



БЪЛГАРСКА АКАДЕМИЯ НА НАУКИТЕ

ИНСТИТУТ ПО

МИНЕРАЛОГИЯ И КРИСТАЛОГРАФИЯ

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СОФИЯ

REVIEW

on the competition for occupying the academic position Associate Professor in the professional field 4.4 Earth Sciences (Mineralogy and Crystallography) for the needs of the "Mineralogy and mineral resources" department at the Institute of Mineralogy and Crystallography "Acad. Ivan Kostov — BAS".

announced in the State Newspaper 36, dated 29.04.2025.

applicant assistant professor Elena Slavcheva Tacheva

member of the academic jury prof. Rositsa Nikolova

The following report has been prepared on the basis of Order № 412ПД09 of 10.07.2025 issued by the Director of the Institute of Mineralogy and Crystallography "Acad. Ivan Kostov" and the decision of the scientific jury from 15.07.2025. The report meets the requirements of the Academic Staff Development Act in the Republic of Bulgaria (ASDA), the Regulations for its Implementation (RAPASRB) and the Regulations of the Institute of Mineralogy and Crystallography "Acad. Ivan Kostov - Bulgarian Academy of Sciences.

The biographical data presented by the candidate show that Senior Assistant Professor Tacheva obtained a bachelor's degree and a master's degree in Petrology and Lithology at the Faculty of Geology and Geography of Sofia University "St. Kliment Ohridski" in 1998 and 2002, respectively. She obtained her doctoral degree in 2011 as a full-time doctoral student at the Institute of Mineralogy and Crystallography at the Bulgarian Academy of Sciences, with a dissertation entitled "Mineralogical and geochemical characteristics of accessory minerals from the Petrohan pluton." Since 2006, the candidate has been working in the electron microscopy laboratory at the Institute of Mineralogy and Cosmology, Bulgarian Academy of Sciences, and in 2018 she won a competition and was appointed to the academic position of "senior assistant". Her scientific interests are related to elucidating the processes of magmatic evolution, studying accessory minerals as petrogenetic indicators, and archaeomineralogy. To solve scientific problems in the above-mentioned areas, the candidate works in scientific teams, to which she contributes by conducting research using optical and scanning electron microscopy, inductively coupled plasma mass spectrometry, and laser ablation. Senior Assistant Professor Tacheva is also involved in the selection of field samples, their preparation for various analyses, and the interpretation and presentation of the results.

The set of documents submitted by the candidate was reviewed by a commission appointed by order of the Director of the Institute of Mathematics and Informatics at the Bulgarian Academy of Sciences, which certified in its report that the documents were in order and complied with the relevant regulations. At its first meeting, the scientific jury decided that Senior Assistant Professor Elena Tacheva should be admitted to the evaluation process because she had submitted the necessary documents and, according to the academic reference she had prepared, she met the minimum criteria for the position of associate professor in the field of computer science. Dr. Elena Tacheva be admitted to evaluation because she had submitted the necessary documents, according to the academic reference she had prepared, she met the minimum criteria for the

academic position of "associate professor," and no plagiarism had been found in the published results of her research.

In the competition for the academic position of "associate professor," Senior Assistant Professor Tacheva participated with 34 scientific articles, 19 of which were published in journals referenced and indexed in WoS and SCOPUS. As of July 25, 2025, according to the information available in the WoS database, Senior Assistant Professor Tacheva is co-author of 26 scientific publications, and according to SCOPUS, she is co-author of 10 scientific publications, cited 16 times, and has an h-index of 2. All publications submitted for the competition are co-authored, with Senior Assistant Professor Tacheva being the first and corresponding author of two of them. Twelve of the scientific papers were published before 2018, when Dr. Tacheva participated in a competition for the position of "senior assistant." One of the publications submitted is in a Q1 quartile journal, five of the publications are in Q2 quartile journals, and four are in Q4 quartile journals. In the period 2018-2025, Senior Assistant Professor Tacheva reported the scientific results of her research at 18 international scientific forums, 7 of which were conferences of the Bulgarian Geological Society. Since 2018, Senior Assistant Professor Tacheva has been a member of the scientific teams of three research projects financially supported by the Scientific Research Fund. The candidate is part of the scientific team implementing a project for the development of the Center of Excellence "Mechatronics and Clean Technologies" funded by the European Structural Funds. The candidate is part of the scientific team implementing a project for the development of the Center for Excellence in Mechatronics and Clean Technologies, funded by the European Structural Funds.

