

REPORT

by

Associate Professor Dr. Violeta Atanasova Mitova

Member of the Academic Jury set to render a decision

on the competition for filling the academic position of an Associate Professor in the Professional Field 4.2. Chemical Sciences according to the Classifier of the Areas of Higher Education and the Professional Fields (Scientific Specialty “Polymers and Polymer Materials”)

This Report is prepared in response to Order № ПД-09-148/11.10.2022 issued by the Director of the Institute of Polymers, Bulgarian Academy of Sciences, following the decision made by the Academic Jury that was held on 26.10.2022. The Report is in compliance with *Development of Academic Staff in the Republic of Bulgaria Act (DASRB)*, *the Rules for the Application of the Development of Academic Staff in the Republic of Bulgaria Act*, *the Rules of BAS* and with the *Rules set at the Institute of Polymers, Bulgarian Academy of Sciences, for applying the Act aforementioned*.

The competition for filling the academic position of an Associate Professor in the Professional Field 4.2. Chemical Sciences (Scientific Specialty “Polymers and Polymer Materials”) for the needs of the Department Macromolecular Engineering at the Institute of Polymers-BAS has been announced in State Gazette, issue 65/12.08.2022.

Assist. Prof. Radostina Genova Kalinova, PhD, is the only candidate in the competition. The documents presented by Dr. Kalinova, meet the requirements of Art. 24, para. 1 of DASRB, art. 53, para. 1 of the Rules for the Application of the Development of Academic Staff in the Republic of Bulgaria Act, Art. 2 item 4.3. of the Rules of BAS and Art. 70 of the Rules for Granting Academic Degrees and Filling Academic Positions set at the Institute of Polymers-BAS.

1). Assessment of the scientific and research accomplishments of the candidate

In the competition for filling the academic position of an Associate Professor Dr. Radostina Kalinova participates with 18 publications which are referenced and indexed in Web of Science and Scopus. Seventeen of them are published in the referred and indexed in a world scientific database journals and belong to the quartiles from Q1 to Q4 according to the grouping of scientific journals and 1 publication is in a journal with SJR only. Assist. Prof. Dr. Radostina Kalinova has 7 scientific publications published in the last 5 years (at least 6 publications are required). The presented scientific production does not repeat the presented publication for acquiring the PhD degree.

Indicator A1. The candidate Dr. Kalinova holds the educational and scientific degree "Doctor" since 2012, which fulfills the requirement of indicator A.

Indicator B.4: In this group “Habilitation work-scientific publications in editions, which are referenced and indexed in Web of Science or Scopus” are included 5 publications, 4 of which were published in high-ranking journals (Quartile Q1) and 1 publication is in Q2. In four of the

publications the candidate is the first author, and in one - the second. The total score for this indicator is 120 points, with a minimum of 100 points required.

Indicator G.7: Dr. Kalinova has presented 13 scientific publications for participation in the competition that are relevant to the group of indicators G, 5 of which are in Q1, 2 - in Q2, 2 - in Q3, 3 - in Q4 and 1 - in journal with SJR only. The total score is 241 points with a minimum required 220 points.

Indicator D.11: The reference provided by Dr. Kalinova accounts 140 citations (excluded self-citation of all-co-authors) of 14 of the candidate's publications. This number of citations collects 280 points, which exceeds more than four times the required minimum of 60 points for this indicator according to the IP-BAS Rules. This is a good indicator for the level and relevance of the Dr. Kalinova's research investigations.

According to **Indicators in Group E**, which are not obligatory for the candidates for the position of associate professor, Dr. Kalinova has presented a list of 13 completed or current research and applied projects.

The sum of the points for all indicators is 691, with which the candidate significantly exceeds the minimum national and IP-BAS requirements.

In the report submitted by Dr. Kalinova, the original scientific contributions are described in details. The main scientific contributions of the candidate can be summarized as follows:

- Design, synthesis and characterization of new functional copolymer architectures as drug nanocarriers. New well-defined functional block copolymers have been synthesized and characterized. The amphiphilic block copolymers self-associate in aqueous media into stable micelles with narrow size distribution. Functional PIC-micelles have been prepared through co-assembly of the oppositely charged copolymers (negatively charged LBA-PEG-b-PLAsp and positively charged PHEMA-b-PLLys) in aqueous media. The micelles were loaded with hydrophobic bioactive compounds (curcumin and caffeic acid phenethyl ester (CAPE)). Their potential for application in nanomedicine as a drug delivery has been assessed.
- Design and synthesis of functionalized block copolymers for complexation of bio-macromolecules. Polyelectrolyte complexes, based on copolymers and bio-macromolecules, polymer/DNA and polymer/insulin, have been obtained and investigated. The result revealed that the synthesized copolymers containing poly(L-lysine) block or amine-functionalized block copolymer based on polyglycidol have potential application as effective nanocarriers for DNA, peptides and proteins.
- Synthesis of new linear co(polymers) and investigation of their behavior in different solvents.

- Preparation and characterization of polymers and polymeric thin films and investigations on the possibility of their application in electronic field for supercapacitors, polymer-organic solar cells and light emitting diodes.
- The reaction of metathesis was also investigated. A new carbonyl-olefin exchange reaction in the presence of transition metal catalytic system has been observed.

A main part of the scientific papers of Assist. Prof. Dr. Radostina Kalinova are published in renowned international journals in the highest quartile Q1, such as *Molecules*, *Nanomaterials*, *Reactive and Functional Polymers*, *Journal of Physical Chemistry B*, *International Journal of Molecular Sciences* and *Polymer*. The scientific results presented in Dr. Kalinova's publications are a novelty in the field of synthesis of new polymers and have significant application potential in nanomedicine as new effective carriers for DNA, peptides, proteins and drugs.

2. Opinions, notes and recommendations (optional)

I know Dr. Kalinova since 2002, as a colleague at the Institute of Polymers. She is a hard-working, capable and serious young scientist with practical experience that is solid foundation for her further work as a scientist. I would like to express my conviction in the candidate's qualities, her significant contribution to the presented scientific works and my positive opinion.

I have no notes or recommendations on the applicant's documents.

3. Conclusion

Based on the submitted documents of the candidate in the competition and the assessment of the scientific and research contributions of the submitted publications, the candidate Dr. Radostina Kalinova meets the requirements of the ZRASRB, the Rules for its Application (PPZRASRB), the Rules of the BAS and the Rules of the IP- BAS under ZRASRB for holding the position of "associate professor".

According to rt.26(3) of the DASRB, I would like to give a **positive assessment** to the candidate and to **recommend** to the Scientific Council of IP-BAS to support the election of Assist. Prof. Dr. Radostina Genova Kalinova, at the Academic position of "Associate Professor" in the Professional Field 4.2. Chemical Sciences (Polymers and Polymer Materials) for the needs of the Department Macromolecular Engineering at the Institute of Polymers-BAS.

Date: 30.11.2022

Report prepared by: Assoc. Prof. Dr. Violeta Mitova

Member of the Academic Jury