

Formation of Surface Nanobubbles on Nanostructured Substrates

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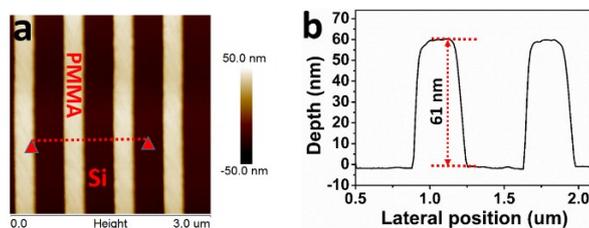


Fig. S1 (a) Nanotrench structure (period/trench: 700nm/300nm) by EBL. (b) Section of nanotrench in (a). The depth is about 61nm similar to the thickness 60nm of PMMA designed. So the valley is bare silicon.

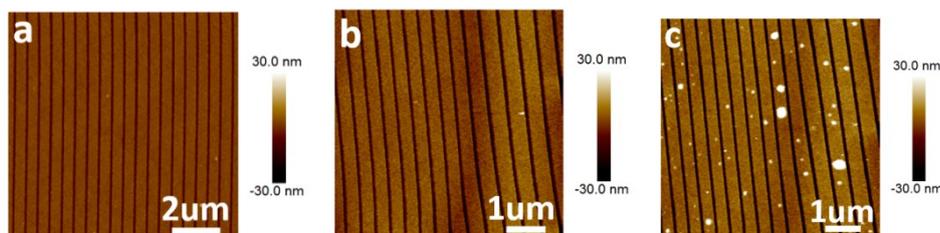


Fig. S2 Nonotrench substrate (500 nm/400 nm) in (a) air, (b) water and (c) ethanol-water exchange. Nothing is found in air and water except the substrate, but nanobubbles were generated after ethanol-water exchange.

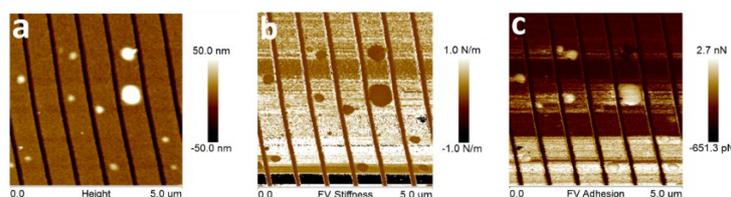


Fig. S3 Typical images of properties of nanobubbles by PF-QNM: (a) Height, (b) Stiffness, (c) Adhesion. From the stiffness image, we can find that the formed nanobubbles are softer than ZEP surface.