

Polishing of Alumina Ceramic Gears by Picosecond Pulsed Laser

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Supplementary material

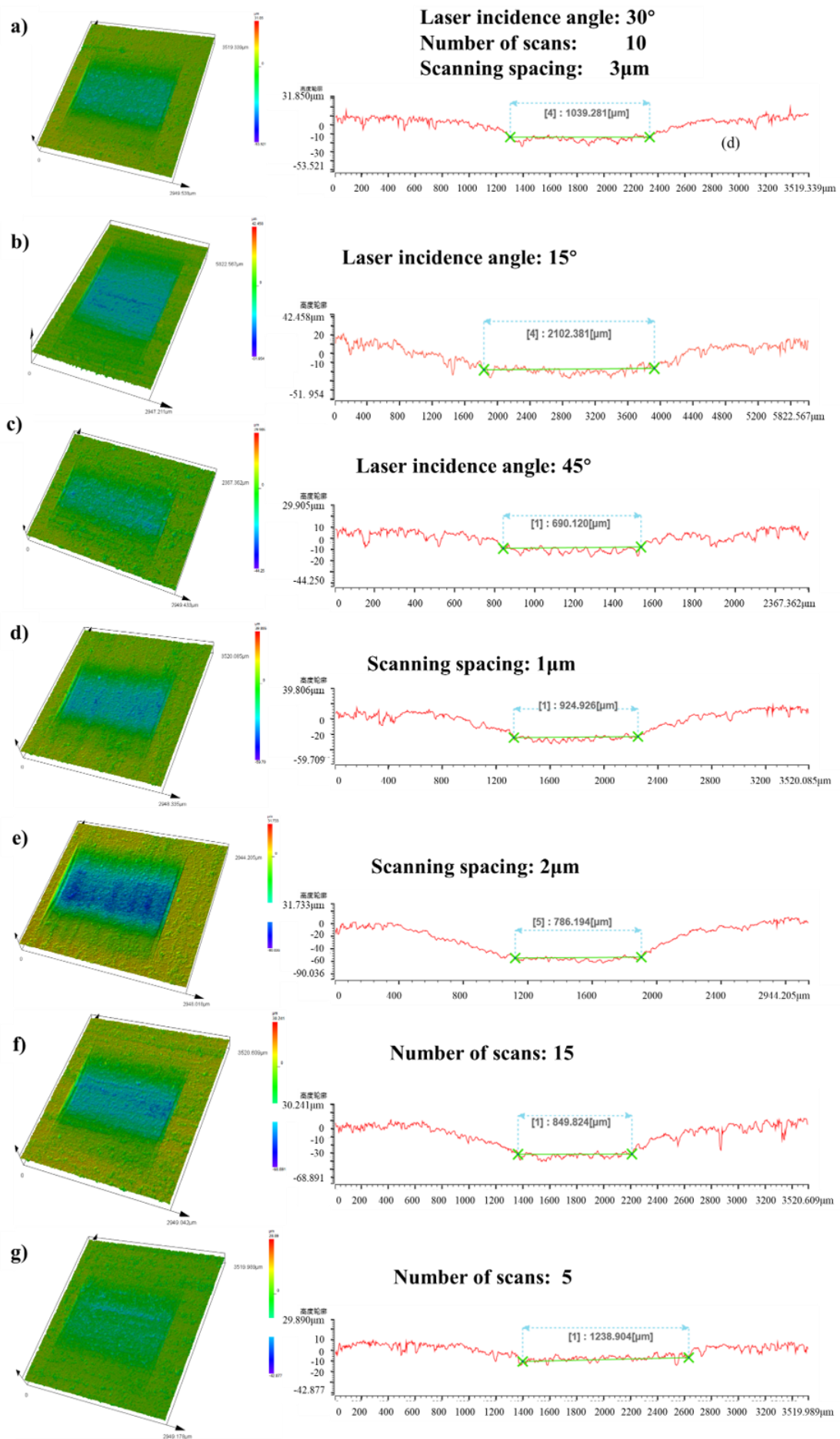


Fig. S1. Effect of laser parameter variation on processing grid size a) Processing grid with base parameters, b) and c) Processing grid variation when changing laser incidence angle, d) and e) Processing grid variation when changing scanning spacing. f) and g) Processing grid variation when changing number of scans

