

OPINION

by Prof. Irena Georgieva Markovska,
University "Prof. Dr. Asen Zlatarov", Burgas
member of the scientific jury according to the order of rector №182/27.06.2023

of the materials submitted for participation in the competition for occupying the academic position "associate professor", in the field of higher education 5. Technical sciences, professional direction 5.13. General engineering, scientific specialty 02.10.23 "Technology of natural and synthetic fuels", University "Prof. Dr. Asen Zlatarov" - Burgas, announced in the State Gazette, no. 42 / 12.05.2023, in which the only candidate participated is chief assistant Milena Petkova Dimitrova, Ph.D

Brief biographical data

Milena Petkova Dimitrova was born on July 8, 1970 in the town of Burgas. In 1994 she graduated his higher education at the University "Prof. Dr. Asen Zlatarov" - Burgas in Faculty of Organic Technologies. She graduated as a chemical engineer with a Master's degree in "Technology of Oil, Gas and Chemotology". Simultaneously she received a Master's degree in "Technology of Oil, Gas and Chemotology" with the profile of pedagogy, (teacher of chemistry) in the "Pedagogy" department at the Faculty of Social Sciences of the University "Prof. Dr. Asen Zlatarov" - Burgas. In 2008, she defended her doctorate at the Higher Attestation Commission and received a Doctor's degree, in the field of higher education 5. Technical sciences, scientific specialty 02.10.23 "Technology of natural and synthetic fuels".

From 1994 to 2019 chief assistant Milena Dimitrova works in the Customs agency - Sofia as the Chief Customs Inspector for supervision regarding strict compliance with European regulations in order not to damage the EU treasury. From 2012 to 2019, she is a part-time university teacher - she teaches lectures and exercises seminars for students. From 02.09.2019 to the present, he has been working full-time as a chief assistant at Department of "Industrial Technologies and Management" in Faculty of Social Sciences.. At the same time, she also worked at the Central Research Laboratory at the University.

1. General description of the presented materials

The scientific research in the works of chief assistant Milena Dimitrova, submitted for the acquisition of the academic position "associate professor" are mainly ot the field of the scientific specialty for which the competition has been announced. The total number of

points collected by Dr. Dimitrova for fulfilling the minimum national requirements according to the Regulations for the Terms and Conditions for Acquiring Scientific Degrees and Holding Academic Positions at "Prof. Dr. Asen Zlatarov" University are 865.7 points at the required minimum of 650 points.

The scientific production of chief assistant Milena Dimitrova, presented for participation in the competition, includes 23 scientific works that do not repeat the topic of the doctoral dissertation and are outside the list of publications from the dissertation for the educational and scientific "Doctor's" degree. In accordance with the field of higher education, the professional direction and the scientific specialty of the announced competition, the participant presents:

1. One monograph (habilitation thesis) according to indicator B.3.1.;
2. Three published university textbooks, by group of indicator E.23.1., E.23.2. and E.23.3.;
3. 12 publications from indicator G.7. in full text, of which: 5 single and 7 co-authored; 12 in English. (scientific publications in publications that are referenced and indexed in world-renowned databases of scientific information (Scopus; Web of Science).
4. 7 publications from indicator G.8. in full text, of which: 3 single and 4 co-authored; 2 in English. (scientific publications in non-refereed peer-reviewed journals or in edited collective volumes).
- 15 candidate's publications are found in the SCOPUS database, and her SCOPUS H-factor is 3.

2. Citations

A list of citation of Dr. Milena Dimitrova publications is presented. A 22 citations were identified in scientific publications in journals that are referenced and indexed in world-renowned databases of scientific information (Scopus).

3. Educational and pedagogical activity

Chief assistant Milena Dimitrova demonstrates active pedagogical activity. She is an author of 12 educational study programs, of which 4 study programs for "Bachelor's", degree, 7 study programs for "Master's" degree and one study program for postgraduate qualification in the discipline "Customs Legislation and Customs Control" for training of students. With regard to the educational and pedagogical activities of the candidate, it can also be noted that chief assistant Dimitrova is the co-supervisor of 1 graduate student who successfully defended his master's thesis, reviewer of 8 diploma theses, and worked with 10 students and doctoral students involved in the intra-university projects she supervised.

In conclusion, it can be summarized that the candidate has experience in teaching and also in working with students.

4. Scientific and scientifically applied activity

4.1 Participation in Projects

The candidate is involved as the head of one and as a team member of three universities' research projects.

