

Polymer dielectrics for high-temperature capacitive energy storage suffer from low energy density and poor efficiency, which is mainly attributed to the exponential growth of conduction loss at high electric fields. Here, a surface strengthening strategy to inhibit the ...

Surface topography of (f) pristine ANSI 304 stainless steel, steel surface processed by FLP (g, h, i) with pulse energy of 0.25 uJ (fluence of 0.3 J cm⁻²) and laser energy density of 0.5, 1, 1.5 × 10⁴ J cm⁻², respectively. (Sa: arithmetic mean deviation of surface roughness; Sq: root mean square deviation of surface roughness; Sz: maximum height of profile.)

1 Surface Strengthening of Stainless Steels by Nondestructive Laser Peening Pengjie Wang¹, Qiang Cao^{1, *}, Sheng Liu¹ and Qing Peng^{2,3} ¹The Institute of Technological Sciences, Wuhan University ...

Despite increased surface roughness, the synergistic action of compressive residual stress, work hardening, and heterogeneous near-surface microstructure prolongs the ...

A reinforcement of 33.6 % was achieved on surface hardness of American National Standards Institute (ANSI) 301 stainless steel with the pulse energy of 0.375 uJ (fluence of 0.45 J cm²) and ...

Disordered polarization and distribution, chemical inhomogeneity, and insulating boundary layers are achieved to provide the fundamental structural origin of the relaxation ...

Li et al. [44,45] strengthened the surface of M2 HSS with a plasma beam, and the hardness of M2 HSS increased by approximately 150 HV in the near-surface layer of approximately 250 um under the working condition treatment of an acceleration voltage of 200 kV, beam density of 180 A/cm², the pulse width of 150 us, and a number of pulses of 10 times.

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