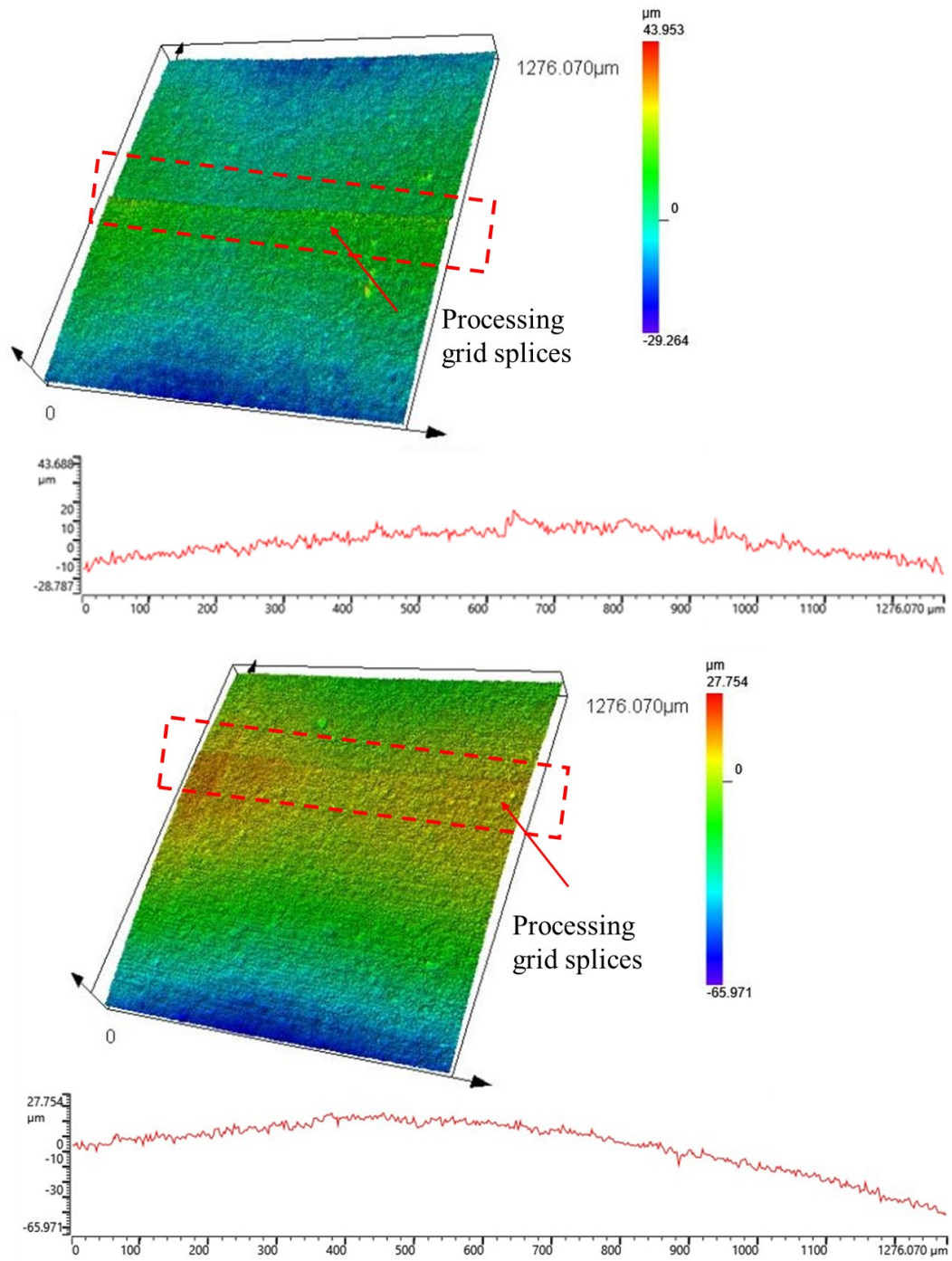


Fig. S2. Splice seam under repeated scanning of a single processing grid

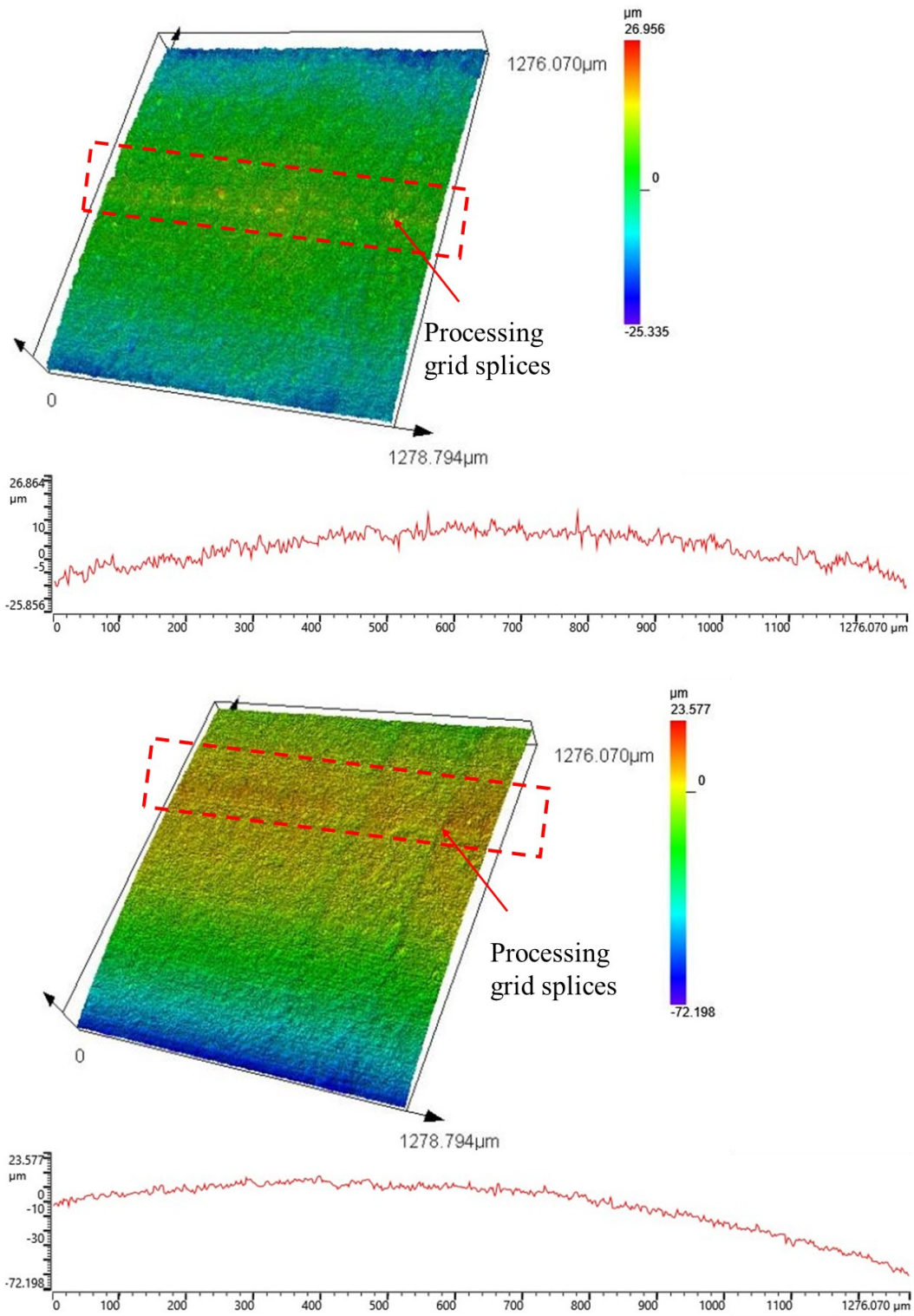


Fig. S3. Splice seam under cross-stacked scanning of A-B grids

