

OPINION

by Assoc. Prof. Dimitar Todorov Pavlov, Technical University - Sofia
on the materials submitted for participation in the contest
for the academic position of associate professor in
field of higher education - 5. Technical Sciences,
in the professional field - 5.2. Electrical Engineering, Electronics and Automatics, specialty -
"Electrical Power Supply and Electrical Equipment" (Lighting
and installation engineering)

In the contest for associate professor, announced in the State Paper, issue 54/25.06.2024 and on the website of TU-Gabrovo for the needs of the Technical College - Lovech as a candidate participated Dr. Eng. Milko Todorov Yovchev, Senior Assistant Professor at the Department of Electrical Power Supply and Electrical Equipment at the Technical University - Gabrovo.

The statement was prepared in accordance with the requirements of the Regulations for the Acquisition of Scientific Degrees and Academic Positions at the Technical University - Gabrovo.

1. Overview of the content and results in the presented papers

In the competition for Associate Professor, Assistant Professor Milko Yovchev has submitted a total of 35 scientific publications, 2 educational aids, and 1 textbook. Information about citations and participation in research and educational projects has also been presented. The submitted scientific publications are divided into two groups:

Publications equivalent to a monographic work (group of indicators B4) – 10 publications in journals that are referenced and indexed in globally recognized scientific information databases such as Scopus and Web of Science. Among these publications, one has an SJR of 0.180.

Publications not equivalent to a monographic work – divided into two subgroups:

In journals that are referenced and indexed in globally recognized scientific information databases (group of indicators G7) – a total of 5 conference papers. In this subgroup, the candidate is the first author in one publication.

In non-referenced journals with peer review or in edited collective works (group of indicators G8) – a total of 20 conference papers. Out of the publications in this subgroup, 3 are sole-authored.

All publications in the B4 and G7 indicator groups are in English, while out of those in group G8, three are in English and the rest are in Bulgarian. A citation report has also been submitted, showing that the candidate has 10 citations in SCOPUS, one of which is in a publication in a journal with an IF of 2.7.

2. General description of the applicant's activities

2.1. Teaching and pedagogical activity (work with undergraduate and postgraduate students)

The teaching and educational activities of Senior Assistant Professor Dr. Milko Yovchev are extensive and significant. A submitted official certificate confirms that he has delivered lectures, laboratory, and seminar exercises in 5 different disciplines. Over the past three

academic years, his teaching workload has averaged over 450 hours per year. The two educational aids and the textbook, for which he is a co-author and which have been submitted for this competition, are also highly commendable. Assistant Professor Yovchev has also developed two curricula for the Master's degree and three for the PhD degree.

2.2. Scientific and applied activities

Assistant Professor Dr. Eng. Milko Yovchev demonstrates outstanding achievements in the field of lighting technology and energy-saving systems, with his scientific work organized into four main areas: three-dimensional computer modeling of optical systems for LED luminaires, research on color characteristics, improving energy efficiency in indoor and street lighting systems, and other related projects. He actively participates in the establishment of the research laboratory "Ecological, energy-saving, and electromagnetically compatible lighting, LED, and renewable energy components and technologies" under the Competence Center "Intelligent Mechatronic Eco- and Energy-saving Systems and Technologies" at the Technical University of Gabrovo. This laboratory represents a significant accomplishment in the field of innovation and technologies aimed at sustainable development and energy efficiency.

Assistant Professor Yovchev also leads a research project titled "Investigation of Photometric and Electrical Characteristics of LED Luminaires, Volt-Ampere Characteristics, and Efficiency of Photovoltaic Modules," through which significant contributions have been made to the optimization of lighting and energy-saving systems. His research in the field of LED lighting and photovoltaic modules is of great importance for both scientific and applied lighting technology, offering solutions that stand out for their high energy efficiency and environmental compatibility.

Notably, he has been recognized by the Union of Electronics, Electrical Engineering, and Telecommunications in Bulgaria, receiving an award for the best paper at the UNITECH 2022 conference. Overall, the scientific and applied research activities of Assistant Professor Dr. Eng. Milko Yovchev are distinguished by a strong practical focus and innovative approach, with contributions that are of substantial importance both to the scientific community and to the industry in the fields of lighting technology and energy efficiency.

3. Contributions (scientific, applied, applied). Significance of contributions to science and practice

The candidate's main contributions can be divided into the following groups:

"Three-Dimensional Computer Modeling and Optimization of Optical Systems for LED Luminaires"

The methodology and results of these studies are significant for the advancement of science, as they expand the possibilities for modeling and optimizing optical systems for LED luminaires. The applications of this methodology in industry are also essential, as they enable the creation of more efficient, economical, and environmentally sustainable lighting solutions that meet various lighting technical requirements and standards. Such contributions positively impact the quality of lighting in public, industrial, and urban spaces, ensuring better visual perception and comfort for users.

"Research on the Color Characteristics of Luminaires"

Contributions in the area of color characteristics research and the photobiological safety of LED luminaires are important both for science and their practical application. Scientifically derived dependencies related to blue light and the detailed analysis of color characteristics

deepen knowledge in the field of lighting technology and photobiological safety while providing valuable insights for the industry. Applied research, such as the development of a prototype for a greenhouse LED luminaire, has a direct impact on practice by promoting the creation of innovative solutions for indoor and greenhouse lighting, tailored to health requirements and light quality standards.

"Increasing the Energy Efficiency of Indoor and Street Lighting Systems"

The contributions in this field hold significant value for both the scientific community and practical applications. The developed methodologies for energy audits and optimization of lighting systems contribute to expanding theoretical knowledge on improving energy efficiency and integrating intelligent systems into lighting installations. In practical terms, these studies encourage the use of energy-saving technologies and smart lighting management, which benefits society and leads to long-term savings for public and private entities. These results contribute to the sustainable development and ecological efficiency of lighting infrastructure in cities and enclosed spaces.

The candidate's contributions are significant as they include the development of theoretical models that successfully find practical application.

A comparison of the candidate's indicators with the minimum requirements for the academic position of "Associate Professor" according to the Rules for Acquisition of Academic Degrees and Occupation of Academic Positions at the Technical University of Gabrovo shows that the candidate exceeds the minimum requirements in all indicators.

4. Evaluation of the candidate's personal contribution

The submitted materials clearly demonstrate that the candidate works successfully both independently and as part of a team, with a significant contribution to the overall work.

5. Critical remarks and recommendations

I have no critical remarks. I recommend that the candidate continue deepening his knowledge and actively advancing in the field of lighting technology, building on the results achieved and contributing to new innovations in this area.

6. Personal impressions

I have very positive personal impressions of the candidate, both as a scholar and as a person. He demonstrates high competence, dedication to his work, and excellent personal qualities, making him a valuable colleague and professional.

7. CONCLUSION

In view of the achievements and impressions outlined above, I propose that Assistant Professor Dr. Eng. Milko Todorov Yovchev be selected for the academic position of "Associate Professor" in the field of Higher Education – 5. Technical Sciences, Professional Direction – 5.2. Electrical Engineering, Electronics, and Automation, specialty – "Electric Power Supply and Equipment" (Lighting and Installation engineering).

31.10.2024

Member of the scientific jury: /signature/

/Assoc. Prof. Dimitar Pavlov PhD/