STANDPOINT

in a competition for an academic position

"Associate Professor"

in a professional direction 4.1. Physical sciences (General physics),

for the needs of Sofia University "St. Kliment Ohridski ”(Sofia University),

Faculty of Physics, announced in SG no. 21 of 15.03.2022

The standpoint was prepared by: Assoc. Prof. Dr. Karekin Dikran Esmeryan, Institute of Solid State Physics "Academician" Georgi Nadjakov, Bulgarian Academy of Sciences,

professional field 4.1. Physical sciences / Condensed Matter Physics, in his capacity as a member of the scientific jury on

competition according to Order № RD-38-266 / 02.06.2022. of the Rector of Sofia University.

The only candidate who has submitted documents for participation in the announced competition: Assistant Professor Dr. Gergana Emilova Aleksieva, Sofia University “St. Kliment Ohridski ”(Sofia University), Faculty of Physics. The candidate obtained the qualification-educational degree "Master of Sciences" in the specialty "Solid State Physics" at Sofia University "St. Kliment Ohridski ”in 1997, and in February 2013 the educational and scientific degree "Doctor of Philosophy" from the same university in a professional field 4.1. Physical sciences (topic of the dissertation: "Acoustic properties and applications of polymeric materials"). From August 2013 until now she has held the academic position of "Assistant Professor" at the Faculty of Physics of Sofia University.

1. Compliance of the candidate to the conditions for holding the academic position "Associate Professor"

1.1. Teaching activity

For the period 2016-2021, Assistant Professor Aleksieva presents study (classroom and extracurricular) workload within 481-688 hours per year (according to the document "15.Artefacts"), which significantly exceeds the minimum requirements of Sofia University, namely the annual standard of employment for university lecturers is 360 hours (equated to exercises), of which 270 hours of compulsory employment are obligatory, proportionally divided into 12 months for the respective school year ”. In recent years, the candidate has given lectures and workshops in the following courses: "Basic Computer Science", "Polymers in Microelectronics", "Acoustic and Optical Waves in Solids", "Electricity and Magnetism", "Optics", "Physics", "Physics", " Programming and Computing "," Modern Experimental Methods "," Introduction to Programming "," Physics of Wave Processes "," Fundamentals of Acoustics "," Computer Methods of Data Processing "," Geometric Optics "," Medical Statistics ", "Introduction

to Astronomical Optics" and "Computer Modeling in Optics", some of which are mandatory and others - elective courses. The main part of the educational activity covers the field of physics of wave processes, electricity and microelectronics, but there are also courses in general physics. The scientific management of assist. prof. Aleksieva includes successful defense of two dissertations related to piezoelectric gas sensors and study of the transverse piezoelectric effect in polyvinylidene fluoride nanocomposites (PVDF).

1.2. Research activity

The candidate participates in the competition for associate professor with 19 publications, of which 12 in journals with impact factor and 7 in journals with impact rank. The division of the articles by quartiles is as follows: Q1 - 4 pieces, Q2 - 8 pieces, Q3 - 3 pieces, Q4 - 4 pieces. The scientific papers reflect the candidate's work related to the study of acoustic, acousto-optical and optical properties of solid-state materials and coatings for applications in sensor systems for the purposes of microelectronics, pharmacy and ecology. In 7 of the publications Dr. Aleksieva has a significant scientific contribution (first author in 3 of them and corresponding author in 4), and instead of a monograph, the habilitation thesis is represented by 6 equivalent articles from groups I and II. The independent citations of the candidate, according to the scientific database Scopus is 52, and the Hirsch factor h-index - 5 (excluding self-citations). The publications submitted for participation in the competition for associate professor do not repeat those used for obtaining the educational and scientific degree "Doctor" and for holding the academic position of Assistant Professor. Dr. Aleksieva is a member of the research team of five research projects and leader of a project with the main theme of development and characterization of various thin film coatings for applications in electromechanical (also known in the literature as acoustic) gas sensors and medicine.

The scientific achievements of Dr. Aleksieva, with which she applied for the competition for associate professor are mainly related to obtaining and proving new facts in the field of polymer and metal oxide nanostructured layers, sensor devices based on piezoresonance elements (quartz microbalance) and acoustic, acousto-optical and optical methods for analysis of functional materials. The scientific contributions are formulated in detail and could be divided into two main groups:

- Research of the possibilities of different materials for sensory and pharmaceutical applications;

- Characterization of the structure and properties of materials by acoustic, acousto-optical and optical methods;

The significant contribution of the candidate is proved in 7 out of 19 publications with which she participates in the competition, by placing her name in the first place in the list of authors or by mentioning in the article as an author for future scientific correspondence.

