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Editor-in-Chief

Professor Branislav Ž. Nikolić

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Dear Prof. Nikolić,

We have carefully read all referee’s remarks. All remarks have been accepted and manuscript has been corrected according to his suggestions. All changes in the manuscript have been highlighted. Answers to refeere’s comments can be found below.

Answers to referee 1:

1.- Lines 35-43: Please, reorganize the text to avoid repetition and to be clearer, for example:
LB method is a technique of creating mono-and multimolecular films by transferring Langmuir (L) films of water insoluble material from the air/water (or generally gas/liquid) interface to the surface of a solid substrate (quartz, glass, mica, aluminum, gallium arsenide wafer, silicon
wafer, tin and their oxide, silver, gold, etc.). The condensed L films are composed of an organized monolayer of the amphiphilic molecules which can be subsequently transferred to the substrate and create highly organized thin film coatings. The transferring is performed by using vertical dipping in the L monolayer1, which allows sustained  variation of material density, its
packing as well as an appropriate arrangements achieved by expanding or compressing the film by using barriers2 – Fig 1.

The text above is reorganized to be clearer than in the previous version of manuscript. We explained in detail what were the Langmuir films and the essence of LB technique as well. p.2

2.- Indicate meaning of B in LB and differences between L and LB films! Whether LB transfer modes are limited to the typical vertical dipping method? Through the manuscript, other than vertical dipping method are mentioned (Langmuir-Shäfer method (LS - horizontal lifting), horizontal lifting (HL)…). But, it is not clear if the term LB indicates vertical dipping! If yes, why it is stated at some places “…LB films using the vertical dipping method” (lines 246-247)? Please, explain!

* Langmuir films are monomolecular layer of amphiphiles floating on water. Slowly withdrawing a hydrophilic substrate perpendicular to and through the floating monolayer from below will coat the substrate with a packed monolayer, as was extensively investigated by Blodgett; Therefore, these supported layers are called Langmuir–Blodgett (LB) films. p.2
* Based on ref. (J. J. Ramsden, Nanomaterials and their production in Nanotechnology: An introduction: Micro and Nano Technologies, Applied Science Publishers, 2011, p. 101‒124; https://doi.org/10.1016/B978-0-08-096447-8.00006-5) LB method refers to the transfer of the floating monomolecular films to solid substrate by vertically dipping them into and out of the bath. LB films usually deposit in a symmetrical mode, referred to as Y-type films (the molecules in successive layers adopt a head-to-head and tail-to-tail arrangement), X-type and Z-type films (deposition occurs only during immersion or emersion of hydrophilic substrate, respectively). The claim from lines 246-247 was taken from ref. 172. We corrected this sentence as referee requested.
* We have included all these explanations in the manuscript- pp.2, 8, 9

 3.- Line 57: “speed and composition of mixing, …pH of sub-phase ”  - It is not clear what mixing, what is the composition of mixing and what is sub-phase. Please, include explanation in the text.

We have included explanation in the text. In short, it is thought that major LB parameters are speed of immersion and withdrawal of the substrate, composition of mixture of spacer and matrix molecules, temperature, pH and ionic contents of liquid subphase on which the monolayers spread. Typical matrix molecule is arachidic acid whereas typical spacer molecule is pyrrole and fullerene. p.2

4.- Line 62: It is useful to explain the function of solvent.

We explained the major two functions of the solvent. Solvent should have two abilities: to disperse spacer molecules or nanoparticles (2D materials) and to spread at air/water surface. p.3

5.- Figure 1: Figure should be clearer (larger letters); give what is a) and what is b).

Fig. 1 has been corrected as referee requested.

6.- Paragraph “Deposition of carbon nanoparticles thin films” is divided in four parts (LB deposition of fullerenes, LB deposition of carbon nanotubes, LB deposition of graphene  and LB deposition of carbon quantum dots). Every part needs some systematization in order to highlight the influence of the main parameters on the quality of LB film. For example, for fullerenes: matrix molecules (what is the function of the molecules), the surface pressures, fullerenes modifications, types of deposition… These parts are in the form of a very big paragraph, which is difficult to read.

Section „Deposition of carbon nanoparticles thin films“ has been reorganized as referee requested. pp. 8, 12, 17, 21

7.Line 234: What is “intermediate stage on the LB films”?

The formation of intermediate stage of LB films cited from ref. 170 consists of two phases: 1. Mixing of C60 and selected surfactant and 2. Deposition of this mixture by LB method. Sentence from the manuscript has been corrected. p. 8

8.Line 246: What is “Y-type LB films”?

LB films are usually deposited in a symmetrical mode, referred to as Y-type films (the molecules in successive layers adopt a head-to-head and tail-to-tail arrangement), X-type and Z-type films (deposition occurs only during immersion or emersion of hydrophilic substrate, respectively)-ref. 6. pp. 8–9

9.Fig. 7. – Add some explanation in the text related to the function of photolithography (to adjust the channel dimensions).

Some explanation has been added in the text. p. 17
10.Fig. 8. Give some comments related to the figure (the influence of water molecules present between GO sheets and substrate on the quality of self-assembly process).

Comments have been inserted in the text. p.20

Best regards

Zoran Marković