

Supervisor's statement on the dissertation of the doctoral student

M.Sc. Yadu Ram Panthi

M.Sc. Yadu Ram Panthi has joined my team after completing his master studies at Tribhuvan University in Kathmandu, Nepal, in October 2016 as a student of postgraduate UNESCO courses. In October 2017 he started his doctoral studies at the Faculty of Mathematics and Physics, Charles University, doing the experimental work for his PhD thesis in the Institute of Macromolecular Chemistry, CAS, under my supervision.

Due to his previous specialization on radiation safety and studies focused on more general physics, at the beginning he had to overcome the gap between his previous education and the new topics of study. However, he succeeded well to orient himself in a new strongly interdisciplinary scientific area and soon became a very valuable member of the team.

His dissertation was focused on some transient electrical and optical phenomena of polymers and organic molecular solids. It concerned mainly the transformation of the excitation energy, particularly transformation of singlets to triplet excitons, and some transient electrical properties as the basics for the memristive behavior of polymers. His results showing that the electrical behavior of some polymers can emulate synaptic plasticity of biological neuronal synapses are very interesting and address current demands of new materials for electronic devices for stochastic or neuromorphic computing.

From the experimental point of view, the topic was quite difficult, as it required the use of special procedures that made it possible to overcome the generally low stability of organic semiconductors. The path to achieve functional samples on which physical measurements could be performed was usually very complex and time consuming. However, the student always approached the solution of experimental problems with great care and showed a critical approach and independence in interpreting the results. It can be stated that he has mastered the basics of scientific work and demonstrated his ability to work independently in science.

I can conclude that Mr. Yadu Ram Panthi has demonstrated his ability of careful and innovative scientific work. The achieved results are very valuable and I recommend his dissertation to be accepted for defense and for obtaining the PhD degree

Prague, September 10, 2024

RNDr. Jiří Pflieger, CSc.
Supervisor