

SCIENTIFIC STANDPOINT

From: Prof. Dr. Kristiyan Stoyanov Hadzhiev, New Bulgarian University, Department of Administration and Management, Professional Area 3.7 "Administration and Management," Scientific Specialty "Social Management"

Subject: Regarding the competition for the academic position of "Professor" at NBU, in the professional field 5.3. "Communication and Computer Engineering", announced in the State Gazette, issue 85/08.10.2024, with candidate Associate Professor Rosen Ivanov Pasarelski, PhD.

Grounds for the Submission of the Opinion: Member of the scientific jury of the competition, according to Order Z-RK-84/18.12.2024 of the Rector of NBU.

The scientific standpoint was prepared in accordance with the Law on the Development of the Academic Staff of Republic of Bulgaria, the Rules for the Implementation of this Law and the Ordinance on the Development of the Academic Staff at NBU. In terms of structure, it consists of 6 parts and a conclusion according to a template for preparing a review for occupying the academic position of "professor" at NBU.

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

This competition is intended for the needs of the Department of Telecommunications of NBU, for the academic position of "professor" in the professional field 5.3 "Communication and Computer Engineering". It was announced in accordance with all legal rules in the State Gazette, issue 85 of 08.10.2024.

Only one candidate submitted documents for participation in the competition, namely Associate Professor Dr. Rosen Ivanov Pasarelski.

The documentation for the competition is complete and fully complies with the minimum national requirements and the standards of the Regulation for the Development of the Academic Staff of the New Bulgarian University. The documentation is also attached to the documentation by the candidate regarding the presented measurable indicators and activities related to the competition for "professor" at NBU, which fully meet the national requirements established by the Law on the development of the academic staff in the Republic of Bulgaria (ZRASRB) and the NRAS of NBU for scientific and teaching activities in the professional field 5.3 "Communication and Computer Engineering". The number of points achieved by the candidate on the relevant indicators significantly exceeds the minimum legally required.

Based on the above, I can state that the documentation provided by the candidate Assoc. Prof. Dr. Rosen Ivanov Pasarelski is fully in accordance with the minimum national requirements and the requirements of the New Bulgarian University for occupying the academic position of "professor" in the professional field 5.3 "Communication and Computer Engineering" at NBU.

II. Research (creative) activity and results

1. Assessment of monographic work

In connection with the competition for a "professor" in the Department of Communication and Computer Engineering at NBU, Associate Professor Dr. Rosen Pasarelski has submitted a habilitation monographic work entitled "New 5G mobile cellular systems. Research on the interaction between 4G-LTE and 5G systems: architecture, network functions, interfaces and protocols" (ISBN: 978-619-233-

282-2). The research covers the structural features and functionalities of 4G and 5G networks, focusing on the integration between the two generations, radio signaling and multiple access approaches. Analytical models and calculations aimed at improving radio signaling in 5G and other important aspects are presented.

The monograph has a total volume of 220 pages. It is structured in two main sections, with a preface and an introduction. The content is based on a total of 85 cited scientific papers and information sources that increase scientific output.

The monograph highlights a number of scientific and applied scientific contributions such as: research and analysis of the main interfaces for connection and communication between various network components in the 4G - LTE network, mathematical analyses of orthogonal frequency division multiplexing, analysis of network functions and objects in 5G systems, research of non-orthogonal multiple access - NOMA and transmission principles in 5G systems, as well as mathematical analyses supported by numerical results and models for optimizing radio signaling capabilities in 5G systems.

I highly evaluate the monograph, both in scientific and applied aspects.

2. Assessment of the author's scientific and scientific contributions

The authorial contributions of Associate Professor Dr. Rosen Ivanov Pasarelski have both scientific and practical value in the field of telecommunications. His developments examine in detail the structure and management of fourth and fifth generation networks, with special attention to the management of frequency resources and ensuring network security. The developed mathematical models for OFDM and OFDMA help to better use the available frequency spectrum. In the research on 5G networks, both complex network functions and new approaches in radio network architecture have been analyzed, emphasizing integration with previous technologies. Also significant is his work on the topic of compatibility between 4G and 5G networks, which is key to their successful interconnection. The study of multiple access - NOMA in the context of 5G sheds light on the advantages of new data transmission technologies, while at the same time offering solutions to emerging problems and shortcomings. These innovative developments have made a significant contribution to the development of mobile communications.

This gives me reason to state that the candidate's contributions are significant and relate to key aspects of the development of 4G and 5G systems, which makes them important, both in scientific and applied terms.