2. Comparison between the scientific indicators of the candidate and the minimum required for the academic position "Associate Professor"

Assistant Professor Gergana Aleksieva meets the minimum national requirements (by points) for holding the academic position of "Associate Professor", adopted by the "Regulations

for the implementation of the law on the development of academic staff in the Republic of Bulgaria."

Group of indicators Contents	
Regulations for application of ZRAS-RB Scientometric data of the candidate	
A Indicator 1 50	50
B Indicator 2 not required	not required
C Indicators 3 or 4 100	119
D Sum of indicators from 5 to 10 200	234
E Amount of indicator 11 100	104
E Sum of indicators from 12 to the end is not required	80

The scientific indicators of the candidate meet the additional requirements of the Faculty of Physics of Sofia University.

Requirements	Candidate indicators
- Minimum 7 Group I publications	12 Group I publications
- At least 1 publication from the last 3 years from group I	5 in the last 3 years (2019-2022)
- Number of publications in groups of indicators B and D with significant contribution of the candidate, at least 4 - 7 articles with significant contribution	
- Minimum 50 independent citations in referenced editions	52
- h-index at least 5	5
- scientific guidance of at least 1successfully defended the graduate	2
- management and / or participation in international and / or national projects.	6

3. Critical remarks and recommendations

Based on the reviewed documents and the scientific activity of the candidate, I would like to make some constructive recommendations. First, it would be good if the pdf files of the documents are entitled in a way that unambiguously indicates their content. For example, "artefacts" sounds weird and usually used in science to describe an artificially obtained / wrong result. In this sense, the reference to indicators under Article 112 should not be referred to as "artefacts". Secondly, when presenting the full list of publications (from the beginning of the candidate's scientific career until today), it would be good to clearly distinguish which articles are used in the candidate's doctoral dissertation and which for the academic position of "assistant

professor". This significantly facilitates the processing of documentation by reviewers, but mostly helps with minimal effort an external person (verifier, evaluator), if necessary, to distinguish previous from current scientific achievements of Assistant Professor Gergana Aleksieva. Third, the "habilitation thesis" (or equivalent number of scientific publications) should summarize the candidate's significant scientific contribution in the specific field of scientific interest. Therefore, it would be good if the habilitation thesis is composed entirely of publications that unequivocally prove the leading role of the candidate. I made an effort to make some simplified calculations, which show that the habilitation work could include publications number 2, 4, 8, 12, 13 and 15, providing a total of 107 points with a minimum required 100 points. This in no way changes the fact that the candidate collects 353 points from groups C and D with a minimum required 300 points, and also does not contradict the requirement of the Faculty of Physics at Sofia University "Number of publications in groups C and D with significant contribution of the candidate, at least 4 ". Following the above, I recommend that in future participation in competitions for academic positions (for example, professor), the candidate should summarize her significant scientific contributions and set them apart from others. The former should have a clear relationship with each other, which should be ambiguously stated in the documentation.

Last but not least, holding the academic position of "associate professor" or "professor" implies a clear and visible, independent research line in a scientific field. Therefore, it would be good if Dr. Aleksieva tries to have a major scientific contribution in over 65-70% of her future published research articles, which will establish her as a principal investigator capable of conceiving qualitatively new scientific ideas, plan their implementation, conduct the accompanying experiments and publish the results in prestigious and time-honored international scientific journals (good examples are Talanta, Materials Science in Semiconductor Processing and Sensors & Actuators B Chemical).

4. Conclusion

In formulating this opinion, the following normative acts and documents were taken into account: "Law on the Development of Academic Staff in the Republic of Bulgaria" and its Regulations, "Regulations on the terms and conditions for obtaining scientific degrees and holding academic positions at Sofia University" St. . Kliment Ohridski ”,“ The additional requirements to the candidates for holding academic positions in the Faculty of Physics of Sofia University “St. Kliment Ohridski ”.

In conclusion, the applicant meets all of the minimum, mandatory and additional criteria in the above documents. On this basis, and despite the observed shortcomings in the preparation of the documentation for the competition, I express a positive opinion on the choice of Assistant Professor Dr. Gergana Emilova Aleksieva for "Associate Professor" in the professional field 4.1. Physical sciences (General physics).

Sofia

14.06.2022

Prepared by:

/Assoc. Prof. Karekin Esmeryan/