



## OPINION

by

**Prof. Christomir Christov, DSci.**

From 01.04.2016 to 01.01. 2024 at Department of Chemistry, Faculty of Natural Sciences, Konstantin Preslavsky University of Shumen

### Regarding

the application for the academic position of Professor, announced in the State Gazette, issue 43 from 17.05.2024, Area of Higher Education 4. Natural Sciences, Mathematics and Informatics, Professional Field 4.2 Chemical Sciences, scientific specialty: Chemistry, for the needs of the Medical Faculty, "Asen Zlatarov" University of Burgas.

By order № ПД – 235/15.07.2024 signed by the Rector of Asen Zlatarov University of Burgas I'm appointed as a member of the scientific jury. At its first meeting I was chosen to write an opinion, which is in accordance with The Regulation on the Terms and Procedure for Acquisition of Academic Degrees and the Occupation of Academic Jobs at University of Burgas.

Associate Professor Runyana Yankova, PhD is the sole applicant for the academic position of announced in the State Gazette, issue 43/17.05.2024. I have received electronically all materials for the competition.

### **Brief Biographical Data**

Associate Professor Runyana Yankova was awarded at 1990 a Master Degree in Chemical Engineering (Inorganic and Electrochemical Productions) at Asen Zlatarov University of Burgas. In 2015 she was awarded with a Doctoral Degree at Ruse University "Angel Kanchev". At 2016 Dr. Runyana Yankova was awarded with an Associated Professor degree, scientific specialty, Chemistry, code 01.05.02 "Inorganic Chemistry at Asen Zlatarov University of Burgas.

Since 1990 Dr. Runyana Yankova is a part of the academic staff of the Prof. Assen Zlatarov University of Burgas, first as Assistant, next Chief Assistant and since 2016 - Associate Professor. In the period 17/12/2019 – 21/11/2023 Runyana Yankovais a vice-dean of Medical Faculty, and from 22/11/2023 she is a dean of Medical Faculty at Asen Zlatarov University of Burgas.

### **Teaching Activities**

The submitted reference shows that the teaching activities of Dr. Runyana Yankova significantly exceed the teaching workload at Prof. Assen Zlatarov University of Burgas. The total teaching experience of Dr. Yankova exceeds 30 years.

Assoc. Professor Runyana Yankova, PhD delivers lectures and seminars to Bachelor and Master Degree Students in: Inorganic chemistry, Chemistry, Applied Chemistry, General chemistry, Chemistry and Ecology, and others. She also developed a course delivers lectures and seminars for international students in „Chemistry“-program for Medical Faculty at Prof. Assen Zlatarov University of Burgas.

According to the application documents Dr. Yankova developed 25 new teaching programs for Bachelor and Master Degree Students. She also participates in one national scientific project, and one national educational project. Dr. Yankova, has been scientific advisor of 8 graduate students, and 2 PhD students in a doctoral program Inorganic Chemistry. Assoc. Professor Runyana Yankova also participate in 36 National and International scientific forums.

### **Scientific Activities**

It should be noted that all application documents of Assoc. Professor Runyana Yankova, incl. all scientific works of candidate strictly correspond to the academic position of Professor in Professional Field 4.2 Chemical Sciences, scientific specialty: Chemistry at Burgas University and announced in the State Gazette.

The total number of scientific publications of Prof. Runyana Yankova is 119, of which 57 are referenced in Scopus and Web of Science, 61 publications are referenced and indexed in world literature sources. The Hirsch index, h-index, for these publications is 14. Associate Professor Runyana Yankova has also published one monograph. 35 of the publications are not attached to the reference for this competition. 54 publications that were used to acquire the academic position of "Associate Professor" and to award the "Doctor"-degree have also been excluded from the reference for the current competition for "Professor". In the current competition for "professor" Ass. Prof. Runyana Yankova applies with a list of 30 scientific publications published in publications with an impact factor (Web of Science) and an impact rank (Scopus): 8 of them are in quartile Q1; 8 in quartile Q2 and 14 in quartile Q3.

The scientific and scientific-applied contributions of the works of Associate Professor Runyana Yankova presented for participation in the competition are structured in the following thematic areas:

- Preparation and characterization of new ionic liquids.
- Analysis of surface phenomena occurring in heterogeneous ionic liquids.
- Study the kinetics of thermal decomposition of ionic liquids.
- Application of ionic liquids as effective catalysts for esterification.
- Characterization of compounds for the purpose of their application.
- Preparation and characterization of coordination compounds. Study of their reactivity.

The majority of scientific works submitted for participation in the competition are focused on obtaining and characterizing new active and stable homogeneous and heterogeneous catalysts for esterification. The synthesized compounds are known in the literature as "ionic liquids". They are a combination of an organic cation and an inorganic (or organic) anion. The obtained ionic liquids were characterized by X-ray structural and X-ray phase analysis, X-ray photoelectron spectroscopy, infrared spectroscopy, spectroscopy in the ultraviolet and visible regions, thermogravimetric analysis, differential scanning calorimetry, adsorption porosimetry.