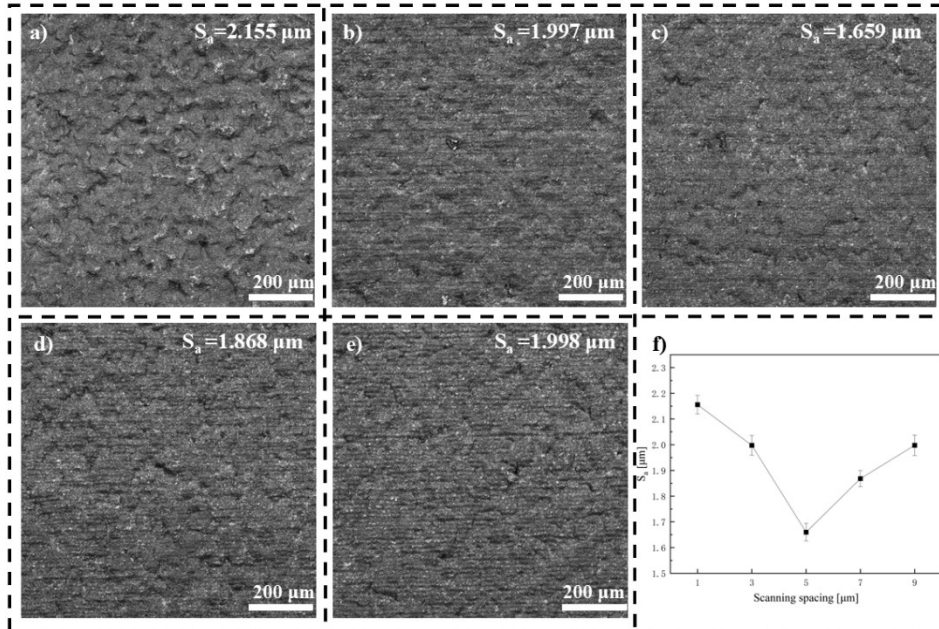


Fig. S4. Tooth surface morphology at different scanning spacing a) 1 μm, b) 3 μm, c) 5 μm, d) 7 μm, e) 9 μm and f) Surface roughness trend with scanning spacing

