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Robust Fabrication of µ-patterns with tunable wetting properties: hydrophilic to ultrahydrophobic by vacuum process

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1. XPS spectra for different P value, µ-pillar structure.

The XPS spectra recorded for different P value has been given below.

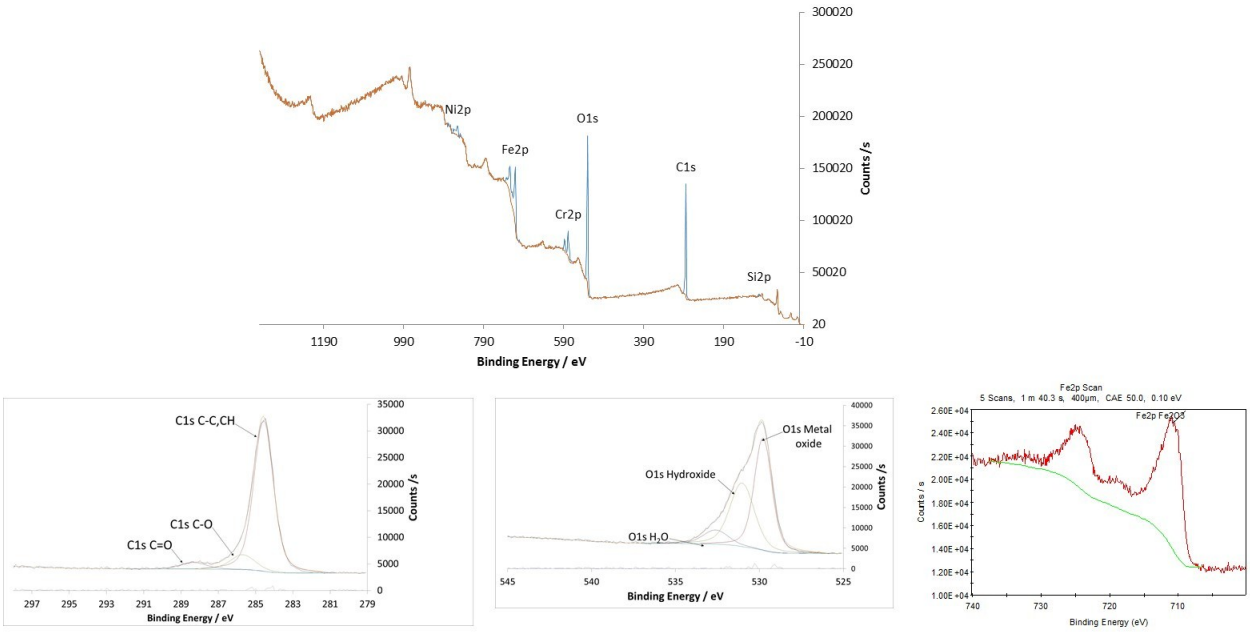

Figure S1. XPS survey and high-resolution C1s, Fe 2p, and O 1s spectra for AISI 304, P: 20 µ-pillar