The synthesized ionic liquids have also been investigated by quantum chemical methods of analysis, by means of Density Functional Theory. Bader's theory and Hirschfeld's surface analysis were applied to analyze the intramolecular and intermolecular interactions, respectively. The reactivity of the compounds was studied as a function of their molecular geometry, electronic structure, intra- and intermolecular interactions. The optical properties of some of the obtained ionic liquids have been investigated.

### **Meeting the Minimum National Requirement**

The set of materials submitted by Dr. Yankova is in compliance with The Regulation on the Terms and Procedure for Acquisition of Academic Degrees and the Habilitation Procedure at "Asen Zlatarov" University of Burgas and includes all administrative and scientific documents required.

The points declared by the candidate by groups of scientometric indicators for the academic position "professor" are as follows:



Total number of points by groups of indicators for the academic position of professor.

Group Indicators	Minimal National Requirements	Minimal Requirements according to the Regulations of "Asen Zlatarov" University of Burgas	Total points achieved by candidate Romyana Yankova for professor
A Indicator 1	50	50	50
B Indicator 2	0	0	0
B Indicator 3 or 4	100	200	205
Г Indicators 5 - 10	200	350	365
Д Indicator 11	100	200	300
E Indicators 12 - 20	150	200	227
Total	600	1000	1147

It should be noted that for a group of indicators (B, G, D and E) the minimum requirements at the "Prof. Dr. A. Zlatarov" University are significantly higher than the national minimum requirements.

In group of indicators A: Dissertation work for awarding the educational and scientific degree "doctor" a dissertation work is presented - Diploma Number RU - NS-2015-47 - 50 points.

In group of indicators C: Habilitation work - monograph, Scientific publications in publications that are referenced and indexed in world databases with scientific information (Scopus; Web of Science) a list of 9 publications is attached - 205 p.

In group of indicators D: Scientific publications in publications that are referenced and indexed in world databases with scientific information (Scopus; Web of Science), Assoc. Prof. Romyana Yankova presents a list of 21 publications - 365 p.

The candidate participates in the competition for professor with 30 scientific publications published in publications with an impact factor (Web of Science) and an impact rank (Scopus): 8 of them are in quartile Q1; 8 in quartile Q2 and 14 in quartile Q3. All submitted publications are strictly on the subject of the competition, they are not submitted by the candidate in the competition for a "doctor" degree and for the acquisition of the academic position "associate professor" and are accepted for review.

Group of indicators E: Citations in scientific publications, referenced and indexed in Scopus; Web of Science. The publications of Assoc. Prof. Romyana Yankova have found a wide response in the scientific literature, which is proof of the candidate's current and perspective topics. For the competition for professor, the candidate applies with a list of 150 citations - 300 points.

In group of indicators E:

Supervision of a successfully defended PhD student: the candidate is the scientific supervisor of two successfully defended doctoral students - 75 points.

Participation in a national scientific or educational project, Participation in an international scientific or educational project. The candidate participates in 2 national projects (20 points) and 1 international project (20 points)

Published university textbook used in the school network: The candidate presents a list of 8 textbooks - 112 p. In this way and according to this indicator (E), the materials presented by Assoc. Prof. Romyana Yankova fully cover the Minimum Requirements at the "Prof. Dr. A. Zlatarov" University. Total points are 227.

As a final result of the analysis of the scientific indicators in the documents submitted for the competition, it can be concluded that the scientific production of Associate Professor Romyana Yankova has a total of 1147 points, which significantly exceeds the required minimum according to the national minimum requirements (600 points), and the required minimal requirements according to the Regulations of "Asen Zlatarov" University of Burgas (1000 points).

## **CONSLUSION**

First of all, I want to share with the scientific jury that it was a pleasure for me to review the publications and all submitted documents of such a strong candidate in this competition. Associate Professor Romyana Yankova and I have been working very intensively since the end of 2020, when we agreed to be the scientific supervisors of PhD student Tsvetan Tsenov. Dr. Tsenov successfully defended his dissertation in April, 2024 and received a Doctoral degree in a Doctoral Program Inorganic Chemistry at Shumen University. During this period of our scientific cooperation, Prof. Yankova showed exceptional organization, motivation and level of competence in the field of experimental and theoretical chemistry.

After the analysis of the materials presented by Assoc. Prof. Romyana Yankova, fully compliant with the regulatory framework for the development of scientific and research staff and taking into account their importance, the scientific and applied scientific contributions contained in them, I confidently give my positive assessment. I propose to the Faculty Council of the Faculty of Natural Sciences, University "Prof. Dr. Asen Zlatarov" to select the candidate for the competition Associate Professor Romyana Yankova for the academic position of "Professor" in the professional field: 4.2. Chemical sciences, scientific specialty: "Chemistry" for the needs of the Faculty of Medicine. I wish Assoc. Prof. Romyana Yankova success in her work as a teacher and researcher in the future.

Scientific Jury Member:

20.08.2024



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(Prof. Christomir Christov, DSci)