

OPINION

by **Prof. Temenuzhka Atanasova Yovcheva, PhD**
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of the materials submitted for participation in a competition
for the academic position of „Associate professor“
at **Plovdiv University “Paisii Hilendarski”**

in the field of higher education 4. *Natural sciences, mathematics and informatics*,
professional field 4.1. *Physical Sciences (Physics of microcosm, high energies and elementary particles)*

In the competition for „Associate professor“, announced in the State Gazette, no. 98 of 19.11.2024 and on the website of Plovdiv University „Paisii Hilendarski“ for the needs of the Department of Educational technologies at the Faculty of Physics and Technology, the only candidate participating is Chief assistant professor Dr. Mariana Filipova Shopova from Plovdiv University “Paisii Hilendarski”.

1. General overview of the procedure and the candidate

By order No. PD-22-96 from 17.01.2025 of the Rector of the Plovdiv University „Paisii Hilendarski“ (PU), I have been appointed as a member of the scientific jury of a competition for the academic position of „Associate professor“ in PU in the field of higher education 4. Natural sciences, mathematics and informatics, professional field 4.1. Physical Sciences (Physics of microcosm, high energies and elementary particles), **announced for the needs** of the Department of Educational technologies at the Faculty of Physics and Technology.

For participation in the announced competition, **the only candidate** who submitted documents is Chief assistant professor Dr. Mariana Filipova Shopova from Plovdiv University “Paisii Hilendarski”.

The set of materials, presented by Dr. Marinaa Shopova, is in accordance with the Regulations for the Development of the Academic Staff of PU „Paisii Hilendarski“ and constitutes of all required documents, necessary for the competition entrance.

The candidate Dr. Mariana Shopova has submitted a **total of 18 scientific works**, which were published after obtaining the educational and scientific degree “Doctor (PhD)” and after occupying the academic position of “Chief Assistant Professor”. All publications for the competition are in journals that are referenced and indexed in the Web of Science and/or Scopus databases. 8 of the papers are published in first quartile journals (Q1) and 10 are published in second quartile journals (Q2). They include:

- equivalent to Habilitation work – scientific publications in journals that are referenced and indexed in world-renowned databases with scientific information (Web of Science and Scopus) (in dicator V) - 7 articles;
- scientific publications in journals that are referenced and indexed in world-renowned data bases with scientific information (Web of Science and Scopus), outside of the habilitation work, (indicator G, point 7) - 11 articles.

Currently, these publications have 80 independent citations. The Hirsch index (h-Index) is 117 (according to Scopus).

The scientific activities presented by Ch. Assistant Professor Mariana Shopova, PhD fully comply with the minimum national requirements for professional field 4.1. Physical sciences, as well as those of the University of Plovdiv “P. Hilendarski”:

According to criterion A (min. 50 points) – 50 points

In 2018, she received a PhD in High energy and elementary particles Physics, defended at the Institute for Nuclear Research and Nuclear Energy at the Bulgarian Academy of Sciences, Sofia, on the topic “PERFORMANCE OF THE CMS RPC SYSTEM – FROM LS1 UPGRADE TO RUN2 AT LHC”.

According to criterion B (min. 100 points) – 150 points

7 publications equivalent to a monographic work are presented, which are referenced and indexed in world-renowned databases with scientific information (Web of Science and Scopus).

According to criterion G (min. 200 points) – 250 points

11 scientific publications are presented in journals that are referenced and indexed in world-renowned databases with scientific information (Web of Science and Scopus).

According to criterion D (min. 50 points) – 160 points

All citations are in scientific publications, referenced and indexed in world-renowned data bases with scientific information (Web of Science and Scopus) according to indicator D-11.

Brief biographical data about the candidate:

Dr. Mariana Shopova obtained consecutively at PU "P. Hilendarski" a Bachelor's Degree in Engineering Physics (2010) and two Master's Degrees – in Applied Nuclear Physics and Photonics and Modern Optical Technologies. She was awarded PhD degree in professional field 4.1. Physical Sciences (High energy and elementary particles physics), after the successful defence of her dissertation in 2018 at the Institute of Nuclear Research and Nuclear Energy – BAS. Since 09.09.2016 until the present day, Dr. Mariana Shopova has been employed first as an assistant professor and then as a chief assistant professor. Since 2018, she is part of the local organizers, teachers and mentors for the International CERN masterclasses in Bulgaria. Since 2019, Dr. Mariana Shopova is the Head of the "Isotope Laboratory, Biophysics Laboratory and RAS Storage" facility at PU "Paisii Hilendarski". From 2019 to 2024, she was the representative of Bulgaria in the Early Career Researchers Panel (ECR Panel) of the European Committee for Future Accelerators. Since 2020, she has been the representative of the RPC system within the CMS Muon Conference and Publications Group, and in 2021, she became the coordinator of the RPC Conference and Publications Group. Since 2023, Dr. Mariana Shopova has been a co-coordinator of the the RPC Detector Performance Group. In 2019, she was appointed as representative of the Plovdiv University "Paisii Hilendarski" in the non-political organization of Bulgarian Atomic Forum (BULATOM).