4.2. Contributions

The contributions are of a scientific-theoretical, scientific-applied and methodological nature. The contributions in the works of chief assistant Dimitrova refer to the three main topics on which she works:

4.2.1. Research related to the analysis and study of side processes causing contamination of technological equipment in oil refining installations with the aim of developing good practices and improving technological processes in oil refining, as well as in-depth studies on the influence of the raw material on the intensity of side processes processes. Application of modern methods to reduce pollution in installations for atmospheric distillation of oil and in installations for hydrotreatment of diesel fractions (monograph under indicator B.3., publications under indicator G.7.12.).

The most characteristic side processes for oil refining are corrosion, polymerization, oxidation, etc. It is obvious the influence of all the listed processes on the formation and accumulation of pollution in areas, having a significant impact on the correct management of the technological mode of each installation. Knowing the basic mechanisms and variable parameters for each technological process, it is possible to respond adequately and offer the most correct protection of the equipment from the accumulation of contamination in the critical areas. The main purpose of installations for atmospheric distillation of oil and oil mixtures is to separate, according to their potential, into separate fractions, from which different types of fuels are subsequently obtained. The feedstock is not always a specific type of oil. Mixtures of oil and processing residues to a certain extent are usually prepared. Therefore, the composition of the raw material is not constant and its behavior is different during processing. The main process is predictable after preliminary studies of the raw material, while the nature and chemistry of the side processes taking place is not clear.

Of primary importance are the side processes associated with the accumulation of pollution in certain areas for oil refining installations. Fouling is and will continue to be an important factor in the operation of refining plants, not only from the point of view of maintenance and plant shutdown, but more importantly, from the effective heat transfer in the heat exchange equipment and the operating time of the installations. The actuality of the present research come from the fact that the main harms from the presence of processes that form fouling and equipment damage include heat loss, difficulty in heat exchange associated with a decrease in outlet temperature, block up of process pipes, corrosion, local overheating, leading to mechanical damage to heat transfer surfaces and a number of others.

4.2.2. Study of the specificity of corrosion processes for installations in oil refining complexes and their influence on the formation and growth of contamination on the surfaces of equipment, implementation of methods to reduce corrosion processes in installations for atmospheric distillation of oil and introduction of inhibitory protection in

installations for the production of bitumen, (publications by indicator Г.7.9., Г.7.10., Г.7.11.).

One of the most active side processes in the distillation of oil and oil mixtures are corrosion processes. For each individual node in the installations for atmospheric distillation of oil, they are strictly characteristic.

Appropriate products and methods are indicated to minimize corrosion processes along the entire production line of process equipment at atmospheric petroleum distillation plants.

Some of the publications focus on the selection of appropriate products and methods for corrosion prevention in oil processing plants. The conditions and stages of development of each individual corrosion process, their mutual influence and how they affect the overall technological process are tracked.

4.2.3. Research related to problems in the field of technical sciences and the professional direction "General Engineering" (publications by indicator Г.7.1., Г.7.2., Г.7.3., Г.7.4., Г.7.5., Г.7.6., Г.7.7., Г.7.8., Г.8.1., Г.8.2., Г.8.3., Г.8.4., Г.8.5., Г.8.6., Г.8.7., E.23.1., E.23.2., E.23.3.).

The high sulfur content of fuels causes an increase in environmental risks, as their combustion in cars and in industrial operations releases harmful sulfur oxides into the atmosphere.

In the cited articles, research related to studies on the chemical treatment of various oil fractions for the reduction and removal of sulfur compounds by alternative purification methods has been carried out.

5. Evaluation of the candidate's personal contribution

The total number of scientific publications with which the candidate participated in the competition is 23. In group B3 Habilitation work - monograph, 1 monograph with the sole author Dr. Dimitrova is given. In group G7, there are 12 works in which the candidate is in first place (or is the single author) 7 times, in 2nd place - 1 time, in third place - 3 times and in 6th place 1 time. In group G8 there are 7 publications in which the candidate is in first place 4 times, in 2nd place - 1 time, in third place - 2 times. Group E includes the textbook "Customs investigation and risk analysis", 1st, 2nd and 3rd parts, with author Milena Dimitrova.

The fact that in all 23 publications, chief assistant Milena Dimitrova is at first place or is a single author a total of 14 times, showing that she has a leading role in them.

6. Conclusion:

Bearing in mind the above mentioned, I confidently propose to the respected Faculty Council of the Faculty of Social Sciences to elect chief assistant Milena Petkova Dimitrova, Ph.D., for occupying the academic position "associate professor" in the field of higher education 5. Technical sciences, professional direction 5.13. General engineering, scientific specialty 02.10.23 "Technology of natural and synthetic fuels".

22nd August 2023

Jury member:
/prof. I. Markovska/