OPINION

from Prof. PhD Eng. Kolyo Zlatanov Onkov, Agricultural University-Plovdiv, appointed a member of the Scientific Jury according to Order № РД-21-388/ 16.02.2024 of the Rector of the Plovdiv University „Paisii Hilendarski"

on competition for academic position "Associate Professor" in domain of Higher education 4. Natural sciences, mathematics and computer science professional field 4.6 Informatics and computer science (Information security), for the needs of the Plovdiv University (PU) „Paisii Hilendarski", Faculty of Mathematics and Informatics (FMI), announced in State Gazette No 96/17.11.2023 and on the Internet pages of the Plovdiv University

Only one candidate submitted documents to participate in the announced competition:
Chief Assist. Prof. **Magdalena Asenova Veselinova**, PhD,
Department „Software Technologies", FMI, Plovdiv University „Paisii Hilendarski"

1. Brief presentation of the candidate

PhD Magdalena Veselinova obtained master's degree in "Business Informatics in English" at FMI, PU „Paisii Hilendarski. In 2017, she defended PhD thesis entitled „Fractional differential equations with distributed delay". Since 2017 PhD Magdalena Veselinova is Chief Assistant Professor at department „Software technologies", FMI, PU „Paisii Hilendarski".

2. General description of the presented scientific works

In the competition for "Associate Professor" PhD Magdalena Veselinova has submitted the necessary materials in accordance with the Low of Academic Staff in Republic of Bulgaria, Regulations for its implementation as well as specific requirements of FMI, PU "Paisii Hilendarski".

Accepted for review candidate's scientific works are presented by groups of indicators as follows:

- ❖ *group of indicators A* – PhD thesis;
- ❖ *group of indicators Б* – Habilitation work - monograph;
- ❖ *group of indicators Г* – 9 scientific publications;
- ❖ *group of indicators Д* – 22 citations of 6 publications in SCOPUS or Web of Science.

From nine scientific publications one has Impact Factor and eight have been published in issues with SJR without Impact Factor, referenced and indexed in at least one of the databases storing scientific information: Web of Science, SCOPUS or IEEE Xplore.

In none of the publications PhD Magdalena Veselinova is a "single author" and she is not "first author" of mentioned nine publications. The monograph is written in Bulgarian language and the left papers are in English. Five papers are published in scientific journal and the remaining four in conference proceedings.

PhD Magdalena Veselinova participated in a total of four national and international scientific and educational projects and published a textbook (group of indicators E).

The table below presents the minimum national requirements in accordance with the Low of Academic Staff in Republic of Bulgaria, Regulations for its implementation and their fulfillment by the candidate for "Associate Professor".

Group of indicators	*A*	*Б*	*В*	*Г*	*Д*	*E*
Minimal points required	50	-	100	200	50	0
Acknowledged by the reviewer	50	-	100	288	176	60

PhD Magdalena Veselinova meets the minimum requirements of the above mentioned law, regulations and additional requirements of FMI, PU „Paisii Hilendarski" for the academic position of "Associate Professor" in domain of Higher education 4. Natural sciences, mathematics and computer science, professional field 4.6 Informatics and computer science.

3. Analysis of scientific and applied results. Evaluation of the contributions

The main results and contributions of PhD Magdalena Veselinova's scientific and research work can be presented in the following thematic areas:

3.1 Methods and approaches for secure data storage and recovery in modern IT infrastructures.

A system architecture has been developed to automate archiving processes in container environments, including an agent and servers for management and data storage [12]. This solution leads to comprehensive data protection and secure recovery in case of system failure. The implemented studies and experiments are of practical importance regarding: creation of an effective approach against data loss after infection with CERBER cryptovirus and possibilities of recovering the encrypted files [7]; application of a backup method in the virtual environment Proxmox VE in order to reduce network traffic and manage efficiently stored data [6, 11].

3.2 Technological solutions for data recovery in cloud environments.

Various scenarios have been implemented to explore the possibilities of data recovery in cloud environments [7, 8, 9, 13]. A server with MySQL database and a private cloud have been used. Methods for successful data recovery after virus infection have been demonstrated.

The results achieved in this thematic area represent valuable practical experience for working experts and specialists in the problems of security and data recovery.

3.3 Fractional differential equations.

The publications regarding fractional differential equations [3, 5, 14] have impacts in mathematics, i.e. in the domain of higher education 4. Natural sciences, mathematics and computer science of the announced competition. The theoretical character of these papers is evident.

The results and contributions of PhD Magdalena Veselinova's scientific and research work have scientific and applied significance.

The cited papers of PhD Magdalena Veselinova significantly exceed the minimum national requirements. Citations are equally distributed between Bulgarian and foreign authors. This shows that the scientific work of the candidate for "Associate Professor" is well known in the scientific community.

Based on the above presented arguments, I assess the scientific and research work of PhD Magdalena Veselinova as well in the domain of Higher education and professional field of the competition for academic position "Associate Professor".

4. Evaluation of the teaching activity

In the "Software Technologies" department, PhD Magdalena Veselinova reads lectures on: "Databases", "Computer systems and communications", "Programming", „Software verification and validation" for bachelors and "Configuration of service clusters" in master degree program "Technology of software production and implementation". She is the author of "Database Study Guide". PhD Magdalena Veselinova has supervised 6 successfully defended FMI graduates and participated in committees for the State examination and defending diploma works. I find the teaching activity of PhD Magdalena Veselinova valuable therefore I evaluate it very highly.

5. Notes and recommendations

The critical notes are mainly aimed at the scientific activity of PhD Magdalena Veselinova:

❖ From 9 publications accepted for participation in the competition for "Associate professor", none has been published in specialized journal or conference proceedings in professional field 4.6 Informatics and computer science. This is the professional field in which PhD Magdalena Veselinova teaches;

❖ There are no joint publications of PhD Magdalena Veselinova with foreign scientists or researchers. Usually this is accepted negatively in academic environment;

❖ The topic of fractional differential equations is related to neural networks, which in their turn can increase the efficiency of security and data recovery systems. In none of the submitted papers in this topic for the competition is it clear how the achieved results will be applied to neural network modeling. I consider this fact to be a shortcoming in the scientific work of the candidate for "Associate professor".

I would categorically advise PhD Magdalena Veselinova to develop her research work more independently in computer science. In addition, to focus on the publication of papers in Bulgarian and foreign journals in the professional field of the competition for "Associate professor" 4.6 Informatics and computer science.

6. Conclusion

The scientific and applied results, contributions and high quality teaching work are in the base of my **POSITIVE** opinion regarding all academic activities of **PhD Magdalena Asenova Veselinova.** She meets the requirements of the Low of Academic Staff in Republic of Bulgaria, Regulations for its implementation and specific requirements of Faculty of Mathematics and Informatics, Plovdiv University ”Paisii Hilendarski” for the academic position "Associate Professor".

I recommend to the members of honorable Scientific Jury to vote **positively** for
PhD Magdalena Asenova Veselinova to receive academic position "Associate Professor"
in domain of Higher education **4. Natural sciences, mathematics and computer science,**
professional field **4.6 Informatics and computer science (Information security)**

March 27, 2024   Opinion prepared by: …………..............................

/ **Prof. PhD Kolyo Onkov** /