

Evaluation report

by Dr.Sci. Dianka Dimitrova Nesheva-Slavova, Professor at the Institute of Solid State Physics
“Acad. G. Nadjakov” at the Bulgarian Academy of Sciences

for the materials submitted for participation in a competition for the academic position of
‘Associate Professor’ at Plovdiv University “Paisii Hilendarski”

Field of higher education 4. Natural sciences, mathematics and informatics,

Professional field 4.1. Physical sciences, scientific specialty "Electrical, magnetic and optical
properties of condensed matter"

1. General presentation of the procedure and the candidate

By order of the Rector of Plovdiv University "Paisii Hilendarski" (PU) № P33-4125 of 24.08.2020 I was appointed a member of the scientific jury in the competition for 'associate professor', announced in the State Gazette, issue 57 of 26.06.2020 and on the website of Plovdiv University "Paisii Hilendarski". The competition is for the needs of the Department of Physics at the Faculty of Physics and Technology. For participation in the announced competition has submitted documents only a candidate, senior assistant Dr. Ivan Panayotov Bodurov from the Department of Physics. He has a Master's degree in Condensed Matter Physics (2010, University of Plovdiv) and a Doctor's degree in Physics of Wave Processes (2013, IOMT-BAS).

The set of materials submitted for participation in the competition as electronic files is in full compliance with the Regulations for development of the academic staff of PU "Paisii Hilendarski". A total of 43 scientific papers were attached, of which 1 review in a book and 42 publications. Those of them, which are in editions referred to and indexed in world-famous databases are: in journals in quartile Q1-2, in Q2 - 2, in Q3 - 9, in Q4 - 11, only with SJR - 6 pcs. The materials include 3 more certificates for patented ‘useful models’, 1 textbook (*Short course in electricity, magnetism and optics*) and 1 manual (*Manual for laboratory exercises in physics*), published in co-authorship with colleagues from the department. There is also information for a patent application from 2018. These works were not used in the dissertation for ESD ‘Doctor’. The analysis of the attached materials shows that in groups of indicators 'A' and 'B, item 4' (2 publications in Q1 and Q2 journals and 1 - only with SJR) the minimum national requirements for holding the academic position 'associate professor', recorded in Regulations for application of the Law for development of the academic staff in the Republic of Bulgaria (LDASRB), and in groups 'D' (422 points at min. 200 points) and 'D' (45 citations of 13 works, 90 points at min. 50 points) they are significantly exceeded.

2. General characteristics of the candidate's activity

2.1. Educational and pedagogical activity

Dr. Ivan Bodurov has over 8 years of experience at the University of Plovdiv "Paisii Hilendarski", of which 4 and a half years as a senior assistant. His pedagogical work is very intensive, especially in the last 4 school years, and deserves high marks (a total of 3361 hours, an average of 420 hours / school year at a standard of 360 hours). In addition to co-authoring the above-mentioned textbook and manual, he is the author of 3 e-courses, participated in the development of 7 programs of courses for full-time and part-time students and doctoral students and has supervised 7 graduates who have successfully defended their bachelor's degrees. Senior assistant I. Bodurov is co-author of 2 articles presented at the XLIV National Conference on

Physics Education with an emphasis on two aspects of physics education in higher education (project training and preparation of a review).

2.2. Research and development activity

The research and development activity of Dr. I. Bodurov includes preparation, additional treatment (very often in corona discharge) and characterization with various modern methods of polymer and chalcogenide layers, multilayer structures, composite materials and aqueous solutions with nanoparticles, food, etc. I pay attention to two groups of modern and interesting research. The first group is on the formation and physicochemical properties of polyelectrolyte multilayer structures on polymeric substrates, which have potential application as biological coatings and in particular as drug carriers. A number of studies of polyelectrolytes of chitosan / xanthan and chitosan / casein were conducted and optimization of morphology and increase of their ability to capture and release drugs were achieved. To provide a surface charge on the substrate, necessary for electrostatic capture of the polyelectrolyte in the preparation of the structures, an original corona pre-charging of the substrate was applied. The second group of studies is focused on the application of physical methods (measurement of refractive index, fluorescence spectra, color characteristics, electrical conductivity, differential scanning calorimetry, optical and infrared spectroscopy) for characterization of food and biological objects. These methods of analysis are fast and sensitive and do not require the use of additional chemical agents. Data on the physical characteristics of honey from different regions of Bulgaria, of some species of seaweed from the Bulgarian Black Sea area and of freshwater algae were obtained. It has been shown that the addition of other vegetable oils to olive oil, can be quickly detected by physical methods, etc.

The candidate has participated in the creation of a universal laser microrefractometer, designed for laboratory determination of the complex refractive index of thin layers and liquids with high accuracy and a device for measuring piezoelectric coefficients of dielectric materials. The contributions to the scientific works of the candidate can be attributed to: proving with new means of significant new aspects of already existing scientific problems, creation of new technologies and constructions, obtaining confirmatory facts.

Senior assistant Ivan Bodurov is a participant in 14 scientific research projects, one of which is the Center for Competence "Personalized Innovative Medicine", one is within the National Program "Young Scientists and Postdoctoral Fellows", and the rest are funded by the National Research Fund and SF of PU. The data described so far represent Dr. I. Bodurov as an active young scientist. The impression is that he has a significant contribution to the research and development results in the presented publications, which are known and highly appreciated by the scientific community. Dr. I. Bodurov has also significant contribution in the educational activity of PU in the field of physics of condensed matter and optical methods for its research, engineering physics, optical communication systems, specialized software, etc.

I have no critical remarks but would recommend the candidate to seek a wider audience of the results of their research by publishing more of them in journals with high impact.

CONCLUSION

The documents and materials submitted by senior assistant Dr. Ivan Bodurov, meet the requirements of LDASRB, the Regulations for implementation of LDASRB and the relevant Regulations of PU "Paisii Hilendarski". He presented a significant set of 43 scientific papers, 1 textbook, 1 manual and 3 'useful models', published after the defense of ONS 'Doctor'. Most of

the publications appeared in journals that are referenced and indexed in world-famous databases. They contain original scientific and applied scientific contributions that have received international recognition.

After getting acquainted with the materials and scientific papers presented in the competition and analyzing their significance, I give my positive assessment and recommend the Scientific Jury to prepare a report-proposal to the Faculty Council of the Faculty of Physics and Technology for election of senior assistant Dr. Ivan Panayotov Bodurov to the academic position of 'Associate Professor' at PU "P. Hilendarski" in professional field 4.1. Physical sciences, scientific specialty "Electrical, magnetic and optical properties of condensed matter".

14.10.2020

Signature:

/Prof. Dr.Sci. Diana Nesheva-Slavova/