

REVIEW

from

Prof. Dr. Stoyan Ivanov Karakashev

Member of a scientific jury, confirmed by order No. RD – 235 / 15.07.2024 of the Rector of the University "Prof. Dr. Asen Zlatarov", Burgas.

in relation with the announced competition for the occupation of the academic position "Professor" in the field of higher education: 4. Natural sciences, mathematics and informatics, professional direction: 4.2. Chemical sciences, scientific specialty: "Chemistry".

In the announcements for the needs of the University "Prof. Dr. Asen Zlatarov" competition for a full professor in a professional field 4.2. chemical sciences (chemistry), published in the "State Gazette" no. 43 of 17.05.2024 for the needs of the University "Prof. Dr. Asen Zlatarov", Burgas, one candidate participated - Assoc. Dr. Rumyana Zlatinova Yankova-Avramova.

This review has been prepared in accordance with the requirements for candidates, defined in the law on the development of the academic staff in the Republic of Bulgaria (ZRASRB) and the regulations for its implementation, as well as based on the additional requirements of the University "Prof. Dr. Asen Zlatarov" in the application of the law and regulations of the same university.

**Academic activity of Assoc. Prof. Dr. Rumyana Zlatinova Yankova-Avramova**

Dr. Rumyana Yankova has extensive teaching experience dating back to 1990, when she started working as an assistant at the University "Prof. Dr. As. Zlatarov", successively passing all academic positions such as assistant, senior assistant, chief assistant, and associate professor. She mainly gave exercises and lectures to students from the "Bachelor's degree" and the "Master's degree" in "Inorganic Chemistry" (Part I, II, III); "Chemistry", "General Chemistry", "Structural Inorganic Chemistry", "Applied Chemistry", "Methodology and Technique of Chemical Demonstrations in Inorganic Chemistry", "Chemistry and Environmental Protection", "Evaluation of Chemical Factors in the Environment and Work Environment", "Research Methodology", "Chemistry of Heterocyclic Compounds". She also conducted seminars on "Stoichiometric calculations" and "Chemistry and environmental protection". She also gave lectures and



exercises in English. In addition, she has published 8 teaching aids and 25 curricula. She participated in a number of projects and many international conferences. Also under her scientific supervision were two doctoral students and eight graduate students. All this indicates of a huge teaching experience, which fully corresponds to the academic position of professor.

**Scientific and research activity of Assoc. Prof. Dr. Romyana Zlatinova Yankova-Avramova**

My Scopus search showed 57 publications with a Hirsch factor of 13, and according to Web of Science there are 61 with a Hirsch factor of 14. The total number of publications is 119. Assoc. prof. Yankova has also published one monograph. For the current competition, she participated with 30 scientific publications with an impact factor and quartiles between 1 and 3.

Assoc. prof. Yankova is a specialist in ionic liquids. It is a new discipline that undergone rapid development in the last 20 years. The ionic liquid is a very interesting system from a scientific and practical point of view. As an innovator in the field, she has synthesized and characterized new ionic liquids. She studied phenomena induced by ionic liquids, as well as their thermal decomposition kinetics. She found application of these systems in the catalysis of the esterification process. Something very important – she used modern physical methods for their characterization: X-ray photoelectron spectroscopy, XRD, various spectroscopic methods as well as differential scanning calorimetry and adsorption porosimetry. All this shows that she has an equipped laboratory and not only knows these methods, but can also train her graduate and doctoral students in them. In addition, she has also used the DFT quantum chemical method to investigate the ultimate structure of ionic liquids – the arrangement of ions both in the bulk and at the interface with different surfaces. I know specialists in this field and I can say that this is a very advanced but very difficult computational method to implement and is beyond the ability of many specialists in the field. Also notable are her works on the development of novel homogeneous and heterogeneous catalysts based on ionic liquids. I won't continue. I will only conclude that these works are works of an erudite scientist with great potential.

### Reference for minimum requirements

The complex evaluation for the fulfillment of the minimum requirements for the academic position "professor" under the law on the development of the academic staff in the Republic of Bulgaria showed that Assoc. prof. Yankova covers each of the groups of indicators with a total number of 1147 points with a minimum national requirement of 600 points. The minimum requirements of the University "Prof. Dr. A. Zlatarov", Burgas for the academic position "professor" is 1000 points, i.e. significantly above those for the country. Assoc. prof. Yankova exceeds even these minimum requirements.

Hence, according to indicators **A** ("doctor") there are **50 points**. In the group of indicators **B** Habilitation work - monograph, Scientific publications in publications that are referenced and indexed in Scopus and Web of Science, a list of 9 publications is attached – **205 points**.

In group of indicators **D**: Scientific publications in publications that are referenced and indexed in Scopus and Web of Science, Associate Professor Rumyana Yankova presents a list of 21 publications - **365 points**.

Group of indicators **D**: Citations in scientific publications, referenced and indexed in Scopus, Web of Science. A list of 150 citations is attached for the competition – **300 points**.

In group of indicators **E**: Assoc. prof. Yankova has successfully guided two PhD students, who graduated – 75 points. She also participated in 2 national projects (**20 points**) and 1 international project (**20 points**). There is also an attached list of 8 teaching aids – **112 points**.

The sum of all these points is **1147**, which is significantly above the minimum according to the national requirements (600 points) and that of the University "Prof. Dr. A. Zlatarov" (1000 points).

In view of all this, I fully support the candidacy of Associate Professor Yankova for the academic position of "professor" in the professional field: 4.2. Chemical Sciences, Science Major: "Chemistry".

24.08.2024 r.

Stoyan  
Karakashev

Digitally signed by  
Stoyan Karakashev  
Date: 2024.08.24  
17:10:09 +03'00'

/Prof. Dr. Stoyan Karakashev/