

OPINION

on the competition for the academic position "Professor" in the field of higher education
4. Natural sciences, mathematics and informatics, professional field 4.3. Biological Sciences,
scientific specialty "Biophysics", published in the State Gazette, issue 63 of July 30, 2021,
for the needs of the section "Electroinduced and adhesive properties", IBFBMI – BAS

From: Assoc. Prof. Genoveva Antonova Zlateva, PhD – Department of Physics,
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Candidate: Assoc. Prof. Dr. Biliانا Pancheva Nikolova

The opinion is prepared on the basis of the Law for development of the academic staff
in the Republic of Bulgaria (ZRASRB), the Regulations for application of ZRASRB and the
Regulations for application of the law for the development of the academic staff in the
Republic of Bulgaria at the Institute of Biophysics and Biomedical Engineering. It was written
and presented on the basis of order № 541 / 29.09.2021 of the Director of IBFBMI – BAS for
appointment of the scientific jury for the competition.

Documents for participation in the competition are submitted by a single candidate:
Assoc. Prof. Dr. Biliана Pancheva Nikolova.

1. Brief biographical data

Assoc. Prof. Dr. Biliана Pancheva Nikolova graduated from the Faculty of Biology at
Sofia University "St. Kliment Ohridski", Master's degree, specialty "Biochemistry and
Microbiology" (later "Molecular Biology") in 1992. After graduating until 2013 she worked at
the Institute of Biophysics and Biomedical Engineering, BAS, successively as a specialist, PhD
student, research associate II degree, chief assistant. In 2013 she was awarded the academic
position of "Associate Professor".

2. Research activity

2.1. Scientometrics and implementation of minimum national requirements (MSM)

Assoc. Prof. Biliана Nikolova presented a list of 47 publications for participation in the
competition (27 of them with impact factor and 5 with SJR only). Outside the publications on
the dissertation and the competition for associate professor) there are 25 publications. 21 of
them are referenced and indexed in the worldwide databases with scientific information Web
of Science and Scopus. Sixteen of the publications have an impact factor, which covers the
specific requirements of the Regulations for application of the Law for Development of the
Academic Staff in the Republic of Bulgaria at the Institute of Biophysics and Biomedical

Engineering at the Bulgarian Academy of Sciences for at least 15 articles in impact factor journals. All articles have been published since 2013. A report on 43 participations in scientific forums has been presented. A detailed report on participation and project management (12 in the Republic of Bulgaria and 8 international projects) is also presented.

Presented by Assoc. Prof. Nikolova detailed report on the implementation of the minimum national requirements for holding the academic position of "Professor", as well as the specific requirements set out in Annexes 1 and 2 of the Regulations for application of the Law for Development of the Academic Staff in the Republic of Bulgaria at the Institute of Biophysics and Biomedical Engineering at the Bulgarian Academy of Sciences is completely correct. Its scientometric indicators exceed the requirements for borrowing JSC "Professor", as shown in the table below.

Group of indicators	Minimal national requirements and specific requirements for IBFBMI – BAS	Assoc. Prof. Nikolova's reference for academic position "Professor"
A	50	50
B	100	115
Г	220	247
Д	120	326
E	150	245*

* The obligatory requirement of the Regulations for application of the Law for the Development of the Academic Staff in the Republic of Bulgaria at the Institute of Biophysics and Biomedical Engineering at the Bulgarian Academy of Sciences, for at least one successfully defended doctoral student has been fulfilled.

2.2. Contributions to the scientific works of Assoc. Prof. Biliana Nikolova

The main scientific interests of Assoc. Prof. Biliana Nikolova are in very relevant and important areas for medical diagnostics and therapy, and the contributions from her scientific work can generally be divided into the following **scientific areas**:

- 2.2.1. *Application of electroporation for the treatment of skin tumors;*
- 2.2.2. *Research in the field of theranostics – application of chemically modified chitosan polymersomes as drug carriers for the treatment of oncological diseases, monitored by fluorescence of quantum dots;*
- 2.2.3. *Use of nanohydrogels with quantum dots for more efficient fluorescent diagnosis of tumors and the influence of additional electroporation;*
- 2.2.4. *Study of redox status and its attitude to cancer treatment;*
- 2.2.5. *Synthesis of new antitumor substances;*
- 2.2.6. *Investigation of isometric contractions of mesenteric arteries.*

3. Administrative, expert and organizational activity

Since 2019, Assoc. Prof. Biliana Nikolova is the head of the section "Electroinduced and adhesive properties" and a member of the scientific council of IBFBMI – BAS.

Assoc. Prof. Nikolova has participated in scientific juries for awarding the scientific and educational degree "Doctor", academic positions "Chief Assistant" and "Professor" in procedures and competitions at the Institute of Solid State Physics, BAS, Institute of Biophysics and Biomedical Engineering, BAS and Sofia University "St. Kliment Ohridski" – BF, MF, FMF, MU-Sofia – FF. She has been the scientific supervisor of three successfully defended master's theses and has supervised students under OP "Human Resources Development" 2007 - 2013 and 2016, BG051PO001 - 3.3.07-0002 "Student Internships". She has been a scientific consultant on three projects for the development of young scientists.

Assoc. Prof. Biliana Nikolova is a reviewer of scientific publications in the journals: Int J Bioautomation, Bulgarian Chemical Communications, Optical Engineering (OE), Scientific Journal of Biomedical Engineering & Biomedical Science, Journal of Physics D: Applied Physics, BBEq, Archive of Biomedical Science and Engineering, MRJMMS, MDPI, etc., guest editor of the magazine "Separations" IF 2.77.

4. Personal impressions

I know Assoc. Prof. Biliana Nikolova personally and I have wonderful impressions of her as a powerful, serious and dedicated scientist and professional.

5. Conclusion

Based on all of the above, I believe that Assoc. Prof. Biliana Nikolova is a scientist with developments that contain significant original and confirmatory, both scientific and scientific-applied contributions. She fulfills and exceeds the minimum national and specific requirements for IBFBMI - BAS required for holding the academic position "Professor".

Therefore, I am voting positively and I strongly recommend the members of the esteemed scientific jury to vote positively for the award of the academic position "Professor" in the field of higher education. 4. Natural sciences, mathematics and informatics, professional field 4.3. Biological sciences, scientific specialty "Biophysics" of Assoc. Prof. Dr. Biliana Pancheva Nikolova.

Sofia,

November 25, 2021

Reviewer:

/Assoc. Prof. Genoveva Zlateva, PhD/