Supporting Information

Content

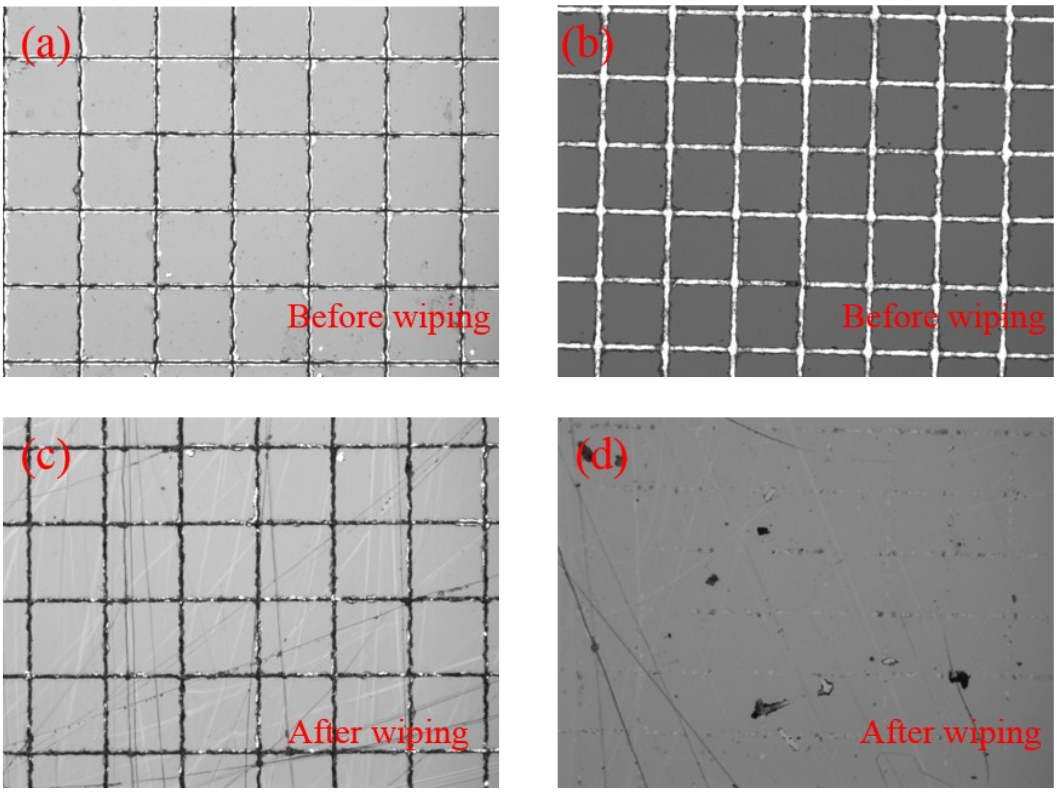

Fig. S1 The images of the metal grids etched by femtosecond laser before (a) and after (c) being wiped with sandpaper. The images of the metal grids fabricated by conventional lithography before (b) and after (d) being scrubbed with sandpaper.

The metal mesh is deeply etched by focusing a femtosecond laser under the surface of the sample, and the metal deposits in the groove structure of the sample, which belongs to a "deep surface-embedded" metal grids. This way, even after polishing the surface of the sample, the metal mesh can still exist without being worn off. Furthermore, we experimentally verified the attachment of the metal mesh on the substrate. We used 240 # sandpaper to wipe the metal grids etched by common lithography and metal grids etched by femtosecond laser micromachining, respectively, with the same force and times. The experimental results are shown in the Fig. R4. Fig. 4R (a) and (c) are the metal grids etched by femtosecond laser before and after being wiped with sandpaper. And Fig. 4R (b) and (d) are the metal grids etched by common lithography before and after being scrubbed with sandpaper. It can be obviously seen that metal mesh fabricated by conventional lithography is worn away and barely exists after being scrubbed with sandpaper, whereas the metal mesh

processed by femtosecond laser has little wear, and only the metal exposed to the groove structure surface is worn away. Compared with that of the metal mesh fabricated by conventional lithography, the metal mesh etched by femtosecond laser has better firmness, wear resistance and durability.