

REVIEW

on application package for participation in a competition for the academic position of "Associate Professor", announced in the State Gazette No. 63 / 01.08.2025 for the needs of the Institute of Oceanology "Prof. Fridtjof Nansen" – BAS – Varna.

Field of higher education: 4. "Natural Sciences, Mathematics and Informatics";

Professional field: 4.4. "Earth Sciences";

Scientific specialty: "Oceanology";

Research Field: "Application of Data Science, Machine Learning, Statistical and Numerical Methods in Marine Sciences",

Scientific Section: "Physics of the Sea".

Candidate: Chief Assist. Prof. Ivelina Yordanova Zlateva, PhD, Dipl. Eng.

Reviewer: Prof. Todor Dimitrov Ganchev, PhD, Dipl. Eng. Technical University of Varna.

1. Overall remarks and background of the candidate

The current competition for Associate Professor position was announced by a decision of the Scientific Council of the Institute of Oceanology "Prof. Fridtjof Nansen" – BAS – Varna, in compliance with all regulatory requirements. The only candidate who applied and was subsequently admitted participating in the competition is Chief Assist. Prof. Ivelina Yordanova Zlateva, PhD, Dipl. Eng.

In short, Ivelina Zlateva graduated from the Technical University of Varna (TU-Varna) in year 2000 with the qualification "Automation Engineer" and the master's degree in the specialty "Automation and Control Systems". At the same university in year 2009, after completing her studies in Industrial Management, she also acquired the qualification "Master of Industrial Management". In the period 2006–2010, Ivelina Zlateva, MSc, holds the positions of Senior Expert and Head at the Centre for Satellite Observation of Fishing Vessels - Varna.

In 2019, Ivelina Zlateva acquired her PhD degree at the Technical University of Varna in the professional field 5.2 "Electrical Engineering, Electronics and Automation", after successfully completing the PhD program "Automation of Manufacturing". The focus of her studies and PhD dissertation, entitled "*Exploring the possibilities for applying engineering methods in the management of marine resources*", aligns well with the thematic area of this competition.

2. Overall description of the application package

In the competition for the position of Associate Professor, Dr. Ivelina Zlateva presented a total of 27 scientific publications prepared in co-authorship and 1 edition with ISBN, reporting on activities and results obtained during the implementation of the ANEMONE

project. The list of scientific publications submitted for participation in this competition includes: 17 articles in peer-reviewed scientific journals, 5 book chapters, and 5 papers presented at scientific conferences. Of these 27 publications, Dr. Zlateva is the first author in 8, and in another 8 she is the second author, which is an indication of her significant role in conducting research activities. Out of a total of 17 scientific articles, 15 are published in journals indexed in the world-renown databases of scientific literature, and another 2 are in peer-reviewed scientific journals that are not indexed in Scopus and/or WoS.

To meet the uniform minimum national requirements for the acquisition of Associate Professor position, under the group of indicators "B. Habilitation Work", Dr. Zlateva presents a list of 6 publications in prestigious international journals, indexed in the world databases of scientific literature (indicator "B.4. Habilitation work – scientific publications in journals that are referenced and indexed in world-famous databases with scientific information"), of which 3 fall in quartile Q1 and another 3 in Q2. Based on the order of the authors, it can be confidently concluded that Dr. Zlateva has made a significant contribution to the preparation of these 6 publications, since in 3 she is the first author, in 1 she is the second, and in others 2 she is the fourth.

To meet the minimum national requirements for the group of indicators "G", Dr. Zlateva presents two lists with a total of 21 publications in co-authorship, of which in 5 she is the first author.

Specifically, the first list includes 14 publications, of which 9 articles in indexed scientific journals, including 3 articles in journals into quartile Q2, 2 in Q3 and 4 in Q4 (indicator "G.7. Scientific publication in journals that are referenced and indexed in world-renowned databases with scientific information") and 5 book chapters (indicator "G.8. Published study or chapter of a collective monograph").

The second list includes a total of 7 publications that are not indexed in the global databases WoS and Scopus (indicator "G.7", subcategory "6 points for other publications"). It includes 2 articles in peer-reviewed scientific journals and 5 research papers presented at scientific conferences.

