SUPPORTING INFORMATION

Femtosecond laser ablation of highly oriented pyrolysis graphite: green route for large-scale production of porous graphene and graphene quantum dots

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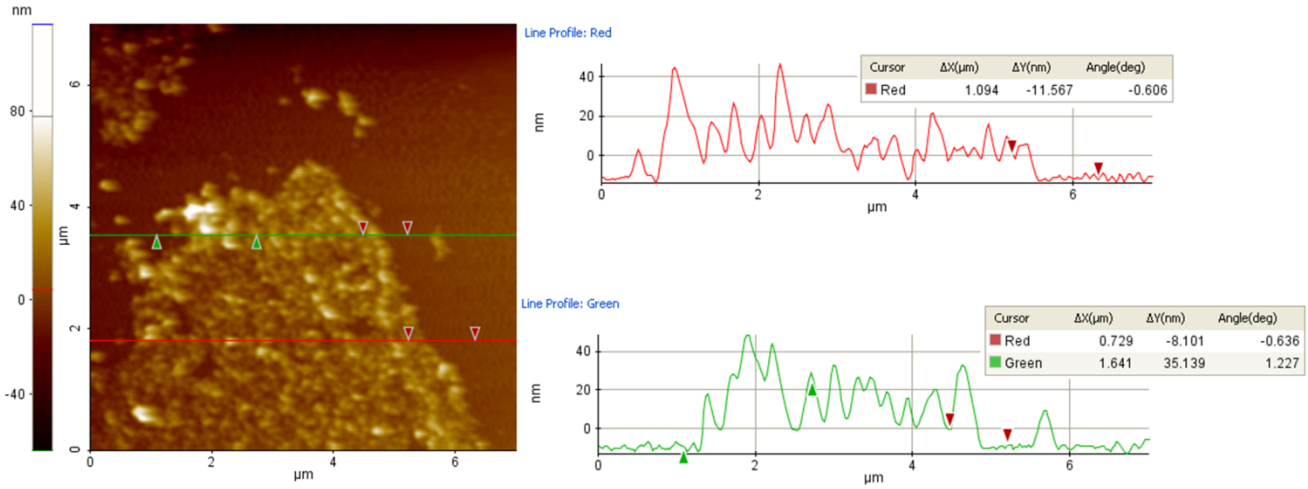

Figure S1. AFM image of the layer recovered from the water-air interface. We can define the edges of the analyzed layer from AFM images, proving that the collected materials consisted of layers with well-defined borders and that they were not agglomerated nanoparticles. This point is further supported by a post-treatment with ultra-sonication, which did not break these sheets into individual particles. The topographic image, on the left, clearly shows the roughness of the layer, while from the height profile (on the right) is possible to note a step of ~ 10 nm, between the substrate and the material.

