

REVIEW

for a competition for holding the academic position "*Associate Professor*" in the professional field 4.2.
Chemical Sciences, specialty "Processes and apparatus in chemical and biochemical technology"
announced in SG no.77 (10/09/2024)
with candidate: Rayka Kirilova Vladova, PhD
Reviewer: Iliya Krastev Iliev, Ph.D., Professor

1. General information and biographical data

Dr. Eng. Rayka Kirilova Vladova, the only candidate in the competition for "Associate professor", was born on 6.06.1982 in the city of Pernik. She graduated from the University of Chemical Technology and Metallurgy - Sofia in 2010, in the specialty "Biotechnology" with the degree of Bachelor of Engineering - Biotechnologist. In 2013, she received the degree of Master of Engineering - Environmentalist at the University of Chemical Technology and Metallurgy, Sofia in the scientific specialty "Ecology and environmental protection". In the period 2014-2017 she was a full-time doctoral student at the Institute of Chemical Engineering - BAS. In 2017, she obtained the scientific and educational degree "Doctor" in the scientific specialty "Processes and Apparatus in Chemical and Biochemical Technology" with a dissertation on the topic "Increasing the Sustainability and Energy Efficiency of Production Systems with Periodic Processes on the Example of an Autothermal Thermophilic Aerobic Treatment (ATAD) System for Wastewater". In the period 2017-2019, she worked as an assistant at the Institute of Chemical Engineering of the Bulgarian Academy of Sciences, and in 2019 she received the scientific title of Chief Assistant. The scientific interests of Dr. Eng. Rayka Kirilova Vladova are in the field of chemical engineering, chemical engineering systems engineering and applied mechanics. She is fluent in English and Russian. Chief Assistant Dr. Eng. Rayka Kirilova Vladova is a member of scientific organizations and research networks MPNS COST ACTION MP1305 "Flowing matter", Horizon 2020, European Commission; ICT COST ACTION TD1207 "Mathematical Optimization in the Decision Support Systems for Efficient and Robust Energy Networks", Horizon 2020, European Commission and CA COST Action CA15118 "Mathematical and Computer Science Methods for Food Science and Industry", Horizon 2020, European Commission. She has several international specializations in Turkey, Serbia, etc.

2. General description of the submitted materials

The candidate in the competition for the academic position (AP) "*Associate Professor*" Dr. Eng. Rayka Kirilova Vladova has submitted all the necessary documents according to the Regulations for holding academic positions at the BAS. The coverage of the minimum national requirements for AP "*Associate Professor*" candidates by groups of indicators is as follows:

Indicator A: Diploma for ASD "Doctor" #000930/20.09.2017, (50 points)

Indicator B: Habilitation work - scientific publications in publications that are referenced and indexed in world-renowned databases of scientific information (Web of Science and Scopus).

6 scientific publications are presented (one publications in (Q1); one in (Q2); three in (Q3) and one in (Q4)) (102 points);

Indicators Г: Scientific publications in editions that are referenced and indexed in world-famous databases of scientific information (Web of Science and Scopus), outside the habilitation thesis. Two book chapters are presented (30 points); 2 publications in issues (Q1) (50 points); 8 publications in issues (Q3) (120 points); 2 publications in issues (Q4) (24 points) and 2 publications with SJR without IF (20 points). 2 chapters of a book or collective monograph have been published: (30 points); Total points for indicator D (244 points).

Indicators Д: Citations or reviews in scientific journals referenced and indexed in world-famous databases with scientific information or in monographs and co-authored volumes. (*Web of Science u Scopus*). (min 120 points); 33 citations from 12 papers are presented (66 points). The evidentiary part contains bibliographic data for the citing publication, a reference to the respective database, and excerpts from the citing publication with the respective reference.

When comparing the submitted materials with the minimum requirements (Table 1) for holding the AP “Associate Professor” in the professional fields according to PPZRASRB and PURZAD of BAS, it can be concluded that the minimum requirements for obtaining the AP “Associate Professor” have been fulfilled.

Table 1. Indicator group Minimum number of points of the candidate

Group of Indicators	Minimum points	Points of the candidate
A	50	50
Б	–	-
B	100	102
Г	220	244
Д	60	66
Total	430	462

The candidate has presented evidence that he meets the additional criteria of the Institute of Engineering Chemistry at BAS, which is well illustrated in Table 2.

