

POSITION

By **Asoc.Prof. Dr. Juliana Peneva Pashkova**, New Bulgarian University, Professional Field: 4.6. Informatics and Computer Science

Regarding scientific works for participation in a competition for the scientific position of "Associate Professor", Scientific Field: 4. Natural Sciences, Mathematics and Informatics, Professional Field: 4.6. Informatics and Computer Science

Announced in State Gazette # 84/21/10/2022

Applicant: **Chief Assistant Metodi Georghiev Traykov, PhD**

I. Compliance with the national requirements and these of the University

The applied papers contain a report concerning the fulfillment of the minimum requirements according to Law on the Progress of Academic Staff in the Republic of Bulgaria and the corresponding Ordinance of New Bulgarian University. The following table presents the minimum required points by groups of indicators for the academic position "Associate Professor".

Group of indicators	Content	Associate Professor (min points)	Candidate's points
A	Indicator 1	50	50
B	Indicator 2	0	-
C	Indicators 3 or 4	100	120
D	Sum of the indicators from 5 to 9	200	216
E	Sum of the indicators from 10 to 12	50	88
F	Sum of the indicators from 13 to 20	0	
G	Sum of the indicators from 21 to 48 (obligatory for the university)	50	60
H		70	110
I		50	55

These data certify that the candidate exceeds the minimum requirements for the individual groups of indicators. In the obligatory for the University groups G-I, he presents 225 points against the required 170, and in group D (citations in scientific publications, indexed in world-famous scientific information databases as Web of Science and Scopus) – 11 citations, carrying 88 points. The presented publications and citations were not used by Metodi Traikov when acquiring his PhD degree in professional field 4.6. Informatics and Computer Science.

II. Research Activity

The main scientific interests of the candidate Metodi Traykov, the only participant in the announced competition, are in the field of bioinformatics and computer science. This is obvious from the articles presented at the competition, as well as from the topic of the PhD thesis "Mathematical models and algorithms for predicting the spatial structure of proteins". The acquired experience has been consistently developed and refined to the candidate's current qualification, including the study of the spatial structure of proteins, optimization algorithms and genetic code optimality, etc.

1. The presented monograph entitled "The protein folding problem - approaches, models and algorithms" is dedicated to a current research problem, namely prediction of the 3D structure of proteins based on their primary structure. The author's contributions consist of converting the protein-folding problem to a 0-1 optimization problem, via the development of algorithms to find the optimal structure on two-dimensional and three-dimensional lattices, and to present the problem of protein 3D structure prediction as an optimization problem. A series of numerical experiments with the candidate's proposed models, a comparative analysis of protein folding algorithms with benchmark protein sequences has been conducted. Proper software to visualize the results has been developed.
2. The applicant has included a list of 11 papers published in peer reviewed and indexed in Scopus and Web of Science international journals. One of the submitted publications has an impact factor and the rest have an SJR. All publications are co-authored and in English language. In one of them, the candidate is the first author. The contributions are scientific-applied.
3. Metodi Traykov has submitted a list of 32 citations of his publications in peer reviewed and indexed in Scopus and Web of Science international journals. In Google Scholar and ResearchGate the total number of citations of candidate's papers for the last five years exceeds 120, his H-factor being 6. I presume that the achievements of Metodi Traykov in the field of the competition are well known among the scientists.
4. In the period 2012 - 2022, Metodi Traikov took part in 10 scientific research projects, 3 of them international, and the rest - national. He was engaged in the translation of the book "Competitive Programming 3. The New Lower Bound of Programming Contests" with authors Steven Halim and Felix Halim, ISBN 9789548212106. I admit the project activity of the applicant is significant.

III. Teaching Activity

1. The applicant has a considerable experience as a lecturer in different computer science disciplines in higher education institutions – Souwth West University and American University in Blagoevgrad. In 2019 Metodi Traykov was appointed to the position of "chief assistant" at the Informatics Department of the NBU. He delivers lectures and exercises in programming and data structures in the department's undergraduate and graduate programs. He also has developed a new course entitled "Bioinformatics" in the Bachelor's program "General and Applied Biology" delivered by the Department of Natural Sciences. Being involved in several disciplines, Metodi Traykov has prepared appropriate learning content. This content is provided to learners through the

university's e-learning system. Viewing from the attached report, I can assess the candidate's teaching activity as a sufficient one. Metodi Traikov is regularly involved in the preparation of republican student programming contest and in coaching the university competition teams. The candidate governs joint works of students in various practices of Internet programming. He delivers some of his classes in English, supervises diploma theses and participates in examination boards.

2. The regular inquiry of student's satisfaction about given course and instructor results to estimation above 4.00 for Dr. Traikov, referring to the following courses:
 - CITB306 Data structures - 4,83;
 - CSCB212 OO Programming – 5.38.

I assess that the pedagogical activity of the candidate Dr. Metodi Georgiev Traikov, satisfies the competition requirements and he conforms to the academic position of "associate professor".

IV. Administrative and Public Activity

Metodi Traikov is a member of the Union of Bulgarian Mathematicians. Dr. Traikov is also member of the Organizing committee of the annual Computer Science and Education in Computer Science (CSECS) conference organized by NBU, the University of Fulda and Boston University. He is involved in the development and improvement of the department's programs and, in particular, in the process of continuous development of the disciplines' content.

V. Personal Impressions

I have known Metodi Traikov for a long time. Since 2019, we have been colleagues in the Informatics Department of the NBU. His active publication activity and work on various projects are impressive. Metodi Traikov took special concern about students' preparation for informatics contests. He carefully updates the learning content he delivers and offers new courses of his competence as well.

VI. Critical Remarks and Recommendations

I have no critical comments about the candidate's performance. I can only recommend continuing the research activities of his scientific interest.

CONCLUSION

The presented works, as well as the candidate's pedagogical and scientific activities, are sufficient as an asset, as content and as a contribution, to motivate my clear conclusion to award the academic position of "associate professor" to Dr. Metodi Traykov. I give a **positive** assessment to the candidate, Dr. Metodi Traykov. I suggest to the esteemed Scientific Jury to propose to the Academic Council of the New Bulgarian University to confirm the candidate for the academic position of associate professor in the scientific field: 4. Natural Sciences, Mathematics and Informatics, professional field: 4.6. Informatics and Computer Science.

Date: February 15, 2023

Member of the scientific jury:
Assoc. Prof. Juliana Peneva