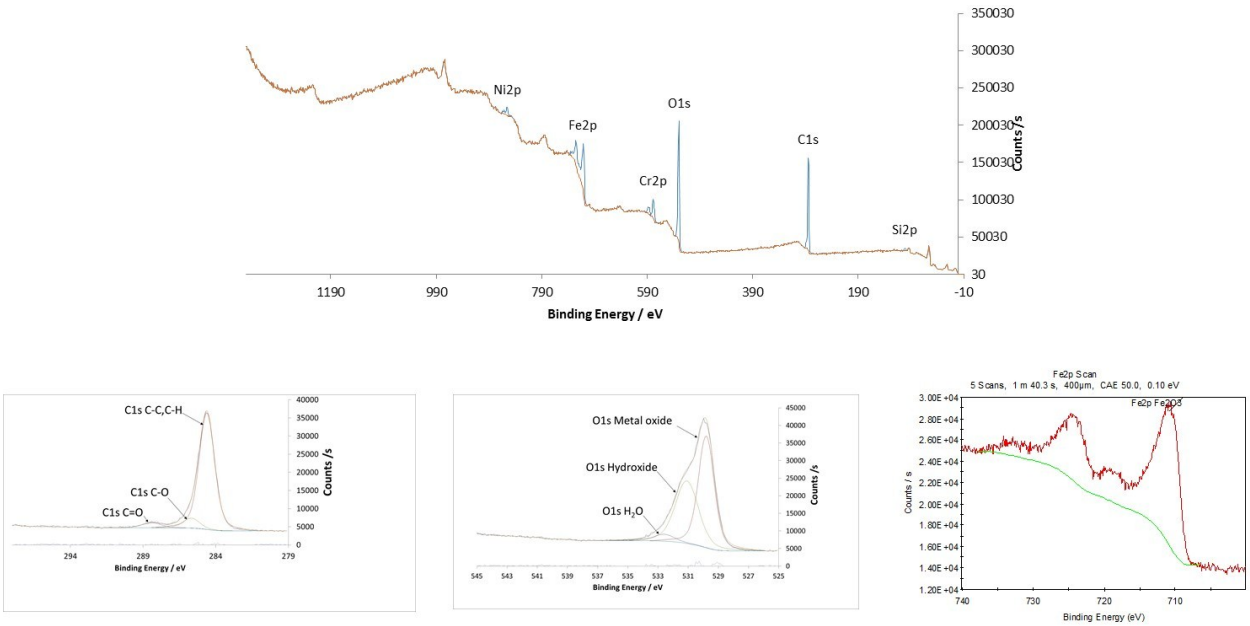

Figure S2. XPS survey and high-resolution C1s, Fe 2p, and O 1s spectra for AISI 304, P: 25 µ-pillar

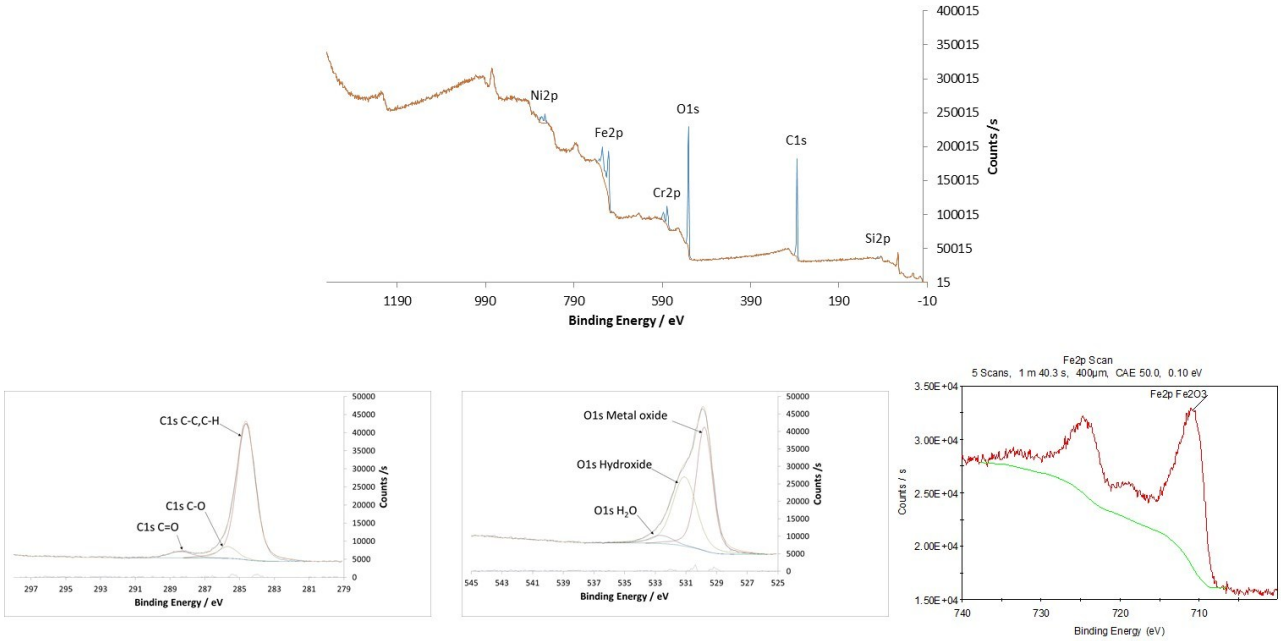

Figure S3. XPS survey and high-resolution C1s, Fe 2p, and O 1s spectra for AISI 304, P: 30 µ-pillar

