

Electronic Supporting Information

Spatial resolution comparison of AC-SECM with SECM and their characterizations of self-healing performance of hexamethylene diisocyanate trimer microcapsule coatings

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S1 AC-SECM images

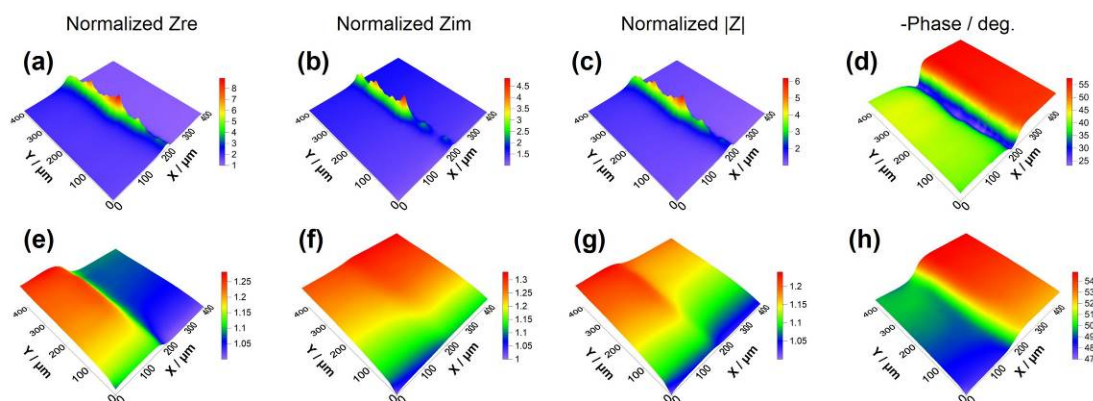


Fig. S1 AC-SECM images of a self-healing coated surface immersed in a solution of 0.6 M NaCl. DC potential: 0 V. Amplitude of the AC potential signal: 10 mV, and frequency of 37301 Hz. Tip diameter: 25 μm ; tip-substrate distance: 15 μm . (a-d) sample with scratch. (e-h) healed sample. Scanning step of the UME tip was 12.5 μm .

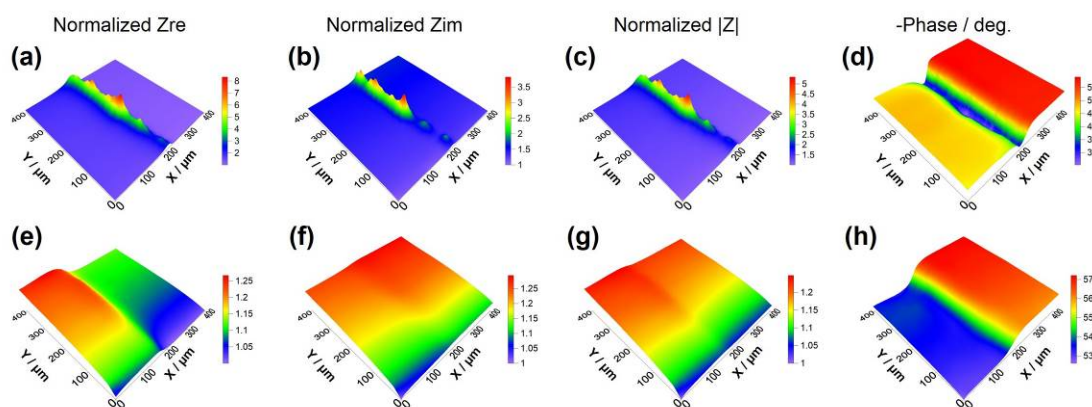


Fig. S2 AC-SECM images of a self-healing coated surface immersed in a solution of 0.6 M NaCl. DC potential: 0 V. Amplitude of the AC potential signal: 10 mV, and frequency of 23190 Hz. Tip diameter: 25 μm ; tip-substrate distance: 15 μm . (a-d) sample with scratch. (e-h) healed sample. Scanning step of the UME tip was 12.5 μm .

