OPINION

by Dr. Anife Ismailova Ahmedova
Associate Professor at the Faculty of Chemistry and Pharmacy (FChPh) at Sofia University

of the materials submitted for participation in the competition
for the academic position of "Associate Professor"

at the Faculty of Chemistry and Pharmacy of Sofia University "St. Kliment Ohridski" in professional field 4.2. Chemical sciences, scientific specialty: "Theoretical chemistry"

In the competition for the academic position of "Associate Professor", announced in the State Gazette, issue 63 of 30.07.2021 and on the website of Sofia University, participated Chief Assistant Professor Dr. Julia Ruslanova Romanova, from FChPh at Sofia University - Department of Inorganic Chemistry as the only candidate.

The set of materials presented by Dr. Romanova is in accordance with the Regulations for the development of the academic staff of Sofia University, and meets the additional criteria of the FChPh of Sofia University for holding the academic position of "Associate Professor".

The candidate has submitted a total of 15 scientific papers for participation in the competition, of which 14 are publications in peer-reviewed scientific journals indexed in the global databases Scopus and Web of Science, and 1 is a book chapter. The small number of publications that prove to be sufficient to meet the recommended requirements according to the FChPh Regulations of Sofia University indicates that these are publications in renowned scientific journals (including Angewandte Chemie - Int. Ed.), Namely: publications in journals included in first quartile Q1 are 9, in journals from Q2 - 4, in journals from Q4 - 1 and one publication is a chapter from a book (Springer's series - Progress in Theoretical Chemistry and Physics).

Dr. Romanova graduated with a Master's degree in Computational Chemistry from the FChPh at Sofia University in 2006 and defended her PhD dissertation in November 2010 under the supervision of Prof. Alya Tajer. Since March 2018, she has been appointed as Chief Assistant Prof. in FChPh at Sofia University. In the years between defending and holding an academic position in Bulgaria, Dr. Romanova has successfully completed three postdoctoral specializations in Europe (Germany, Belgium and the UK), and is raising her first child. The total number of her publications is 30 and one patent, which are cited 249 times (according to the attached reference in Scopus), and the Hirsch index is 11 (excluding self-citations). According to my personal impressions, Dr. Romanova conducts intensive research activities, being principal investigator of a research contract with the National Science Fund of Bulgaria (one launched in 2019) and with the Sofia University Research Fund (3 pieces, of which the two completed contracts were awarded as the best completed projects). She is the winner of the Eureka Foundation Award from 2011 and the L'Oréal and UNESCO Scholarship Award for Women in Science for 2019.

Dr. Romanova's scientific work falls entirely in the field of theoretical chemistry. Her research covers a diverse range of chemical compounds - organic, polymer and organometallic compounds, as well as classical metal complexes. In addition to the mandatory structural description of these compounds, the main focus of research is most often complex properties and processes resulting from the fact that the substances have an open electronic shell. Some of the described properties include optical (absorption and emission), redox and magnetic, and concern

diradical systems, hybrid spin systems or polymeric ones. The complexity of both the studied objects and the studied properties requires a precise theoretical description of the spin states of the system, both in the ground and in various excited states. All this can be achieved only with a very thorough knowledge and accurate application of advanced computational methods, with the use of multi-configuration calculations, proper selection of basic sets, and of course critical analysis of the results. Dr. Romanova definitely demonstrates excellent skills in this type of research, the results of which are described in renowned journals in the field of theoretical chemistry. It is noteworthy that in addition to studying the properties and behavior of isolated molecules, theoretical methods have been successfully applied to account for the effects of weak intermolecular interactions (aromatic, metallophilic) and even to describe the mechanism of radical polymerization of PPV (poly-p-phenylene vinylene). The work on complex but advanced systems with potential for practical applications in the field of advanced materials (luminophores, conductive polymers for photovoltaic cells, chromophores with singlet fission for organic solar cells.) explains the large number of citations of her publications.

The successful management and work on research projects, supervision of graduates and undergraduate students, show that Dr. Romanova is a highly qualified scientist and lecturer with the potential to independently formulate and solve scientific problems of practical importance. She also has proven teaching experience, which complements her scientific expertise.

I have no critical remarks towards the candidate and I strongly encourage the expansion of the established collaborations for studies on modern topics in interdisciplinary fields of science. I have a recommendation based on my experience, which I will share orally and which concerns the selection of experimental collaborators.

CONCLUSION

In conclusion, I can summarize that the candidate in the competition has submitted a sufficient number of scientific papers published after the PhD defense, which fully meets the required criteria of the Rules for application of ZRASRB and recommended ones for FChPh at Sofia University. The works of the candidate have been published in renowned journals and they have original scientific results with applied contributions, and thereby, have received wide international recognition. The theoretical developments have been carried out in depth and at a high level, and have direct practical applicability. The established scientific contacts with researchers from the country and abroad undoubtedly give a wide horizon for their future development in avant-garde areas of science and practice. The scientific qualification of Ch. Assistant Professor Dr. Julia Ruslanova Romanova is undoubted and the results achieved by her in the research activity fully comply with the minimum national requirements, as well as those in the Regulations of Sofia University for application of the Law on Research and Development. There is no data and no reports of plagiarism.

After getting acquainted with the materials and scientific works presented in the competition, analysis of their significance and scientific and applied contributions, I give my positive assessment and recommend to the Scientific Jury to propose to the Faculty Council of FChPh at Sofia University Ch. Assistant Professor Dr. Julia Ruslanova Romanova to be elected for the academic position of "Associate Professor" at the FChPh at Sofia University in the professional field 4.2. Chemical sciences, scientific specialty: "Theoretical chemistry".

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Associate Professor Dr. Anife Ahmedova