

## REPORT

On the competition for the academic position "Associate Professor " in professional field 4.2. Chemical sciences, specialty "Processes and apparatus in chemical and biochemical technology", announced in SG No. 17, Feb. 212023 r with candidate assistant prof. Boyan Hristov Bojadzhiev Ph. D.

Member of the scientific jury: Elena Razkazova-Velkova, Assoc. Prof. PhD Eng. from the Institute of Chemical Engineering, Bulgarian Academy of Sciences (IChE-BAS)

### **1. Brief biographical data and description of the applicant's scientific interests**

Assistant prof. Boyan Boyadzhiev was born in Sofia on February 11, 1972. In 1990, he graduated from the National Nature and Mathematics High School "Acad. Lyubomir Chakalov", a specialist in mathematics, and in 1995 he graduated as a master from the Technical University of Sofia, specialty "Computer science. In 2020, he successfully defended his Ph. D Thesis on "Computer Modeling of Processes in Column Apparatus" - a scientific field in which he continues to develop his research until now.

### **2. General characteristics of the candidate's scientific research and applied scientific activity**

**The candidate's scientific research interests** can be defined in the field of mathematical modeling, computer simulation and use of numerical methods.

**Participation in projects:** assistant prof. Boyan Boyadzhiev participated in 5 projects, of which 1 international and 4 national projects, financed by the "Scientific Research" Fund

**Organizational activity:** He has taken part in the organization of 4 scientific events, in two of which he is the secretary of the organizing committee, and in the other two he is a participant.

#### **The candidate also has 2 awards:**

- Gold medal for the presentation of the developments "Absorption-adsorption apparatus and method for purifying gases from sulfur dioxide", X national exhibition "Inventions, Transfer, Innovations"-2017;

-3rd place in the "Best Innovative Project" category for 2017 by the Innovation Council of the Bulgarian Chamber of Commerce and Industry for the project "New absorption-adsorption method and apparatus for purifying waste gases from sulfur dioxide".

He is the co-author of 3 patents and 3 utility models

Total number of scientific publications: 24

of them with impact factor (ISI IF) and/or impact rank (SJR): 14

Number of scientific publications other than the dissertation work: 15

of them with an impact factor (ISI IF) and/or an impact rank (SJR): 8

Number of citations of all scientific publications: 65

**Co-authorship in monographs:** He is a co-author of two monographs and two book chapters

### **3. Evaluation of the submitted materials**

The presented materials (Except those from the Ph. D Thesis) include 15 publications, of which:

-Eight with impact factor (ISI IF) and/or impact rank (SJR), of which;

-Three into the Q1 category;

- One- in Q2 and the remaining four in the Q4 category;

Total number of citations 65.

The materials presented in this way correspond in volume and content and exceed those required by the rules of the BAS and those of the IChE-BAS for the occupation of the academic position

"Associate Professor", namely, according to the rules of the IChE-BAS:

- 15 for the required 15 publications, other than those submitted for the acquisition of the Ph.D degree.
- Total number of publications 24 against the required 20
- Number of publications in refereed journals 20 if necessary out of 15
- Number of publications in journals with an ISI Impact Factor or an impact rank of 8 if required out of 5
- Total number of noticed citations on all works 65 if necessary from 20.

### **4. Basic scientific and scientific-applied contributions**

I accept the scientific and scientific-applied contributions presented by the candidate as formulated by him personally, I would summarize them:

Development of new algorithms and programs for establishment of mathematical models in column apparatuses for carrying out mass exchange processes with and without chemical reaction. Programs have been originated for the parametric identification of the parameters in these mathematical models.

**Scientific applied contributions:** 3 patents and 3 utility models were published for different types of column apparatus for gas absorption, for the absorption of highly and poorly soluble gases, 2 types of column apparatus for purifying gases from sulfur dioxide, column apparatus for intensive mass transfer in three-phase systems, as well as a column reactor for conducting chemical processes

5. ***Reflection of the candidate's scientific publications in Bulgarian and foreign literature***

The candidate's publications have been widely reflected in the specialized scientific literature.

6. ***Critical notes and recommendations.***

From the materials provided, the vision for future work in the next 5 years is not clear.


I notice some inaccuracies in the expressions in the reference to the candidate's contributions such as "intense chemical reactions", this is probably a literal translation from English, but having in mind that the candidate's scientific contributions are the field of mathematical modeling and the establishment of programs for solving mathematical model equations, this does not detract from his contributions

7. ***Personal impressions of the reviewer about the candidate***

In my personal opinion assistant prof. Boyan Boyadzhiev is a person with team skills, original scientific interests and approach.

**CONCLUSION** All quantitative indicators for evaluating the candidate's research and academic activity correspond to and exceed the requirements for holding the academic position "Associate Professor". On this basis, I support the candidacy of Assistant. Boyan Hristov Bojadzhiev and I recommend to the scientific jury to award him the academic position " Associate Professor ".

Date: 05.06.2023

Member of the scientific jury:   
(Assoc. Prof. E. Razkazova-Velkova)