

## Supplementary Information

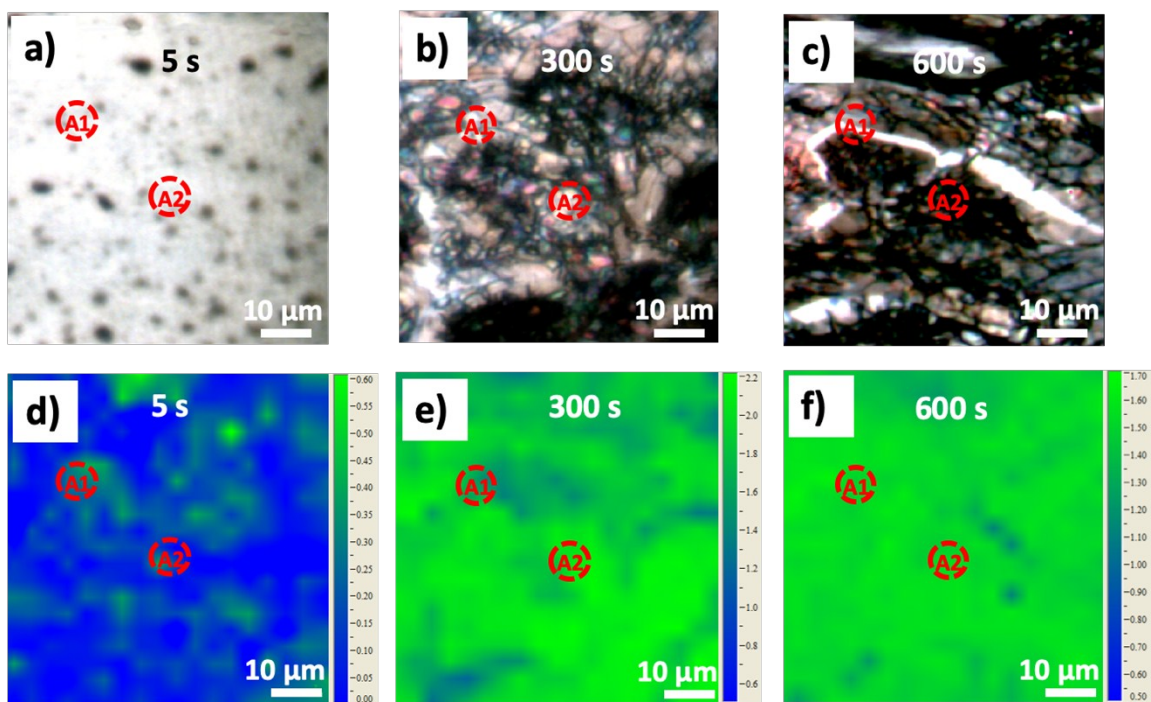
### **Electrochemical exfoliation of graphite in H<sub>2</sub>SO<sub>4</sub>, Li<sub>2</sub>SO<sub>4</sub> and NaClO<sub>4</sub> solutions monitored in-situ by Raman microscopy and spectroscopy**

Zhenyuan Xia<sup>1,2\*</sup>, Vittorio Bellani<sup>3</sup>, Jinhua Sun,<sup>1</sup> Vincenzo Palermo<sup>1,2</sup>

<sup>1</sup>Industrial and Materials Science, Chalmers University of Technology, Hörsalsvägen 7A, 41258  
Göteborg, Sweden

<sup>2</sup>Istituto per la Sintesi Organica e la Fotoreattività, CNR, via Gobetti 101, 40129 Bologna, Italy

<sup>3</sup>Dipartimento di Fisica, Università degli Studi di Pavia and INFN, via Bassi 6, 27100 Pavia, Italy



**Figure S1.** a-c) Optical images of HOPG surface during electrochemical oxidation in 0.5 M  $\text{H}_2\text{SO}_4$  electrolyte and d-f) the corresponding  $I_D/I_G$  Raman mapping images.