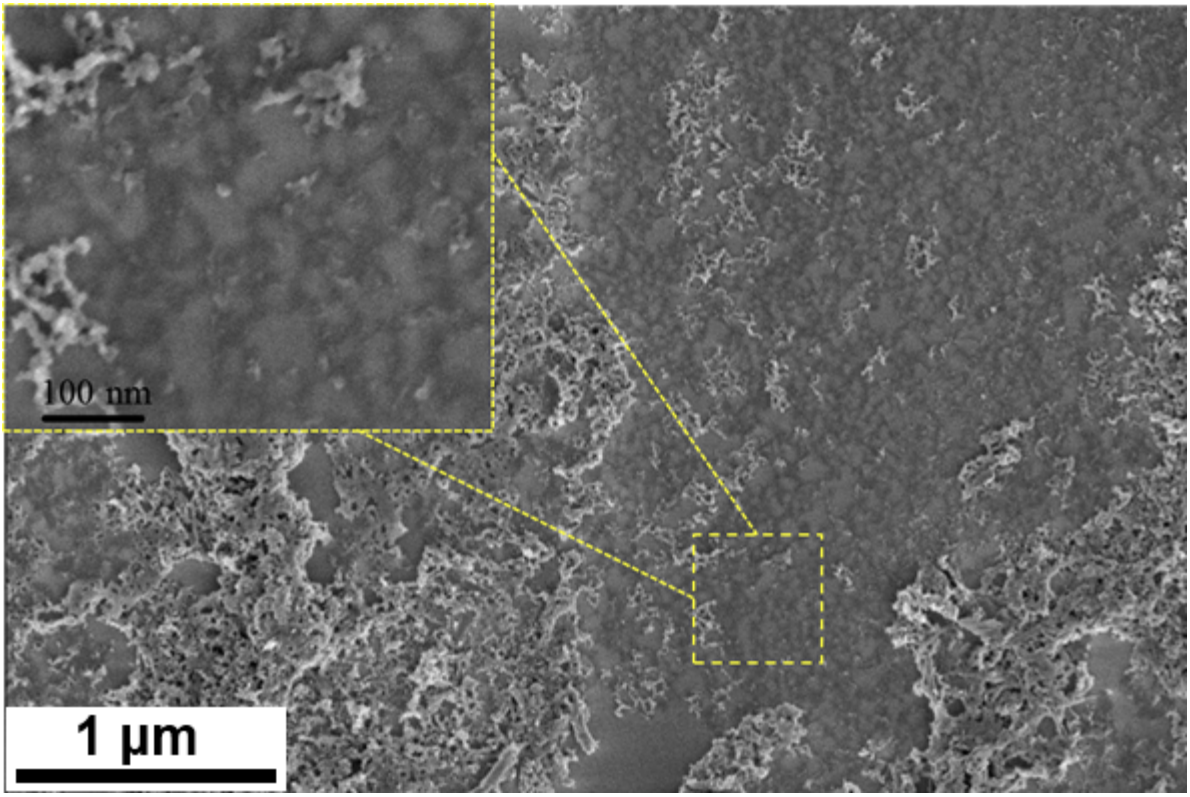

Figure S2. FE-SEM image of a single layer of porous graphene. The high magnification image of the area indicated with a dashed box, is displayed in the inset. Nanoholes of ~20 nm are clearly visible. It is noted that the formation of the holes is independent on the layer thickness.

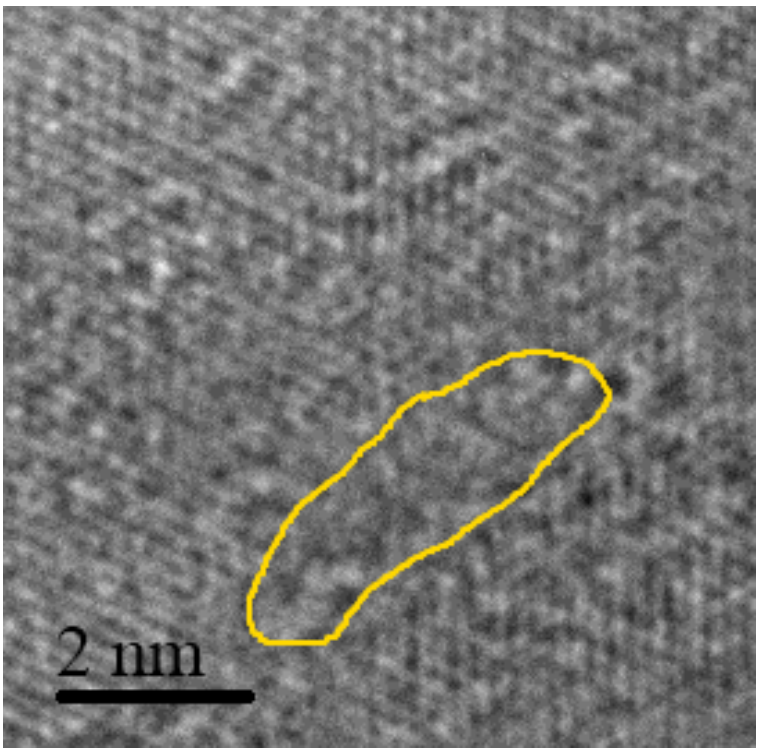

Figure S3. Magnification of the TEM image shown in figure 3b (see the text). The missing rows, in one of the area highlighted with a yellow line, demonstrate the presence of holes/pores within the graphene layers.