2. General characteristics of the candidate's activity

Assessment of educational and pedagogical activity and preparation of the candidate

As a university lecturer, Dr. Mariana Shopova has 9 years of experience and teaches in 7 different educational courses, two of which in English. Electronic materials have been developed for all disciplines, uploaded to electronic platforms with easy access for the students. She has curricula and labs in 11 different disciplines. Dr. Mariana Shopova is the author of 8 educational lecture courses, curricula and study plans for disciplines both in Bachelor's and Master's educational degrees. She has been the supervisor of 6 successfully defended diploma theses (for Bachelor's degree) and the reviewer of 7 diploma theses (both for Bachelor's as well as Master's degree).

Chief assistant professor Mariana Shopova was **the supervisor of 6 graduates**, who successfully defended their Bachelor's degrees and was **the reviewer of 7 diploma theses**.

Evaluation of the candidate's scientific and scientific-applied activity:

Chief assistant professor Mariana Shopova is a participant in 6 scientific projects. Five of which are for the Institute for Nuclear Research and Nuclear Energy at the Bulgarian Academy of Sciences and one is for the Fund "Scientific research" at the Plovdiv University "P. Hilendarski". She participated in 8 international conferences and workshops and 4 national conferences and workshops.

All publications, submitted for the competition, are in journals that are refereed and indexed in world-renowned databases of scientific information (Web of Science and/or Scopus). The main scien-

tific topics of the presented publications are in the field of High energy and elementary particles physics, particle detectors, gaseous detectors, trigger detectors and performance (operation) of high energy physics detectors.

Her scientific contributions have both a fundamental and an applied nature and can be grouped into several fields:

- Detector analysis
- CMS Muon Trigger and RPC system Trigger
- CMS Muon system Upgrades

I do not find any plagiarism in the candidate's scientific production.

The candidate's personal contribution in the related publications is mainly in the raw data analysis and processing for muon reconstruction, timely reporting of problems with the software packages used during the work process, coordinating of individual detector analysis tasks, assembly and testing of detectors and the analysis of their working parameters and estimation of their lifetimes. She also participated in training and mentoring of new colleagues.

3. Critical remarks and recommendation

I have no critical remarks and recommendations.

CONCLUSION

The documents and materials presented by Ch. Assistant Professor Mariana Shopova, PhD, **meet all the requirements** of the Law on the Development of the Academic Staff in the Republic of Bulgaria (LDASRB), the Regulations for the Implementation of LDASRB and the respective Regulations of the University of Plovdiv "Paisii Hilendarski".

The candidate in the competition has submitted a sufficient number of scientific papers published after the materials used in the defense of the PhD („Doctor“) degree and participation in the procedure for assistant professor. The candidate's works contain original scientific and applied contributions that have received international recognition, as all scientific publications are in journals that are referenced and indexed in world-renowned databases with scientific information (Web of Science and Scopus). The theoretical developments have a practical applicability, and some of them are directly oriented to academic work. The scientific and teaching qualifications of Ch. Assistant Professor Aneliya Mincheva Dakova-Mollova, PhD is unquestionable.

The results achieved by Ch. Assistant Professor Mariana Shopova, PhD in educational and research activities fully correspond to the minimum national and additional requirements of the Faculty of Physics and Technology.

After getting acquainted with the materials and scientific works presented in the competition, analyzing their significance and contained in them scientific, scientific-applied and applied contributions, I find it reasonable to give **my positive assessment** and I strongly recommend the Scientific Jury to prepare a report-proposal to the Faculty Council of the Faculty of Physics and Technology for the election of Chief Assistant Professor Dr. Mariana Shopova for the academic position "Associate Professor" in the Department of „Educational technologies" at PU „Paisii Hilendarski" in the field of higher education 4. Natural sciences, mathematics and informatics, professional field 4.1. Physical sciences (Physics of microcosm, high energies and elementary particles).

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Prepared the opinion:

(Prof. Temenuzhka Yovcheva, PhD)