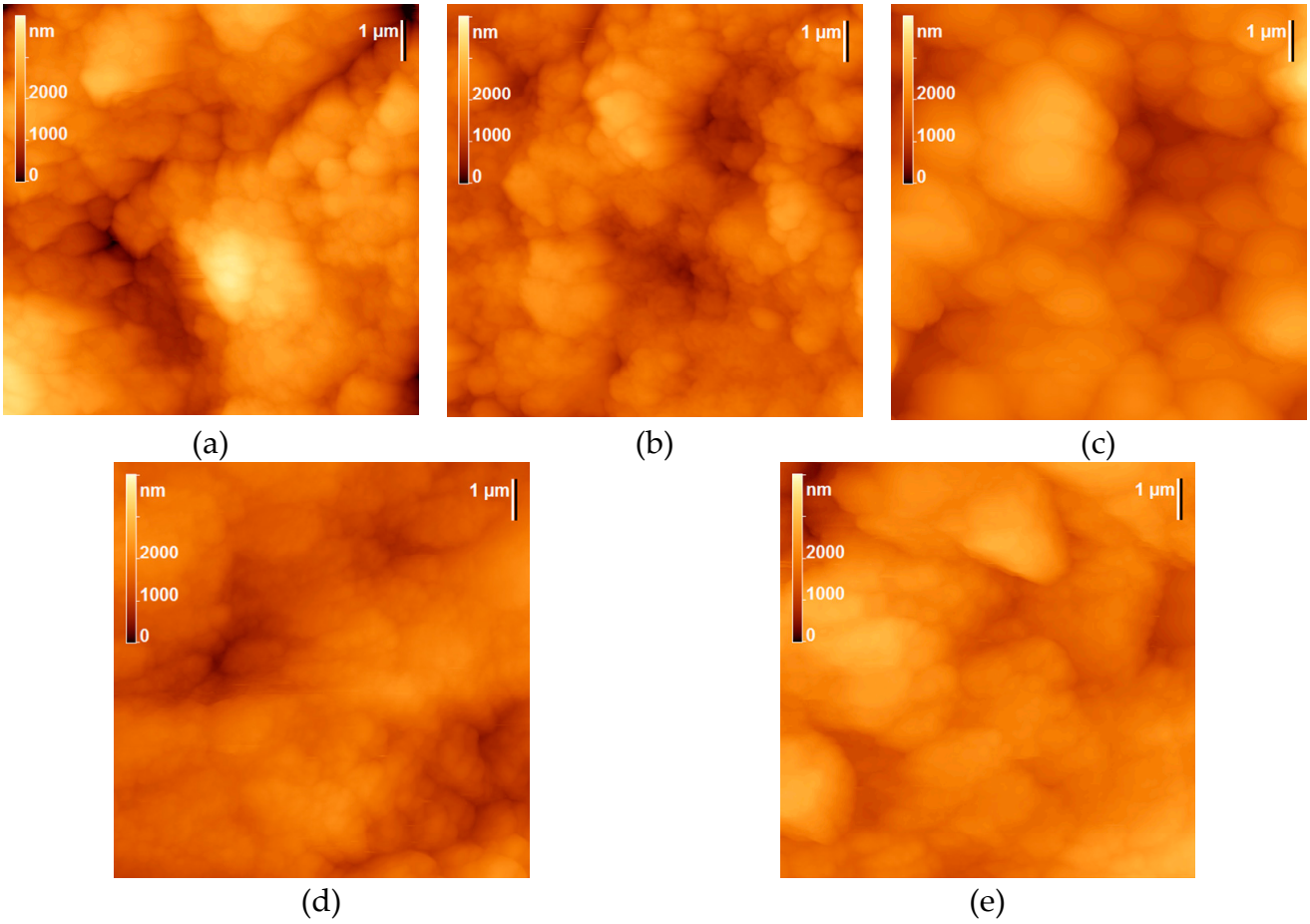

Figure S2. AFM images of the gradient sample S4 with a laser-processed area of 20×80 mm². Sequential images correspond to distances of (a) 15, (b) 30, (c) 45, (d) 60, and (e) 75 mm from the starting edge of laser scanning;

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