

Review of dissertation thesis: Preparation and characterization of fillers for polymer nanocomposite layers usable in electronics

Student: M.Sc. Thaiskang Jamatia

Reviewer: Prof. Ing. Petr Slobodian, Ph.D.

The student starts to study at Tomas Bata University in Zlin on 2nd September 2016 during the validity of the Dean's Directive SD/01/2016. The dissertation thesis are presented as a monograph - as an individual work prepared in accordance with paragraph 2 of Dean's Directive SD/01/2016, containing the results of the experimental part which follows the aims of announced work objectives. He is a main author of the paper published in the JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS and in the second paper as co-author; both are cited in database of Web of Science. Based on this analysis, the student met the required criteria for successful defence of the dissertation work.

Dissertation work deals with microwave-assisted synthesis of zinc oxide nanoparticles and its innovation using dopants such as Fe and Al. The effect of small stoichiometric amounts of water or oleic acid, which modify the surface of nanoparticles, was also studied. Finally, layered composite material is prepared which leads to real application as polymer light-emitting diode device (PLED).

The dissertation work as an appropriate introduction to aimed problematics, followed by motivation, experimental section, results and discussion of own research activities in area of basic research, conclusion and references. There is also applicant curriculum vitae.

The dissertation thesis is written in English. It has a good structure, graphic standard and language. The work has a good scientific standard and promising application potential in the future.

Finally, I would like to state that the student M.Sc. Thaiskang Jamatia proved that he is capable of an independent and creative scientific work; he fulfilled the planned study schedule and wrote a satisfactory dissertation thesis for the defence. He also met the criteria for the minimum required amount of published scientific work. That is why I recommend dissertation thesis to defend and obtain Ph.D. degree.

Questions:

1. Can you compare light intensity and spectra of your PLED with commercial light-emitting diode?
2. Is it necessary to secure some stricter hygienic requirements when handling with nano-sized ZnO material?

In Zlin, August 27^h, 2020

Prof. Ing. Petr Slobodian, Ph.D.