3. Assessment of the contributions in the other attached publications made after the appointment of the academic position "Associate Professor"

To the announced competition for a "professor" in the professional field 5.3 "Communication and Computer Engineering" at NBU, to a group of indicators D, the candidate Assoc. Prof. Dr. Rosen Pasarelski has submitted a list of 29 publications. The submitted publications do not overlap with those for the acquisition of the ONS "doctor" and the academic position "associate professor" by the candidate in the PN 5.3. "Communication and Computer Engineering" of NBU. The total number of points achieved by Assoc. Prof. Rosen Pasarelski under the relevant indicator is 360, with 200 points required, relevant to the minimum national requirements under the ZRASRB for the academic position "professor" and the NRAS of NBU, which significantly exceeds the norm.

The presented list highlights several publications indexed in the authoritative database – Scopus, which I would like to note are characterized by high scientific and applied scientific value, which emphasizes the enviable quality of the scientific contribution of Associate Professor Dr. Rosen Passarelski. Publications in Scopus are a sign of credibility of the research conducted, emphasizing their role and influence in current scientific discussions in the field of communication and computer technologies. The focus of a large part of the candidate's publications is in the field of fifth-generation mobile cellular systems (5G), which is an extremely relevant and significant topic in the modern telecommunications industry. Through his research, Associate Professor Dr. Rosen Passarelski examines key aspects of the implementation and optimization of 5G technologies, which is of great importance for the development of infrastructure and services related to mobile connectivity.

All publications submitted for the "professor" competition demonstrate in-depth knowledge and significant scientific and applied scientific contribution in the field of professional direction 5.3 "Communication and computer technology". The author's scientific activity stands out with competence and professionalism, scientific precision in research, which gives me reason to rate it highly.

4. Citation from other authors

Within the framework of the competition for the academic position of "professor" in the Department of Communication and Computer Engineering at NBU, Associate Professor Dr. Rosen Pasarelski has submitted a reference from the NBU library with 46 citations of his works. The following sources were considered for the information provided:

- SCOPUS
- WEB OF SCIENCE
- CEEOL
- GOOGLE SCHOLAR
- eLIBRARY

Specifically, 8 citations have been registered in the most renowned Scopus database, proving the significance of his works.

With 161 citation points collected, significantly above the minimum requirement of 100 points, the candidate exceeds the criteria for holding the position of "professor".

5. Evaluation of the results of participation in research and creative projects and application of the obtained results in practice

Associate Professor Dr. Rosen Pasarelski presents participation in 9 national projects, as follows:

1. Project "Planning, Design and Optimization of Wireless Communication Platforms, Services and Solutions for 5G and IoT", contract No. 2205E/2022, funded by the University Center for Scientific Research and Technology (UCNIT) at TU - Gabrovo

2. Project BG051PO001-3.1.07-0062 "Improving interdisciplinary skills and interaction with business of telecommunications specialists", under the grant scheme BG051PO001-3.1.07 "Updating the curricula in higher education in accordance with the requirements of the labor market" - team member.

3. Measurement, research, analysis and prediction of the impact of the working electromagnetic fields of mobile devices on the health and quality of life of the population in densely populated areas – DFNI- B01/0017, team member

4. Project BG05M20P001-2.003-0001 "Student practices – phase 1, academic mentor

5. Project BG05M20P001-2.013-0001 of the Ministry of Education, Science and Technology, Student practices – Phase 2" funded by the OP NOIR, academic mentor

6. Project for the construction of a "Telecommunications" laboratory (LTK) at NBU, team member.

7. Project for the construction of an "Information Monitor" in the central lobby of NBU, team member.

8. Project for the publication of teaching aids for the Department of "Telecommunications" of NBU, funded by BTC, team member.

9. Research project "Development of IoT/4G/5G-based communication solutions for platforms, systems and services in a Smart City" - Technical University of Gabrovo, team member.

Participation in the listed projects significantly contributes to the development of telecommunication technologies and their application in modern solutions, including 5G, IoT and smart cities. In addition, the projects promote interdisciplinary learning, the connection between academia

and business, as well as the improvement of the educational infrastructure and practical skills of students.

Associate Professor Pasarelski also participates in an international project "Study of processes induced by irradiation and chemical reactions that occur at different temporal and spatial scales. Technological applications", funded by the European Research Fund under the COST European Cooperation in Research and Technology Programme, as a team member. His participation in this project highlights his high scientific competence and skills and his ability to work in international teams.

By participating in a project for field research, installation and configuration of computer systems and networks, as a leader of a student team, he demonstrated excellent leadership qualities, organizational skills and deep technical knowledge in the field of computer technology.

I appreciate the participation of Assoc. Prof. Dr. Rosen Pasarelski in scientific and educational projects as highly significant, with real benefits for science, education and society.

