



01.06.2017

***Re: Comments on the abstract of the thesis “Dusty plasma in afterglow regime and formation of carbon nanotubes in plasma” of G.P. BURMAKA who is applying for the Candidate Science Degree in Plasma Physics.***

I have read the abstract of the thesis of G.P. Burmaka : “Dusty plasma in afterglow regime and formation of carbon nanotubes in plasma”, as well as main publications of the author. Moreover, I am co-author of the paper “Long vertically aligned single-walled carbon nanotubes from plasmas: morpho-kinetic and alignment controls” published in Plasma Processes and Polymers. Therefore, I am able to evaluate this work.

The author presents the results devoted to the theoretical study of the effect of metastable atoms and electron secondary emission at ion-electrode collisions on a dusty plasma afterglow, and the theoretical results concerning the growth of vertically-aligned single-walled carbon nanotubes in plasma. To get the results, G.P. Burmaka used various analytical and numerical approaches, what is very nice. There is also a comparison of theoretical and numerical results obtained by the author with experimental results of researches from Japan and Germany.

I would like to note that dusty plasmas and carbon nanotubes in plasmas have been analyzed by many authors. However, dusty plasma afterglows and formation of forest of single walled carbon nanotubes in plasma are not studied enough in present. Therefore, the studies in frame of the thesis are actual, and the results obtained by the applicant are new. They are very interesting and useful for researches studying non-stationary dusty plasmas, as well as plasmas used for formation of different nanomaterials. The thesis chapters are mainly published in seven journals, two of them are with high impact factor (Plasma Processes and Polymers, Physics of Plasmas). The quality of the present thesis is very high. I am also confirming that the main results obtained in our joint paper published in Plasma Processes and Polymers were obtained by the applicant.

However, in my opinion, it would be better if the title of the thesis was more specific and mentioned the forest of single-walled carbon nonotubes, which properties were studied here. Meantime, this remark does not affect my positive impression about this work. Accordingly, I strongly recommend that G.P. Burmaka receives the Candidate Science Degree in Plasma Physics in Ukraine.

Yours sincerely,

Kostya (Ken) Ostrikov

Email: [kostya.ostrikov@qut.edu.au](mailto:kostya.ostrikov@qut.edu.au), [kostya.ostrikov@csiro.au](mailto:kostya.ostrikov@csiro.au)

Academician, The Academy of Europe (Academia Europaea),  
[http://www.aeinfo.org/ae/User/Ostrikov\\_Kostya](http://www.aeinfo.org/ae/User/Ostrikov_Kostya)

Professor, School of Chemistry, Physics and Mechanical Engineering, Queensland University of Technology; Science Leader of the Office of Chief Executive, Commonwealth Scientific and Industrial Research Organisation (CSIRO); Honorary Professor, The University of Sydney, University of Technology Sydney, University of Wollongong (Australia)