In accordance with the requirements of the Bulgarian National Regulations for the Acquisition of Academic Degrees and the Bylaws thereto, and in order to certify the absence of overlap between the publications submitted in the current and previous competitions, Dr. Zlateva has provided a list of 4 publications used for the acquisition of her PhD degree and an abstract of the dissertation used in the competition for the acquisition of the Chief Assistant Professor position.

After a detailed acquaintance with the provided lists, abstracts and the full text of the publications, I consider for review 27 publications, since the edition with ISBN is a report on a project and according to the national regulations, it does not contribute to this competition.

In order to meet the minimum national requirements for the group of indicators "D. Citations ...", Dr. Zlateva has presented a list of a total of 51 citations by other authors who have referred to 13 of her publications.

In summary of the analysis by the different groups of indicators, Table 1 presents a systematized formal comparison of the scores calculated on the basis of the evidence provided by Dr. Zlateva with the requirements noted in the relevant regulations of the Institute of Oceanology "Prof. Fridtjof Nansen" to the candidates for the position of Associate Professor in the groups of indicators for the scientific field "4. Natural Sciences, Mathematics and Informatics", professional field "4.4. Earth Sciences".

Table 1. Reference on the fulfillment of the conditions for acquisition of the Associate Professor position by the groups of indicators for the scientific field "4. Natural Sciences, Mathematics and Informatics", professional field "4.4. Earth Sciences".

Indicator group	Content by indicators	Minimum requirements for the acquisition of the Associate Professor position	Scores of I. Zlateva
A	Indicator 1	50	50
B	Indicator 3 or 4	100	135
G	Sum of indicators from 5 to 10	220	255
D	Sum of indicators 11 to 13	60	237
	Total for indicators	430	677

The comparison presented in Table 1 shows that Dr. Zlateva fulfills the requirements of indicator "A" and significantly exceeds them in the groups of indicators "B", "G" and "D".

3. Overall characteristics of the scientific and pedagogical activity of the candidate

Of the total 27 publications considered in the current competition for Associate Professor, 20 pcs. (approximately 74%) are indexed in the world-renowned databases of scientific literature Scopus or WoS. A summary of the contributions formulated in the works of Dr. Zlateva, prepared in co-authorship, is presented in Section 4 of this review.

From the application package provided, I can conclude that the research interests of Dr. Zlateva, demonstrated in the scientific publications submitted to this competition, show a sustained interest in the spatial modeling of pollution, the dynamics and distribution of populations for various types of organisms, including fish resources of economic importance, the species and distribution of toxic species of ecological importance, etc. For the most part, the research reported in these publications is interdisciplinary in nature, using approaches and knowledge from the fields of oceanology, ecology of biological communities and mathematics, including machine learning methods and big data analysis.

In summary, it can be concluded that Dr. Zlateva's significant contribution to a large part of these publications is in the application of numerical and statistical methods for processing large data sets, often obtained from heterogeneous sources, in order to extract patterns and correlations between the observed climatic, ecological and biotic variables or in order to track the dynamics of ecological processes, biological systems or the spread and quantification of pollution and toxins.

The wide range of research topics covered in Dr. Zlateva's publications is due to her participation in 31 research projects, of which 18 are implemented by international consortia and another 13 by teams of Bulgarian research organizations. The results of the research activities carried out with the participation of Dr. Zlateva have been reported at 25 scientific forums, which is an indication of the significant efforts to disseminate the main achievements among the scientific community, but also to receive broad public support for the activities of IO-BAS.

Dr. Zlateva's pedagogical activity covers a nearly 7-year period - from the academic year 2017-2018, when during her PhD studies she taught practical exercises in various disciplines at the Technical University of Varna. Subsequently, in 2020 she was appointed Chief Assistant Professor in the professional field "4.5. Mathematics", at the Department of Physics of the Sea of the Institute of Oceanology "Prof. Fridtjof Nansen" – BAS – Varna, which she still holds.

The application package submitted under the competition for Associate Professor does not contain information about authorship or co-authorship of university textbooks or guidelines for laboratory exercises, lecture notes, or information about the supervision of diploma students, which confirms my initial impression that Dr. Zlateva is mainly engaged in research and publication activities in a significant number of projects.

