

## 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.96 (02/12/2022)  
with candidate: Boyan Christov Boyadjiev, PhD  
Reviewer: Iliya Krastev Iliev, Ph.D., Professor

### 1. General information and biographical data

Dr. Eng. Boyan Christov Boyadjiev, the only candidate in the "*Associate Professor*" competition, was born on February 11, 1972. in the city of Sofia. He graduated from secondary education at NPMG in Sofia in 1990 and higher education at TU-Sofia in 1995, majoring in "Computer Science" with a master's degree. In the period 2018-2020, he is a full-time PhD student at the Institute of Engineering Chemistry - BAS. In 2020, he obtained the scientific and educational degree "doctor" in the scientific specialty "Mathematical modeling and computer simulation" with a dissertation on the topic "Computer modeling of processes in column apparatuses". In the period 2019-2021, he worked as a technologist at the Institute of Engineering Chemistry of the Bulgarian Academy of Sciences, where in 2021 he acquired the scientific title of chief assistant. The scientific interests of Dr. Eng. Boyan Christov Boyadjiev are in the field of numerical methods, modeling, simulation. He speaks English and Russian at a high level.

### 2. General description of the submitted materials

The candidate in the competition for the academic position (AP) "*Associate Professor*" Dr. Eng. Boyan Christov Boyadjiev 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" #001220/26.02.2020, (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).

5 scientific publications are presented (three publications in (Q1); one in (Q2); and one in (Q4)) (107 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 (min. 220 points)

Two monographs are presented, which are not included in the habilitation thesis (60 points); 3 publications in publications (Q4) (36 points).

Two chapters of a book or collective monograph have been published: (30 points);

Invention, patent or utility model for which a protection document has been issued in due course: One complete Patent #66697 B1 and 3 utility model patents numbered: BG1776 U1 have been submitted; BG2196 U1; BG3609 U1) (100 points);

Total points for indicator G (226 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); 52 citations from 8 papers are presented (104 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	107
Г	220	226
Д	60	104
<b>Total</b>	<b>430</b>	<b>487</b>

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
<b>Requirements covered by the applicant</b>	<b>14</b>	<b>15</b>	<b>24</b>		<b>65</b>	<b>4</b>
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 scientific-applied activity of Dr. Eng. Boyan Christov Boyadjiev, reflected in the publications, projects, and other activities in which he participated, is focused primarily on the problems of researching the mathematical modeling of heat and mass exchange processes in knee apparatus. Considering that all submitted works have been published in reputable international publications, I assume that the anonymous reviews accurately reflect the high professional and scientific level of the applicant.

Publications in order of authors are distributed as follows:

- Independent articles - not presented;
- First place in the list of authors - 14 publications - (1); (2); (4); (5); (8); (9); (10); (11); (13); (14); (17); (18); (19); (20);
- Second place from the list of authors - 2 publications - (3); (21);
- Third place from the list of authors - 3 publications - (6); (7); (12);
- After third place in the list of authors - 5 publications - (15); (16); (22); (23); (24).

The presented data convincingly show that Dr. Eng. Boyan Christov Boyadjiev has the ability to develop and present scientific works himself, 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. Boyan Christov Boyadjiev is a famous scientist with an international reputation. His scientific contribution is indisputable and his works have been published in the world's most renowned scientific publications.

His project "New Absorption-Adsorption Method and Apparatus for Purification of Sulfur Dioxide Waste Gases" was awarded the Honorary Diploma for "Best Innovative Project" for 2017 by the Bulgarian Chamber of Commerce and Industry. For the inventions created, the team was awarded a Gold Medal for the same developments by the Union of Inventors in Bulgaria.

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

The candidate has submitted a reference for scientific and scientific-applied contributions. In the same reference, 13 scientific contributions and one scientific applied one are presented. I accept the applicant's reference for the main contributions in the presented works, with the following remark: To the scientific

applied contributions, the author has included 3 full patents and 3 utility model patents. However, only 1 is present in the list of Patents. I believe there is a typographical error for the number of complete patents.

#### **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, 24 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 (65 citations in total); A significant number of scientific publications have a solid number of citations in prestigious international journals, such as:

Publication (2) was cited 23 times; (3) -22 times, (12) -6 times, etc.

The habilitation thesis B includes 5 publications in prestigious publications that have been cited 40 times.

The candidate for "associate professor" has an h index of 4 (with a total number of citations in Scopus 62, (<https://www.scopus.com/authid/detail.uri?authorId=6508298892>), 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 impressive, and the works are presented in the most renowned world publications. Under these circumstances, it would be difficult to find serious flaws in the quality of the articles due to the fact that these publications go through several levels of peer review by world-renowned specialists in the field. My recommendation is that Dr. Eng. Boyan Christov Boyadjiev continue to publish his scientific results in the most prestigious world publications. I believe that the candidate for "associate professor" incorrectly defined some of the contributions. I also find the Hirsch index misspecified in the reference, but regardless, the candidate meets that criterion as well.

#### **8. Personal impressions and opinion of the reviewer**

I am not familiar with the candidate, Dr. Eng. Boyan Christov Boyadjiev, but from the presented short biography he received a very good education, including secondary school. He has an excellent command of English and Russian languages, which enables him to monitor scientific exchange, work on important international projects, participate in international scientific events and create a modern scientific research base. He has high competence, which is why he maintains solid international contacts. He knows how to work in a team and transfer his 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. Boyan Christov Boyadjiev 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: 23.05.2023**

**MEMBER OF THE JURY:**

Iliya Krastev  
Iliev  
(Prof. Iliya Iliev, PhD)

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