

OPPINION

regarding the submitted documents of Assoc. Prof. Dr. Silvia Emilova Angelova
on a competition for occupation of the academic position **Professor** in the professional field 4.2.
Chemical Sciences, scientific specialty Physical Chemistry for the needs of the Institute of
Optical Materials and Technologies "Acad. Y. Malinovski" - BAS,

announced in the State Gazette, issue 24/21.03.2025

by Prof. Dr. Rositsa Dimitrova Nikolova,

Faculty of Chemistry and Pharmacy, Sofia University "St. Kliment Ohridski"

The only candidate who applied and was admitted to the competition is Assoc. Prof. Dr. Silvia Emilova Angelova, who works at the Institute of Optical Materials and Technologies "Acad. Y. Malinovski" - BAS.

Silvia Angelova graduated from the Faculty of Chemistry of Sofia University in 1995 as a Master of Chemistry, as well as postgraduate qualification at the UNWE - Sofia in Business Management and Marketing. She has a diploma as an expert in European technical legislation, safety and quality control of industrial products from TUV Akademie Rheinland. In 1996 she was appointed as a chemist at the Institute of Organic Chemistry with the Center for Phytochemistry, BAS, and after a competition in 2005 she was a research associate, and since 2011 an assistant at the same institute. Meanwhile, she developed and defended her dissertation on the topic "Quantum-chemically calculated NMR parameters as a tool for studying tautomeric and conformational transformations" in 2009. In 2019, she was elected as an associate professor at the Institute of Optical Materials and Technologies "Acad. Y. Malinovski" - BAS. Dr. Angelova was on a one-year postdoctoral specialization at the University of Alcalá (Madrid), Spain.

General characteristics of the received materials

Associate Professor Dr. Silvia Angelova has submitted all the documents required under the competition conditions and fully meets the minimum national requirements, the requirements of ZRAS-BAS and those of IOMT-BAS.

By indicator A1. 50 points

By indicator B4. 165 points

The habilitation extended reference on the publications submitted instead of a habilitation paper includes 7 scientific publications that meet the topic of the competition. Of these, 5 in Q1 and 2 in Q2. By this indicator, the candidate exceeds the minimum requirements of 100 points.

By indicator D7. 245 points

The candidate Assoc. Prof. Dr. Silvia Angelova has submitted as a co-author 12 scientific publications, of which 11 with an impact factor and referenced in Scopus and ISI Web of Science

- 6 in Q1 (50%), 4 in Q2 (33%) and 1 in Q3 (8%), and 1 in a journal without JCR or SJR (8%). Of the publications submitted for the competition, Assoc. Prof. Dr. Angelova is the first author for 5, the last (leading) author for 3 and the corresponding author for 8. One of the works is independent. According to this indicator, the candidate exceeds the minimum requirements of 220 points.

The results of the research have been presented at 20 national and international forums.

According to indicator D11. 170 points

85 citations have been attached. According to this indicator, the candidate also exceeds the requirements of 120 points.

According to indicator F. 280 points

For the period from 2012 to the present, Assoc. Prof. Angelova has participated in 17 national and 1 international projects and is the head of one national project. According to this indicator, the candidate also exceeds the requirements of 150 points.

In conclusion, the documents submitted by the candidate comply with the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria and the Regulations for its implementation.

General characteristics of the candidate's scientific, applied scientific, pedagogical and administrative activities

Assoc. Prof. Dr. Angelova works in the field of computational chemistry, applying various computational methods to study the structure and properties of organic compounds and complexes. The nature of this type of research makes it possible to work on a wide range of scientific problems, as well as in different working groups. In many cases, not only computational methods were used in solving them, but also a combination with experimental research. Dr. Angelova is a co-author of 113 publications, of which 101 are referenced in Scopus, and in the period 2020-2025 after taking the academic position of associate professor there are 50. 588 citations are registered in the Scopus database, and the h-index is 13. The publications included in the competition have been cited 86 times. These values, in my opinion, indicate not only high publication activity, significance of the studied systems, but also a high level of the candidate's scientific activity.

Regarding the pedagogical activity of Dr. Angelova, I was unable to find any information in the submitted documents for supervision of diploma theses or doctoral studies. The only information mentioned is the preparation and teaching of the course "Computer modeling of molecular structure and optical properties of single molecules and supramolecular aggregates" at the Center for Doctoral Training - BAS in 2024.

Since 2022, Assoc. Prof. Dr. Silvia Angelova has been the scientific secretary of the Institute of Optical Materials and Technologies "Acad. Y. Malinovski" - BAS and is the head of a scientific group at the same institute.

Major scientific and applied scientific contributions

The scientific research and publications of Assoc. Prof. Dr. Angelova are in the scientific field in which the competition was announced - with the help of computational models, the structure and properties of organic compounds and complexes have been studied. They are of a fundamental nature and are mainly related to:

- Study of the electronic structure of dyes, derivatives of 1,8-naphthalimide and rhodamine with the help of quantum chemical calculations, the influence of various organic solvents on their absorption spectra, the possibilities for protonation and their ability to form complexes with metal cations, as well as the influence of these ions on their photophysical characteristics.
- Modeling of host-guest complexes of a series of laser dyes and cucurbit[7]uril in a copolymer hydrogel, evaluating the ability of CB[7] to incorporate dyes or various fragments thereof. The influence of this incorporation on their photophysical properties, their photostability and the interaction with the environment, which is essential for their application, has been studied.
- The electronic structures, linear and nonlinear optical properties of a series of quinolininium chromophores have been studied, as well as the influence of substituents and protecting groups in the chromophore system on the optical properties of the dyes. The obtained theoretical and experimental data can be used for the design of new nonlinear optical materials.
- Computational methods have been used to study the processes of isomerization, tautomerization, aggregation and complexation with metal ions or water, taking into account the influence of solvents.

I have no critical comments or recommendation on the presented works.

Conclusion

In conclusion, I am convinced that Assoc. Prof. Dr. Silvia Angelova meets all the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria for holding the academic position of Professor of Physical Chemistry - scientific recommendation criteria adopted by the Institute of Optical Materials and Technologies "Acad. Y. Malinovski" - BAS.

Based on the attached documents and my many years of direct impressions, I confidently propose to the esteemed Scientific Jury and the Scientific Council of the Institute of Optical Materials and Technologies "Acad. Y. Malinovski" - BAS to award the scientific title "Professor" to Assoc. Prof. Dr. Silvia Emilova Angelova in professional field 4.2. Chemical Sciences, scientific specialty Physical Chemistry.

12.07.2025

Prof. Rositca Nikolova, PhD