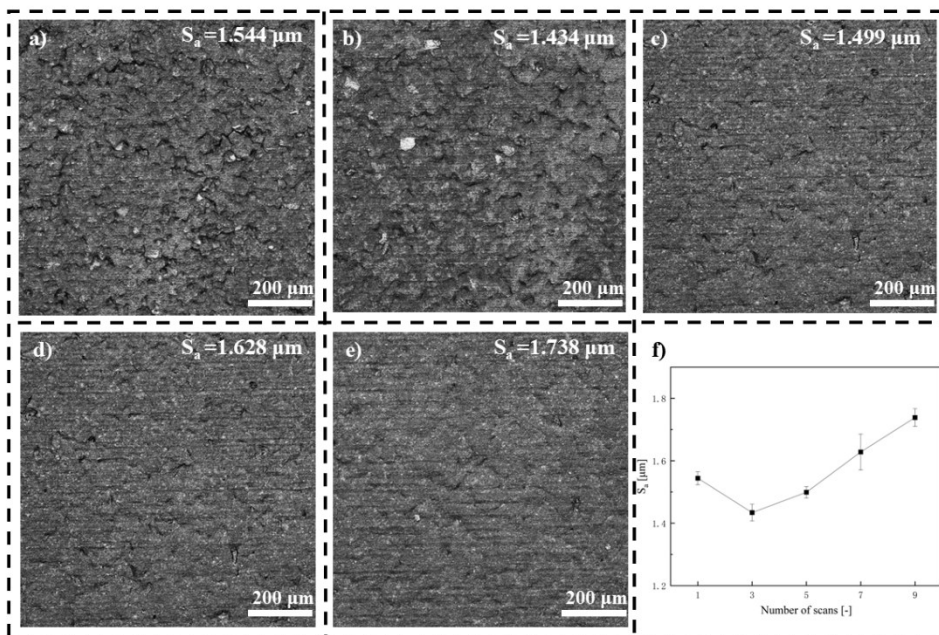


Fig. S5. Tooth surface morphology with different number of scans a) 1, b) 3, c) 5, d) 7, e) 9 and f) Surface roughness trend with the number of scans