Figure S4 is a water droplet sitting on the laser patterned region. This photograph has been recorded with Macro lens connected with Nikon SLR camera. This image clearly show the small volume of air trapped in the interface between water and solid surface. The presence of air pockets at the interface, largely reduces the fractional solid surface in contact with the liquid (water).

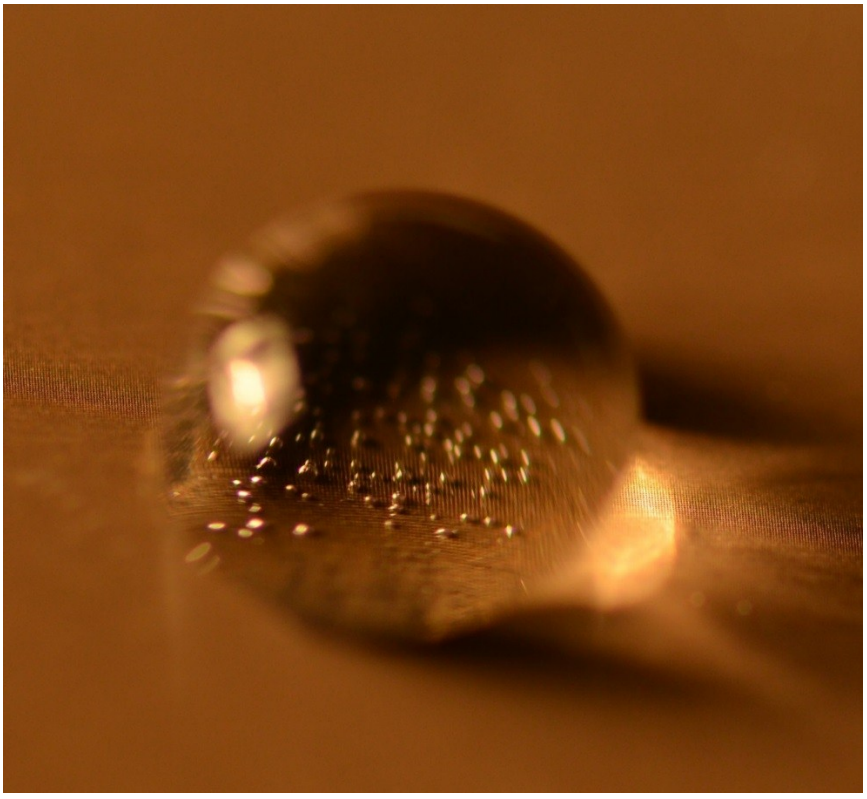

Figure S4. Droplet sitting on the laser patterned region with air bubbles at the solid-liquid interface.

2. Durability and consistency

Table S.I. Wetting property measurement for sample vacuum processed for 30 min. And 15 min. for all P values.

Days	Samples stored for 30 min. in high vacuum CA (°)	Samples stored for 15 min. in high vacuum. CA (°)
15	180	180
30	180	180
45	180	180
60	180	180
120	180	180
160	180	180
200	180	180

Table S.I show the wetting property measured periodically upto 200 days to check the consistency and durability of the vacuum processed samples. The static contact angle (SCA) measurements were measured with droplet volume 8 μL. primarily, the samples vacuum processed with 15 min. showed CA value in range of 160-170 ° has been increased to 180°. This is due to aging factor, which has been well established phenomena. All the samples irrespective of the P value shows a consistency and durability of wetting properties with respect to time. Therefore, it is well proven that, the transformation of wetting property is permanent as long as the samples are physically manipulated (eg. plasma cleaning).