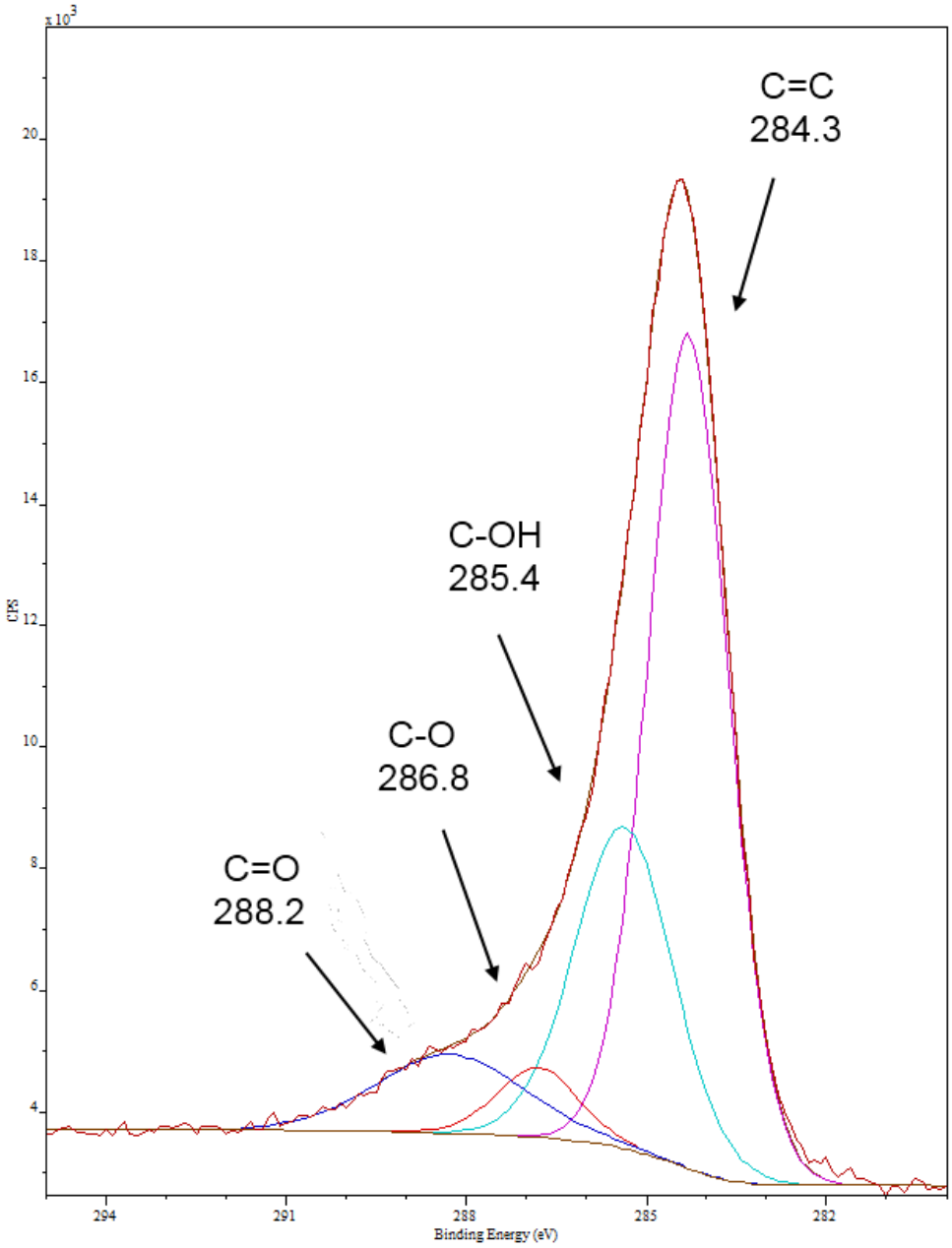

Figure S4. X-ray photoelectron spectra (XPS) of the layer recovered at the water air interface. The spectrum is similar to the one reported for a reduced graphene oxide, in which the content of oxygen bonded to carbon is much lower than a pure layer of graphene oxide.

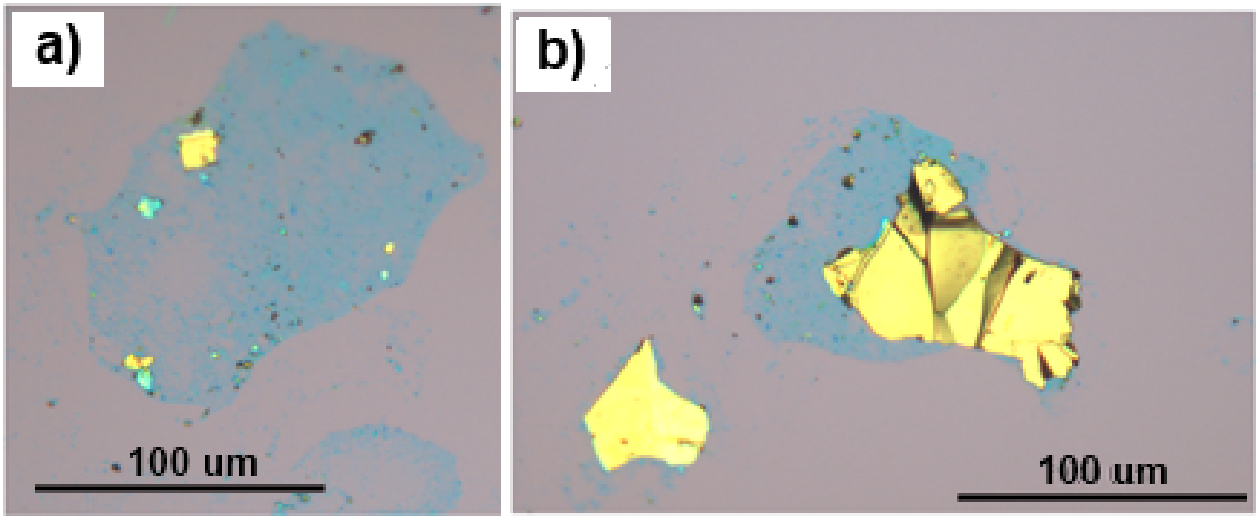

Figure S5. Optical images of the layers detached after femtosecond laser ablation in N_2 and deposited onto a Si/SiO_2 substrate. Most of the layers detached are thicker than the ones obtained in water and a large quantity of graphitic material covered the layers. Fs ablation of HOPG in liquid N_2 results in a higher ablation rate but less efficient exfoliation.