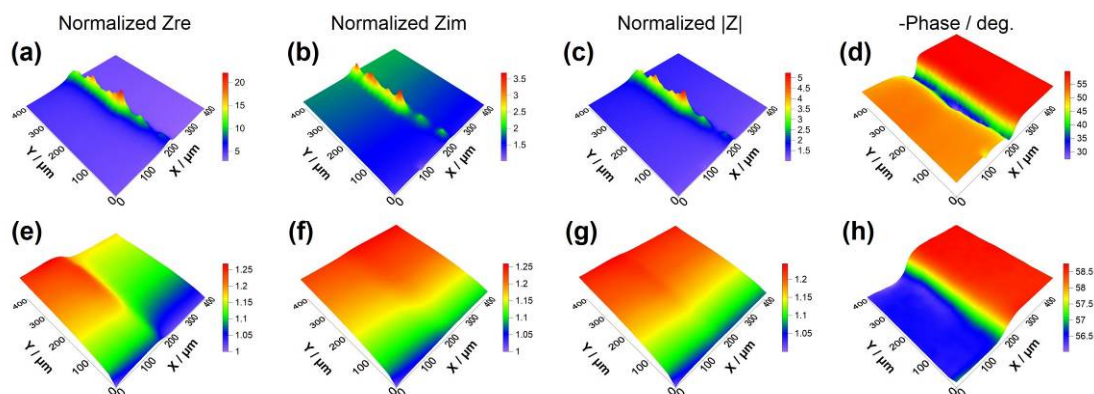


Fig. S3 AC-SECM images of a self-healing coated surface immersed in a solution of 0.6 M NaCl. DC potential: 0 V. Amplitude of the AC potential signal: 10 mV, and frequency of 14417 Hz. Tip diameter: 25 μm ; tip-substrate distance: 15 μm . (a-d) sample with scratch. (e-h) healed sample. Scanning step of the UME tip was 12.5 μm .

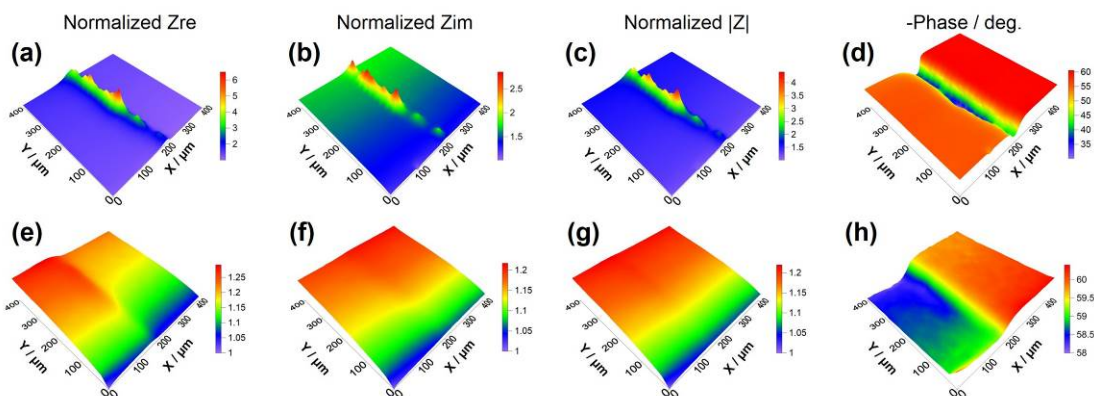


Fig. S4 AC-SECM images of a self-healing coated surface immersed in a solution of 0.6 M NaCl. DC potential: 0 V. Amplitude of the AC potential signal: 10 mV, and frequency of 8963 Hz. Tip diameter: 25 μm ; tip-substrate distance: 15 μm . (a-d) sample with scratch. (e-h) healed sample. Scanning step of the UME tip was 12.5 μm .

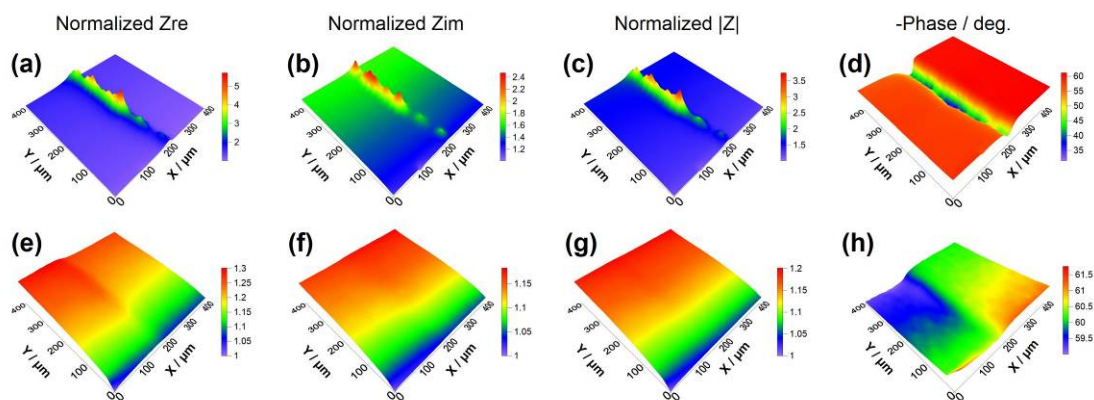


Fig. S5 AC-SECM images of a self-healing coated surface immersed in a solution of 0.6 M NaCl. DC potential: 0 V. Amplitude of the AC potential signal: 10 mV, and frequency of 5572 Hz. Tip diameter: 25 μm ; tip-substrate distance: 15 μm . (a-d) sample with scratch. (e-h) healed sample. Scanning step of the UME tip was 12.5 μm .