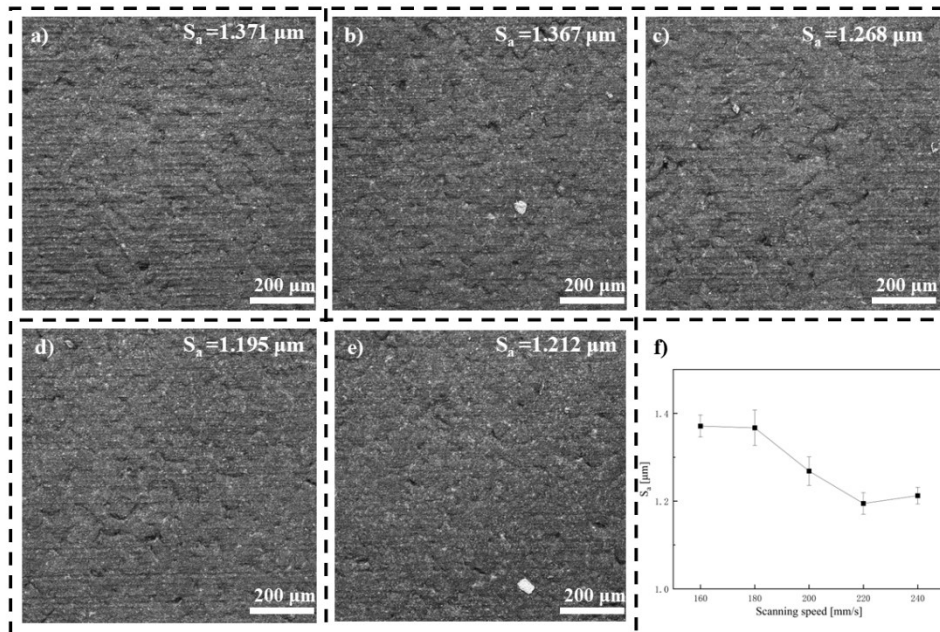


Fig. S6. Tooth surface morphology at different scanning speeds

a) 160 mm/s, b) 180 mm/s, c) 200 mm/s, d) 220 mm/s, e) 240 mm/s and f) Surface roughness trend with scanning speed

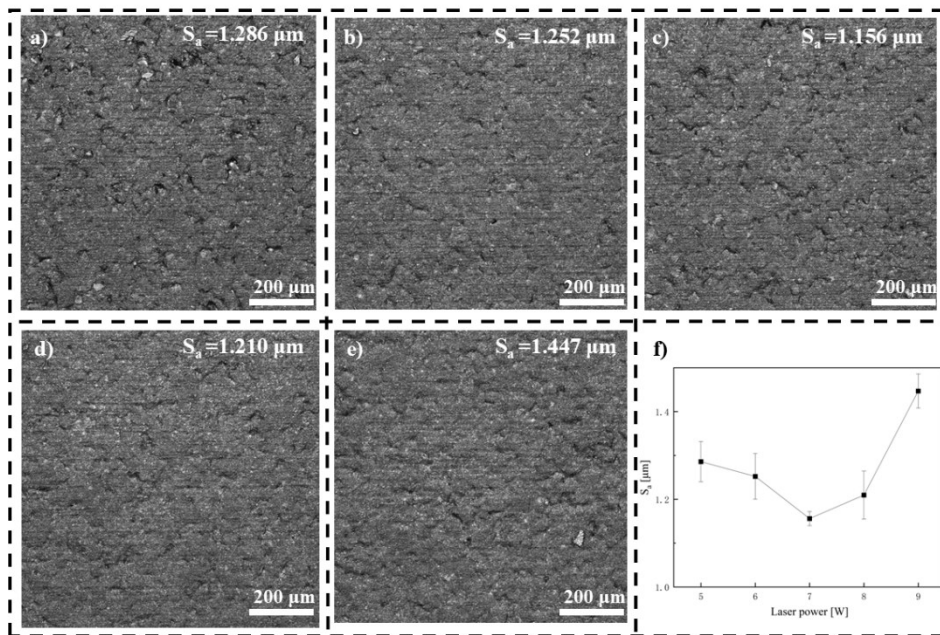


Fig. S7. Tooth surface morphology at different laser powers

a) 5 W, b) 6 W, c) 7 W, d) 8 W, e) 9 W and f) Surface roughness trend with laser power