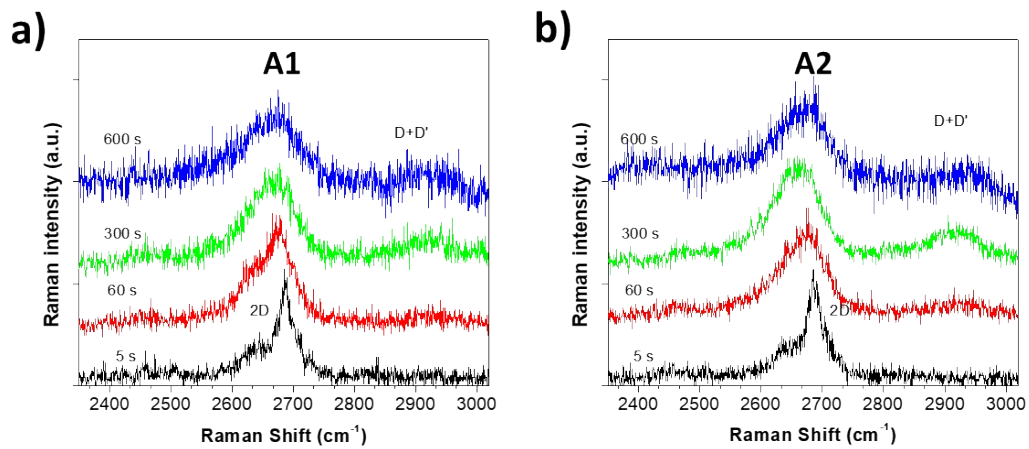


Figure S2. Raman spectra in 2D band region for A1 and A2 area.

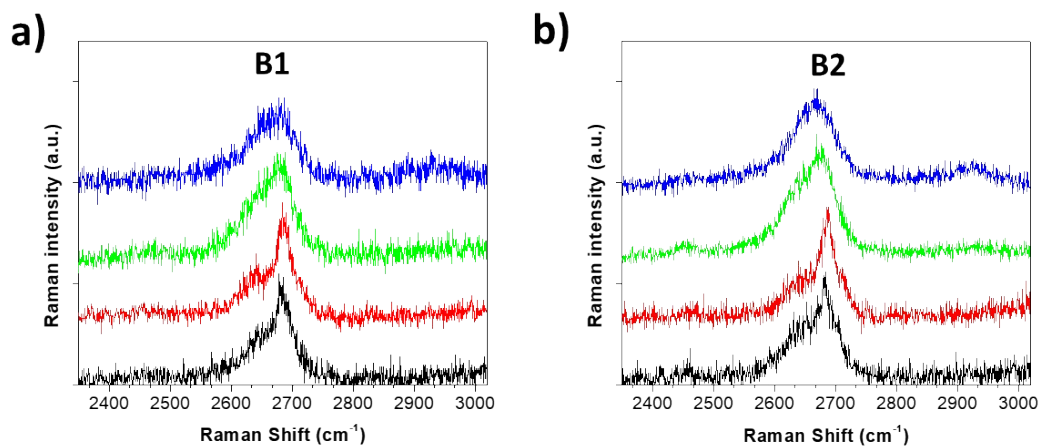
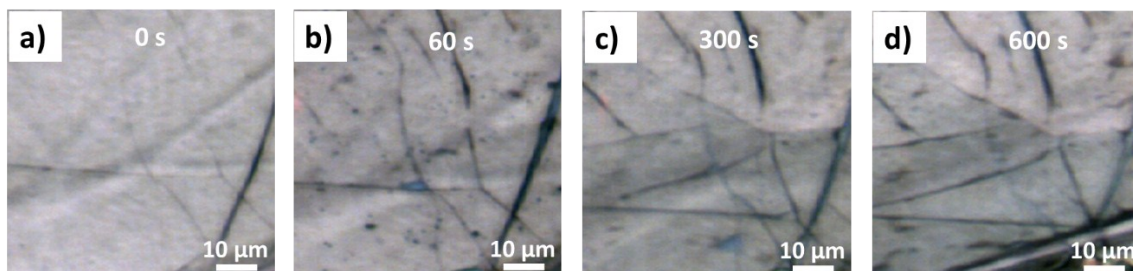
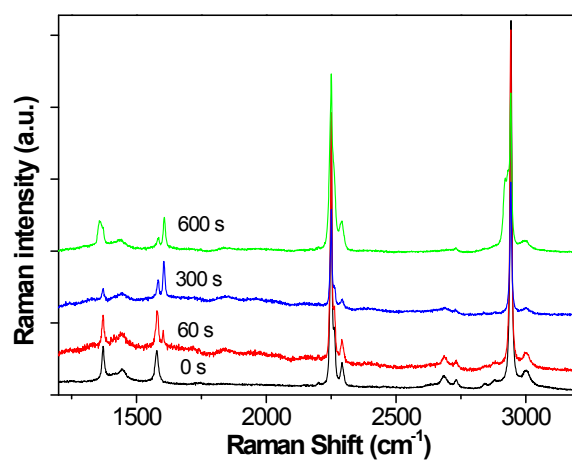


Figure S3. Raman spectra in 2D band region for B1 and B2 area.



**Figure S4.** a-d) Optical images of HOPG surface during electrochemical oxidation in 1 M NaClO<sub>4</sub>/CH<sub>3</sub>CN electrolyte.



**Figure S5.** Raman spectra acquired from HOPG surface during electrochemical oxidation in 1 M NaClO<sub>4</sub>/CH<sub>3</sub>CN electrolyte.