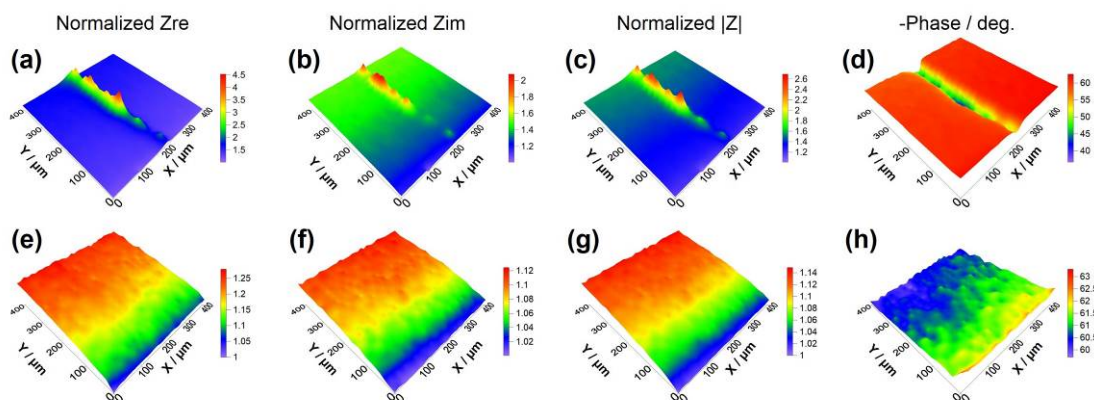


Fig. S6 AC-SECM images of a self-healing coated surface immersed in a solution of 0.6 M NaCl. DC potential: 0 V. Amplitude of the AC potential signal: 10 mV, and frequency of 2154 Hz. Tip diameter: 25 μm ; tip-substrate distance: 15 μm . (a-d) sample with scratch. (e-h) healed sample. Scanning step of the UME tip was 12.5 μm .

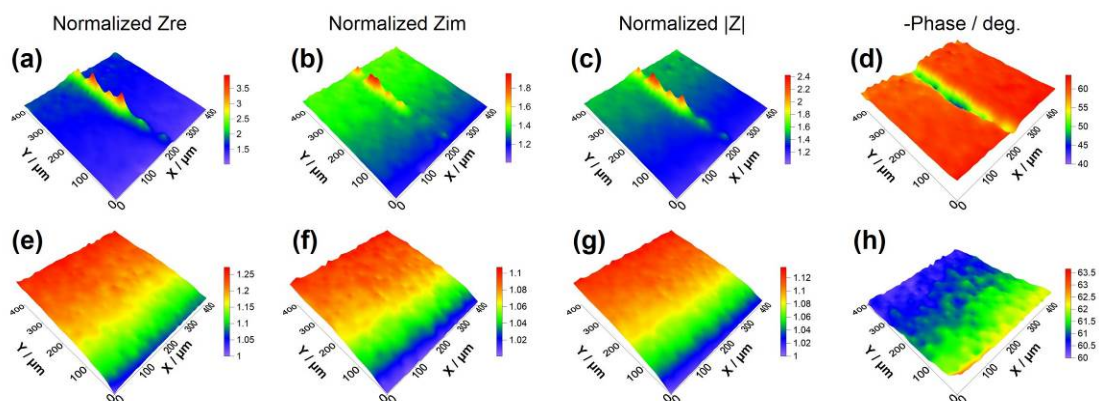


Fig. S7 AC-SECM images of a self-healing coated surface immersed in a solution of 0.6 M NaCl. DC potential: 0 V. Amplitude of the AC potential signal: 10 mV, and frequency of 1339 Hz. Tip diameter: 25 μm ; tip-substrate distance: 15 μm . (a-d) sample with scratch. (e-h) healed sample. Scanning step of the UME tip was 12.5 μm .