III. Learning and teaching activity

1. Auditory and non-auditory employment, work in the electronic training module "MOODLE - NBU", provision of student practices and internships, work with students and doctoral students.

Rosen Passarelski has been a full-time lecturer at the New Bulgarian University since 2003. In 2013, he defended his PhD in the field of "Communication and Computer Engineering", and since 2015, he has been an associate professor in the same field. He teaches important disciplines in bachelor's and master's programs such as "Mobile Communications", "Installation and Configuration of Computer Systems" and "Linux Server Systems and Applications". In addition to his lecturing activities, Associate Professor Passarelski provides and supervises numerous student practices and internships. In the doctoral program "Telecommunications", Associate Professor Rosen Passarelski also leads academic disciplines and works actively with doctoral students, being the scientific supervisor of two successfully certified doctoral students. In addition, he is the author of two textbooks used in university courses. Rosen Passarelski integrates electronic resources into education through the MOODLE platform, creating teaching materials, electronic tests and video materials. His teaching work is highly appreciated by students, with their average grade for his courses being 4.65 (out of a maximum of 5.00). With many years of experience in supervising 90 graduates and participating in 163 committees for diploma defenses and state exams, Associate Professor Rosen Pasarelski is recognized for his professionalism and commitment in the Department of Communication and Computer Engineering 5.3, and his contribution to the teaching and academic environment is highly appreciated by students and his colleagues at NBU.

IV. Administrative and public activity

1. Participation in collective management bodies of the NBU

Associate Professor Dr. Rosen Pasarelski participates in collective management bodies of the New Bulgarian University. Since 2003, he has been a member of the Council of the Department of Telecommunications with regular participation. He has gone through all the important steps in the administrative hierarchy in the Department of Telecommunications, having been the director of the bachelor's program "Telecommunications", held the position of director of the Program Council of the Department of Telecommunications and currently serves as the Head of the Department of Telecommunications. Associate Professor Pasarelski is also a long-standing member of the Faculty Council of the NBU FDENO.

Associate Professor Rosen Pasarelski also has commitments as the editor-in-chief of the Yearbook "Telecommunications", indexed in CEEOL, which plays an important role in the development of scientific activity in the department.

Associate Professor Rosen Pasarelski represents NBU in professional associations such as "ATI" and "ASTEL". He also actively participates in candidate student campaigns, promoting the department and its programs.

The candidate's administrative and public activities and his participation in collective governing bodies of NBU may be highly appreciated in the context of the current competition for "professor".

V. Personal impressions of the candidate (if any)

I know Associate Professor Rosen Passarelski from our work at the New Bulgarian University, where we have worked together on various activities and initiatives. His commitment and professionalism have always been evident. He demonstrates an exceptional ability to inspire his students and colleagues, and his experience in the field of telecommunications is invaluable to the academic community. Associate Professor Passarelski is not only an excellent teacher, but also an exceptional mentor. His work with doctoral students and undergraduates is proof of his dedication to education and his desire to pass on knowledge and experience. He has the ability to identify talents and guide young researchers in their academic careers. His capacity to work in a team and communicate effectively with colleagues from different specialties is an exceptional quality. As a person, he possesses sincerity and respect for people. He is always ready to listen to the opinions of others and take into account different points of view, which is especially important in the academic environment. Extremely positive and adaptable in the work process.

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

I have no critical remarks about the materials presented by Associate Professor Dr. Rosen Pasarelski. He is a proven scientist and teacher who combines high academic and research standards with practical application of knowledge. I believe that the candidate has an undeniable potential to participate in research projects in the European scientific space and has the knowledge to expand his research in the field of telecommunications.

I would recommend the candidate to continue to develop his teaching and research initiatives by encouraging interdisciplinary collaboration and exchange of knowledge among colleagues and students.

CONCLUSION

Based on the opinion, I declare that the candidate Rosen Ivanov Pasarelski fully meets all the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Rules for its Implementation, as well as the requirements of the NRAS of the NBU for holding an academic position "professor" in professional field 5.3 "Communication and computer technology". The scientific publications of the candidate in the competition contain important theoretical, methodological and practical contributions, which are the fruit of his personal scientific research and further develop science.

In conclusion, I give a highly positive assessment of the candidate's scientific and academic activities and support the candidacy of Associate Professor Dr. Rosen Ivanov Pasarelski for the academic position of "professor" in professional field 5.3. "Communication and Computer Engineering" at the New Bulgarian University and recommend that he be elected by the Academic Council.

Sofia,
07.01.2025

Signature
/Prof. Dr. Kristiyan Hadzhiev/