Table 2. Additional criteria of the Institute of Chemical Engineering (ICE)

Additional indicators	Publications contest IF/SJR		Total Publications IF/SJR	citates	h-index
Requirements covered by the applicant	20	20	37	33	4
Minimum points for „Associate Professor“	5	15	20	20	4

3. General characteristics of the research and applied research activities of the candidate

The research and applied scientific activity of Dr. Eng. Rayka Kirilova Vladova, reflected in the publications, projects and other activities in which she has participated, is primarily focused on the problems of mathematical modeling, multi-objective optimization, stochastic optimization and sustainable management of resource-supply chains. Taking into account that all the presented works have been published in reputable international journals, I assume that the anonymous reviews accurately reflect the high professional and scientific level of the candidate. Publications in order of authors are distributed as follows:

- Independent articles – 1 publication (14);
- First place in the list of authors - 10 publications - (5); (6); (7); (10); (14); (18); (24); (26); (31); (32);
- Second place from the list of authors - 9 publications - (1); (2); (3); (8); (9); (12); (13); (17); (29);
- Third place from the list of authors - 5 publications - (6); (7); (12);
- After third place in the list of authors - 5 publications - (4); (11); (19); (22); (23); (25).

The presented data convincingly shows that Dr. Eng. Rayka Kirilova Vladova possesses the ability to develop and present scientific papers on her own, as well as to actively participate in collective developments.

4. Evaluation of the submitted materials.

I evaluate the presented scientific works at a high scientific level. Dr. Eng. Rayka Kirilova Vladova is a scientist with an international reputation. His scientific contribution is indisputable and his works have been published in the world's most renowned scientific publications.

5. Key scientific, applied-scientific, and applied contributions.

The candidate has submitted a reference for scientific and scientific-applied contributions. The same report presents 4 scientific contributions and 14 scientific and applied ones. I accept the candidate's statement of the main contributions in the submitted works.

6. Reflection of the scientific publications of the candidate in the Bulgarian and foreign literature

Data on the citations of the candidate's scientific works and representativeness of the publications

According to the attached reference, 22 works, 2 chapters in books of prestigious publishing houses or in the world databases WoS and Scopus are presented; A reference is presented for citations in publications referenced in Scopus and WoS (58 citations in total); A significant number of scientific publications have a solid number of citations in prestigious international journals, such as:

Publication (22) was cited 11 times; (21) -7 times, etc.

The habilitation thesis B includes 6 publications in prestigious publications that have been cited 16 times.

The candidate for "associate professor" has an h index of 4 (with a total number of citations in Scopus 58, (<https://www.scopus.com/hirsch/author.uri?accessor=authorProfile&auidList=56223824000&origin=AuthorProfile&display=hIndex>), which indicates a very high reflection of his scientific publications at -already in foreign literature.

7. Critical remarks and recommendations

The publication activity presented in the competition is significant, and the works have been presented in renowned world journals. Under these circumstances, it would be difficult to find serious gaps in the quality of the articles due to the fact that these publications go through several levels of review by world-renowned specialists in the field. My recommendation is that Dr. Eng. Rayka Kirilova Vladova continue to publish her scientific results in the most prestigious world journals.

8. Personal impressions and opinion of the reviewer

I am not familiar with the candidate Dr. Eng. Rayka Kirilova Vladova, but from the presented short biography it is clear that she obtained a very good education, as all her diplomas are in the field of processes and apparatus in chemical and biochemical technology. She has a good command of English and Russian, which gives her the opportunity to monitor scientific exchange, work on important international projects, participate in international scientific events and create a modern scientific research base. She has very good competence, which is why she maintains solid international contacts. She knows how to work in a team and pass on her experience.

CONCLUSION

The presented materials meet the requirements of ZRASRB, the Regulations for its application, and the internal Regulations for the terms and conditions for holding academic positions at the Institute of Chemical Engineering, BAS. Based on my acquaintance with the presented scientific publications, their significance, and the contributions contained in them, I find it reasonable to propose **Dr. Eng. Rayka Kirilova Vladova** to take the academic position "Associate Professor" in the professional field 5.2. Chemical Sciences, specialty "Processes and apparatus in chemical and biochemical technology".

Date: 18.12.2024

MEMBER OF THE JURY:



(Prof. Iliya Iliev, PhD)