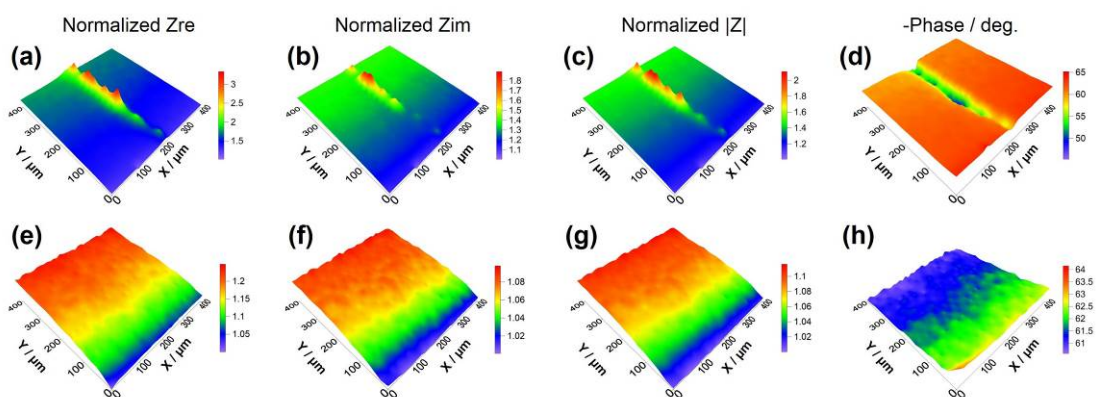


Fig. S8 AC-SECM images of a self-healing coated surface immersed in a solution of 0.6 M NaCl. DC potential: 0 V. Amplitude of the AC potential signal: 10 mV, and frequency of 832 Hz. Tip diameter: 25 μm ; tip-substrate distance: 15 μm . (a-d) sample with scratch. (e-h) healed sample. Scanning step of the UME tip was 12.5 μm .

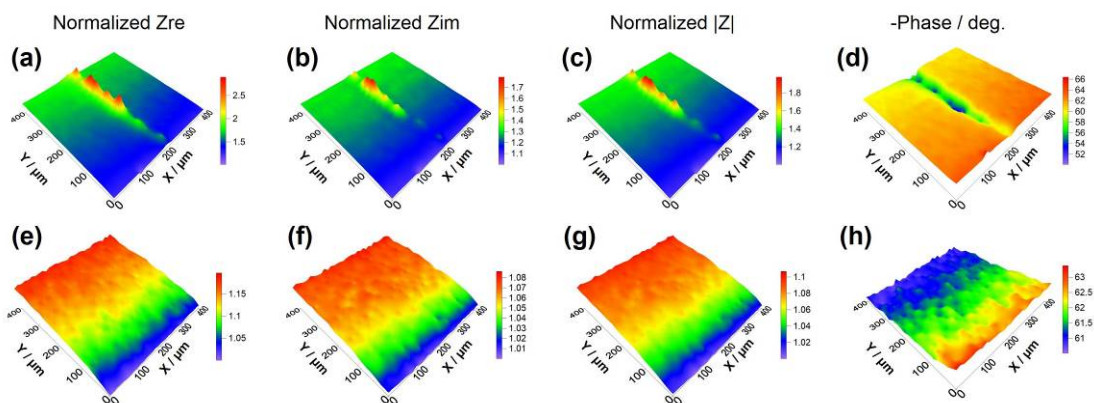


Fig. S9 AC-SECM images of a self-healing coated surface immersed in a solution of 0.6 M NaCl. DC potential: 0 V. Amplitude of the AC potential signal: 10 mV, and frequency of 517 Hz. Tip diameter: 25 μm ; tip-substrate distance: 15 μm . (a-d) sample with scratch. (e-h) healed sample. Scanning step of the UME tip was 12.5 μm .

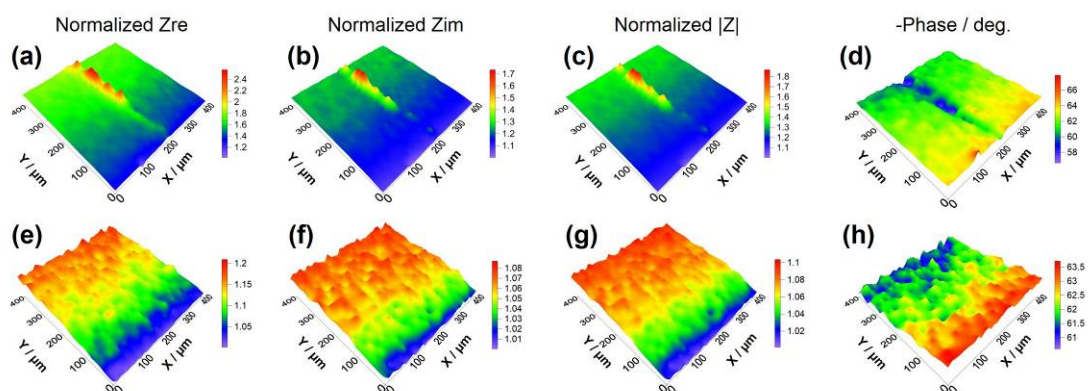


Fig. S10 AC-SECM images of a self-healing coated surface immersed in a solution of 0.6 M NaCl. DC potential: 0 V. Amplitude of the AC potential signal: 10 mV, and frequency of 312 Hz. Tip diameter: 25 μm ; tip-substrate distance: 15 μm . (a-d) sample with scratch. (e-h) healed sample. Scanning step of the UME tip was 12.5 μm .