4. Analysis of scientific achievements and contributions

I acknowledge that the publications submitted in this competition reflect a significant amount of research activity. Dr. Zlateva has presented in a synthesized form the most significant contributions in each publication. I accept the formulation of the contributions presented in the summaries of the publications and the detailed account of the contributions provided by Dr. Zlateva. From my point of view, her contribution claims can be structured in several main categories, as follows:

- A conceptual framework and models for monitoring, assessment and management of environmental risks through research, modelling and forecasting of the habitat suitability of various biological species have been created -- from economically important fish resources to toxic microalgae and phytoplankton cysts.
- Study of the informative and predictive ability of various biotic and environmental indicators, as well as methods for adaptive selection of threshold values for the needs of specific tasks.

- The application of an engineering-systems approach for analysis and simulation of complex ecological systems to optimize the management of marine living resources or pollution.
- Application of mathematical and statistical modelling methods, including numerical modelling and machine learning methods for studying the spatial distribution and abundance of different morphotypes, toxic microalgae, fish resources of economic importance, phytoplanktonic cysts, pollution and their quantification, as well as for pollution management in the marine environment.

I believe that these contributions can be attributed to the following main categories: synthesis of conceptual framework, new algorithms and models, developed methodologies for the analysis and discovery of spatial relationships between ecological and biotic variables, the location of different habitat areas of their characteristics, analysis and quantification of pollution and sources of toxins. Based on the nature of the reported studies and results, I can conclude with conviction that Dr. Zlateva has made a significant contribution to the results achieved.

5. Recognizability by the research community

Regarding the significance for science and practice of the contributions formulated in Dr. Zlateva's publications and largely determining her recognizability by the research community, I judge by the number of citations by independent authors and by the number research projects she implemented:

- (1) According to the provided reference, Dr. Zlateva has participated in 31 research projects, including 18 international and 13 national, which is an excellent certificate for the practical usefulness of her scientific and applied activities.
- (2) Up-to-date reference as of 07.11.2025 for citations visible in the Scopus database, with self-citations excluded for all co-authors, shows 61 citations for 17 publications by Dr. Zlateva, which corresponds to the Scopus Hirsch index $h\text{-index} = 5$. As of the same date, 140 citations of Dr. Zlateva's publications are visible in Google Scholar, corresponding to the Google Scholar Hirsch index $h\text{-index} = 7$. This is a reliable indicator that her research publications attract the attention of researchers working on similar topics.

6. Critical remarks and recommendations

I find the documentation well-organized and convenient for fact-checking and thus have no critical comments on the neatness and completeness of the documentation provided by the applicant.

The only recommendation to the candidate that I would like to make is that she start devoting some time and engage in transferring the accumulated knowledge and experience to graduate students, young scientists, PhD students and postdoctoral researchers from

other institutes of the Bulgarian Academy of Sciences or higher education institutions. In this direction, Dr. Zlateva could take advantage of her personal contacts at the Technical University of Varna, as well as other universities in Varna and the region.

I believe that Dr. Zlateva should be praised for the long-term efforts and engagement to advance her qualifications and professional development, which could serve as a positive example for young scientists, PhD students and postdoctoral researchers. Evidence of these efforts, aimed at systematically upgrading knowledge and skills, are the diplomas and certificates provided for participation in qualification courses and trainings.

Of course, I should note that the merits of the research and publication activities, which I mention in this review, and consider to a large extent as the contribution of the candidate in this competition, were essentially made possible thanks to her chance to get admitted into the strong scientific team in which she has been working since 2019, and are largely due to the support which she received in her primary research unit, thanks to which the reported contributions to projects, research and publications became possible.

CONCLUSION

In conclusion, I would like to express my satisfaction that the evidence presented in the competition allows for an objective and multifaceted assessment of the qualification of Dr. Zlateva. The formal comparison of the presented research publications and research metrics with the national requirements according to the Bulgarian National Regulations, the corresponding bylaws thereto, and the relevant regulations of the Institute of Oceanology "Prof. Fridtjof Nansen" – BAS – Varna for the occupation of Associate Professor position, unequivocally confirm that the minimum requirements are met, and in certain groups of indicators they are exceeded.

The statement and the conclusions presented above give me grounds to confidently support Chief. Assist. Prof. Ivelina Yordanova Zlateva, PhD, Dipl. Eng., emphasizing that she has the necessary professional and personal qualities, as well as the necessary scientific qualification to occupy the Associate Professor position in the field of higher education "4. Natural Sciences, Mathematics and Informatics", professional field "4.4. Earth Sciences", according to the terms of this competition.

Date: 10.11.2025

REVIEWER: _____
/Prof. Todor Ganchev, PhD/