

Raman signatures of single layer graphene dispersed in degassed water without additives

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We study the intrinsic Raman signatures of single layer graphene (SLG) dispersed in degassed water without additives, so called "eau de graphene" (EdG) (figure 1) [1] and compare them to those of suspended SLG. The Raman signatures of SLG superimpose to those of water (figure 2). The most characteristic signature of SLG in EdG is a narrow and symmetric 2D band with a width depending on processing conditions [2,3]. The position of the G and 2D bands indicate moderate biaxial compressive strain and weak n doping. The intensity of the D band and the width of the G band are discussed in terms of point-defect density and flake size. We show that point defects can be easily cured by preparing thin films from EdG and annealing at 800°C.

References

- [1] G. Bepete et al, Nat. Chem. 2016, DOI 10.1038/NCHEM2669
- [2] G. Bepete et al, J. Phys. Chem. C 2016, 120 (49), 28204–28214.
- [3] G. Bepete et al, Phys. Stat. Solidi 2016, 10 (12), 895-899.

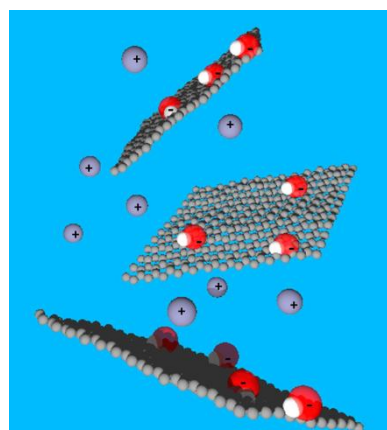


Figure 1: Sketch of SLG dispersed in water

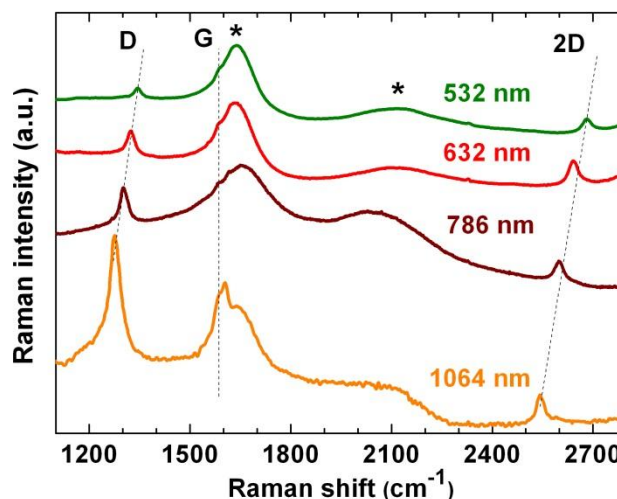


Figure 2: Main Raman signatures of SLG dispersed in water (* refer to water bands)