

STATEMENT

by prof. dr. eng. Prof. Mladen Stoilov Milushev, TU - Sofia

on the materials submitted for participation in the competition
for the academic position of **professor**
of **Plovdiv University "Paisii Hilendarski"**

field of higher education 5. Technical Sciences
professional field 5.1. Mechanical Engineering
(Automation of engineering work and automated design systems)

By Order No. RD-21-385 of 16.02.2024 of the Rector of Plovdiv University "Paisiy Hilendarski" (PU) I have been appointed as a member of the scientific jury of the competition for the academic position "Professor" in PU in the field of higher education 5. 5.1. Mechanical Engineering (Automation of engineering work and automated design systems), announced for the needs of the Department of Mechanical Engineering and Transport at the Faculty of Physics and Technology.

General presentation of the procedure and the candidate

In the competition for "professor", announced in the State Gazette, no. 96 of 17.11.2023 and on the website of Plovdiv University "Paisiy Hilendarski" for the needs of the "Mechanical Engineering and Transport" department at the Faculty of Physics and Technology, documents were submitted for participation in the announced competition by a single candidate: Assoc. Prof. Dr. Slavi Yassenov Lyubomirov from Plovdiv University "Paisiy Hilendarski".

The documents and materials submitted by Assoc. Prof. Dr. Lyubomirov comply with all the requirements of the Academic Staff Development Act in the Republic of Bulgaria (ASDA), the Regulations for Implementation of the ASDA and the relevant Regulations of "Paisiy Hilendarski" University.

The candidate's scientific research and applied scientific activity began in 2002 as an assistant professor at the Technical College - Smolyan, Plovdiv University "Paisiy Hilendarski". After his habilitation in 2015, his research activity is mainly related to research, development and application of modern theoretical and experimental methods in the field of quality monitoring systems, methodological guidelines for experimental validation of simulation demonstration, stochastic algorithms for identifying the structure of linear systems, etc.

According to the reference attached to the documents, after his habilitation he has worked on 11 projects, two of them international - Erasmus+ programme. The projects are in the field of competition. Some of them were implemented as laboratory stands. The candidate is a member of program committees of conferences, as well as of professional organizations: Union of Scientists in Bulgaria.

The documents do not contain complete information on the personal contribution of Assoc. Prof. Dr. Lyubomirov to these developments, but this can be judged from the related publications. On their basis, for this part of his activity, a high overall evaluation can be given.

Evaluation of the candidate's pedagogical training and activity

Assoc. Prof. Dr. Lyubomirov is a lecturer at the Department of Electrical Energy and Communications at PU. He is Associate Professor of Communication and Computer Engineering (Computer Systems, Complexes and Networks) since 2015. According to the attached reference, in the last 3 years he has been teaching more than 5 courses with an average annual lecture load of 750 hours. He has been a supervisor of three doctoral (PhD) students, one of whom has already defended.

The preparation of teaching aids is of essential importance in the assessment of the teaching-methodical activity of the candidate for the academic position of "professor". Before his habilitation, the candidate was the co-author of 5 textbooks. After his habilitation, he published the books: "Hardware and software research for digital relay protections" - independently, and "Programming for mobile devices" in co-authorship, as well as a teaching aid "Computer simulations in electrical engineering and electronics education". The leading role of Assoc. Prof. Dr. Lyubomirov in these publications is beyond doubt. They are written professionally and in language accessible to students.

I believe that the pedagogical activity of Assoc. Prof. Dr. Lyubomirov fully meets the requirements for the academic position of "professor".

Scientific and applied scientific contributions

Scientific contributions: contributions refer to methodologies and approaches, proving existing problems by new means. I find contributions in the monograph of Assoc. Prof. Dr. Lyubomirov "Digital tools and systems for automated design in mechanical engineering" and in the related publications (G8.40, G8.41, G8.39, G8.38, G7.10, G7 .8, D7.9 and D8.36). A methodology for the automated design of devices is presented, approaches to modeling and research of prototypes are proposed. A comprehensive approach has been developed to select optimal parameters of the system controller, based on the complete up-to-date sensor information on the state of the engine (G8.15, G8.16, G8.27, G8.29). A methodology is proposed for determining the coefficient of thermal conductivity when measuring the properties of thermal insulation materials (G7.4, G7.6).

Scientific applied contributions: contributions refer to obtaining and proving new facts and creating new classifications, constructions, schemes, as well as obtaining confirmatory facts. Of scientific applied nature are: an approach to defining computer models for simulation and experimental studies (G7.3, G8.1), of operational amplifiers (G8.3) of radio communication devices (G8.2), of connected oscillating circuits (G8. 5) etc. Stochastic algorithms for identifying the structure of linear systems have been experimented (G8.23, G8.25).

The results of the candidate's research and development found a wide response (41 cited papers in total) among the scientific community in the country and abroad. The contributions are significant for both industry and student learning.

Critical remarks and recommendations

I have no substantive remarks, only those of a formal nature

- I do not dispute the main scientific and scientific-applied contributions of the candidate, but I think that the formulation of the contributions should be as short and clear as possible. In this context, I recommend that contributions be edited more precisely.

- From the list of publications for the academic position "professor", it is appropriate to exclude publications G8.1, G8.2 and G8.3 due to their publication before the habilitation.

- I recommend to Assoc. Prof. Dr. Lyubomirov to find a way to motivate more PhD students to participate in his future projects.

CONCLUSION

The results achieved by Assoc. Prof. Dr. Slavi Yassenov Lyubomirov in the educational and research activities **fully correspond** to the minimum national and additional requirements of the Faculty of Physics and Technology, adopted in connection with the Regulations of the PU for the application of ASDA. The scientific and teaching qualifications of Prof. Dr. Slavi Yassenov Lyubomirov cannot be doubted.

Guided by the principle of complex evaluation of the candidate, on the basis of the materials and scientific works presented in the competition, analysis of their significance and scientific, scientific and applied contributions contained in them, I find it justified to give my **positive** assessment and recommend the Scientific Jury to prepare a report-proposal to the Faculty Council of the Faculty of Physics and Technology at Plovdiv University " Paisiy Hilendarski" for the election of Assoc. Dr. Slavi Yassenov Lyubomirov to the academic position of "Professor" at Paisiy Hilendarski University of Physics and Technology in the following fields of higher education 5. Technical sciences, professional field 5.1. Mechanical engineering (Automation of engineering work and automated design systems).

03.04. 2024

Prepared the statement:

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