

# REVIEW

from ass. prof. Dimitar Vladislavov Atanasov, PhD  
dep. Informatics, New Bulgarian University,  
4.5 Mathematics

on scientific works in relation with competition for the academic position of “**associate professor**”,  
professional direction 4.6. Informatics and Computer Science,  
published in ДБ 26/21.03.2023  
with a candidate **Stoyan Mishev, PhD.**

## **I. Assessment of compliance with the minimum national requirements and the requirements of the New Bulgarian University**

Ch. Assistant Professor Stoyan Mishev, Ph.D., has fulfilled the minimum national requirements for scientific and teaching activities for Higher Education Area 4. Natural Sciences, Mathematics and Informatics, Professional Direction: 4.6. "Informatics and Computer Sciences", defined by the Regulations for the Implementation of the Law on the Development of the Academic Staff in the Republic of Bulgaria, as well as the requirements of the Ordinance on the Development of the Academic Staff of the NBU and Appendix 2, Minimum National Requirements and Requirements of the NBU, which must be met candidates for obtaining a scientific degree and for holding the academic position of "associate professor" shall be responsible.

In the table below, the corresponding number of points is marked according to the minimum requirements of NBU.

<b>Group</b>	<b>Requirements</b>	<b>Recognized</b>
<b>А</b>	50	50
<b>Б</b>	0	-
<b>В</b>	100	135
<b>Г</b>	200	336
<b>Д</b>	50	272
<b>Е</b>	0	0
<b>Ж</b>	50	65
<b>З</b>	70	110
<b>И</b>	70	75
<b>Й</b>		
<b>1</b>		

**Group A:** 50 points

Ch. assistant professor Stoyan Mishev has a defended PhD thesis "Correlations in basic states and structure of low-lying states in odd spherical and transition nuclei" at the United Institute for Nuclear Research, Dubna, Russia. The diploma was recognized in Bulgaria by a decision of the academic council of Sofia University "St. Kliment Ohridski" in the fall of 2018. It is registered in NACID.

**Group B:** 100 points

As a habilitation work Stoyan Mishev presents three publications indexed in Web of Science and Scopus. A correction factor of 3 has been applied, valid for area 4.6. Informatics.

- 1 1. S. Mishev, "Structure of the phonon vacuum state", Physical Review C 87 (6), 064310 (2013)  
<https://www.webofscience.com/wos/woscc/full-record/WOS:000320608700003>  
Q1,
- 2 S. Mishev, The phonon vacuum state in a Lipkin model, J.Phys.Conf.Ser. 533 (2014) 012013  
<https://www.webofscience.com/wos/woscc/full-record/WOS:000346180900013>
- 3 Stoyan Mishev, "Coupled-cluster calculation of neutron matter equation of state ", 2022 J. Phys.: Conf. Ser. 2255 012006, doi:10.1088/1742-6596/2255/1/012006

**Group Г:** 336 points

Dr. Mishev has provided information on 8 publications in that point. All publications are indexed in Scopus and Web of Science valid for area 4.6. When evaluating them, a correction factor of 3, valid for area 4.6, was applied.

**Group Д:** 272 points

11. Citations in scientific publications, monographs, collective volumes and patents, referenced and indexed in world-renowned databases of scientific information (Web of Science and Scopus)\*

To the procedure are attached 37 citations. The rules for indicator D11 for direction 4.6 were used in the evaluation of the obtained points.

**Group Ж:** 65 points

21. Availability of a research or creative program

Dr. Stoyan Mishev has a long-term scientific interest in the field of theoretical and mathematical physics. In recent years, he has focused on the use of different approaches of theoretical physics in the field of artificial intelligence and knowledge extraction.

22. Membership in national and/or international organizations and associations in the relevant professional direction

He is a member of the Union of Mathematicians in Bulgaria; Union of Physicists in Bulgaria; automation and informatics union.

24. Participation in research or creative projects beyond those specified in indicators 15 and 16

He is the chairman of the board of the "Institute for Modern Physical Research".

26. Participation in the board/management council of national and/or international organizations and associations in the relevant professional direction

Member of the Scientific Council of the Francophone University Agency AUF as a country representative, two terms, in the period 2001–2006

29. Initiation/active participation in the creation of a successfully launched new program

Based on his initiative, the MP "Extraction of knowledge and technologies for big data" was launched and is successfully developing at the NBU

30. Participation in program improvement and development of courses to programs

Leads numerous courses from all programs in the department as well as the OOK. All courses are available in NBU's Moodle.

31. Organization and conduct of a scientific school, university-wide scientific seminar, scientific conference

He organized four schools with a wide student base in the period 2018-2021.

**Group 3: 110 points**

34. Average grade from the student satisfaction surveys for the course and teacher over 4.00 (10 points)

The average score from the student surveys is 4.46

35. Author's study materials for at least one course in book form and/or in "Moodle NBU". Most of the courses of Ch. Associate Professor Mishev are author's. The materials for them are available in "Moodle NBU".

### 36. Collaborative work with students in research and/or creative collectives

There are joint publications with students. Assists students in participating in projects and scientific forums.

### 37. Guidance/reviews of successfully defended graduates or participation in state examination committees

Participation in state examination committees. Guide of successfully defended diploma graduates.

Academic mentor of four students from NBU under the "Student Internships - Phase 1" program financed by OP NOIR;

## **Group II: 75 points**

### 43. Fulfilling academic obligations

He fulfills all academic obligations. Regularly participate in departmental councils

### 44. Participation/management of a project for which external funds and/or NBU students have been attracted

Project "Astrophysical constraints on the equation of state of neutron matter and effects due to modern realistic nuclear potentials involving multinucleon interactions", Scientific Research Fund of the Ministry of Education and Science of the Republic of Bulgaria under contract No. KP-06-H-38/12 of 06.12.2019,

### 45. Participation in committees at the faculties

Participates in commissions at the Faculty of Arts and the Ministry of Education for the defense of bachelor's and master's theses

### 46. Participation in Program Council, Faculty Council and/or Academic Council

Member of the Program Board of the bachelor's program in Informatics.

### 48. There are no LC penalties

## **II. Research (creative) activity and results**

The main scientific contributions of Ch. Assistant Dr. Stoyan Mishev can be specified in four main directions.

1. Structure of a quantum state known as a phonon 'vacuum'
2. Excitation of "pygmy" dipole resonance in atomic nuclei by beta decay of neighboring nuclei
3. Correlations in ground states and structure of low-lying states in odd-even atomic nuclei
4. Equation of state of infinite nuclear matter

Although these guidelines and the achieved scientific results are fundamentally from the field of physics, their implementation is largely related to the use of modern methods both in the field of mathematics and mainly in the field of informatics.

Software modeling of the obtained original results has been widely used. For this purpose, both modern concepts in the field of informatics and modern multi-core architecture are used.

### **III. Learning and teaching activity**

The educational activity of ch. assistant professor Dr. Stoyan Mishev is largely diverse, including many interdisciplinary courses.

Within the framework of the NBU, he leads courses both from the general educational provided for students from various programs, as well as narrowly specialized courses in the master's programs.

For several years, he has been giving lectures in the basic programming courses for the undergraduate students of the Dept. "Informatics".

Leads several courses in the Master's program "Knowledge Extraction and Technologies for Big Data" at the Dept. "Informatics". The main focus of these courses are different approaches and data analysis using modern analytics and software approaches.

Over the years, he has been the supervisor of numerous graduates. He participated in committees for the defense of diploma theses and state exams.

Has a major role in the organization and successful implementation of the Master's program "Knowledge Mining and Big Data Technologies".

### **IV. Administrative and public activity**

He is a member of the Program Council of the bachelor's program in Informatics.

### **V. Personal impressions of the candidate (if any)**

My personal impressions present the candidate as one the respected members to dep. "Informatics", both within the department and in the NBU. It is noteworthy that his desire to look for new fields of development and improvement, both in terms of the subject of his scientific research, and in relation to teaching and administrative activities at NBU. His desire to include students in his research, thus stimulating their academic development, should also be noted.

### **VI. Opinions, recommendations and notes on the activity and achievements of the candidate**

**Conclusion.** Based on the above-mentioned aspects of the scientific activity and professional development of Ch. assistant professor Dr. Stoyan Mishev, I express my **positive** assessment of his academic activity and propose the admission of the candidate to election by the NBU Academic Council.

**Date 20.07.2023**

**Signature .....**