Senior Assistant Professor Tacheva fulfills the conditions for holding the academic position of "associate professor" as set forth in Chapter 3, Section III of the Law and the criteria of the Bulgarian Academy of Sciences, as follows: she is registered with the National Center for Information and Documentation (NACID) (<https://ras.nacid.bg/dissertation-preview/40877>), where her educational and scientific degree of doctor and the academic position of "senior assistant" are recognized, and she has held this academic position for more than two years (senior assistant since 2.04.2019). Comparing the list of materials submitted by the candidate for participation in this competition and the data in NACID, it is clear that the publications in the competition do not include those used to obtain the educational and scientific degree of doctor. I found no evidence of plagiarism in the scientific works submitted for participation in this competition.

When assessing ***the candidate's fulfillment of the minimum criteria for the academic position of "associate professor,"*** I adhered to the definitions and explanations specified in the ZRASRB and PPZRASRB, as follows:

- Law on the Development of Academic Staff (Additional Provisions) § 1, 12. (new - State Gazette, No. 30 of 2018, effective as of 04.05.2018) "study" is a published scientific research in a journal, collection, or independently, which examines certain aspects of problems and issues, has a scientific editor and/or scientific reviewers, has an ISSN or ISBN, and has a volume of 20 to 99 standard pages with 1800 characters per page;

14. (new - SG, issue 30 of 2018, effective as of 04.05.2018) "article" is a published scientific work that meets the requirements of item 12, contains a description of original scientific research, and has a volume of up to 20 standard pages with 1800 characters per page:

- Regulations for the application of the ZRAS, Article 1a, paragraph 1 for Professional field 4.4. Earth Sciences Table 1 and Table 2 (amended by Decision No. 8442 of August 22, 2023, of the Supreme Administrative Court - State Gazette No. 76 of 2023, effective as of 05.09.2023, amended - State Gazette, issue 23 of 2025). The definitions listed in Table 2 are not unambiguous with regard to the publications to be scored. For indicator group B, indicator 4, and for indicator group G, indicator 7, the table specifies that scientific publications in journals that are referenced and indexed in world-renowned databases with scientific information* are used. At the same time, 6 points can also be awarded for so-called "other" scientific publications (for indicators B4 and D7) in peer-reviewed publications, for which it is not clearly stated whether or not they must be referenced and indexed in databases. The ZRASRB and PPZRASRB do not explain how, if a publication is not referenced or indexed in databases, it can be proven that the publications in it are subject to scientific review. This issue needs to be clarified, as it currently allows for a wide range of interpretations. In addition, when determining quartiles, the following explanation from the PPZRASRB should be taken into account: if no quartile is available for a journal in the year of publication, the quartile available for the closest year is used. This also raises questions.

Taking into account the aforementioned regulatory documents and the ambiguities described in the assessment, I have adhered to the following rules:

- I recognize as an article any publication in a journal or collection that has a scientific editor and/or scientific reviewers and has an ISSN or ISBN, respectively. Volume up to 20 standard pages with 1800 characters per page, with no minimum volume restriction.
- I accept as peer-reviewed journals or collections all those referenced in the Web of Science, Scopus, and NACID databases, as well as any journal or collection that states that data is published after scientific review.
- If no quartile is available for a given publication in the year of publication, but only journals are referenced in the database for that year, I use the quartile for the year closest to the year of publication.

The publications in which the candidate has published her scientific research are selected in the following table, with a link to the database in which they are referenced or a link to the relevant document showing that the publications are subject to scientific review.

Name	Number of publications in the competition	Links	Number of points per publication
First International Electronic Conference on Mineral Science	1 publication	The publication is not available, the link provided by	0

		the candidate is not active.	
Proceedings of XX CGBA Congress, Tirana, Albania, September 24-26, 2014	1 publ.	link	6 points
Geosciences	8 in the period 2008-2017	link	6 points for publications after 2010, because according to the documents, applies SCIENTIFIC review
Yearbook of Sofia University "St. Kliment Ohridski"	1 publ.	link	In the 2004 NACID reference list. 6
Geologica Macedonica	3 publications	link	Proceedings from conferences with scientific editing 6
XVII Serbian Symposium on Hydrogeology	1 publ.	link	Proceedings from conferences with scientific editing 6
Review of the Bulgarian Geological Society	11 publ.	link	Referenced and indexed in Web of Science: 2018-2022 – 8 points 2023-2024 – 12 points
Bulgarian Chemical Communications	1 publication	link	Referenced and indexed in SCOPUS since 2009. 12t.
Geologica Balcanica	1 publ.	link	Referenced and indexed in SCOPUS since 1999 1999-2021 – 12 points 2022-2023 – 15 points
Comptes Rendus de L'Academie Bulgare des Sciences	1 publication	link	Referenced and indexed in SCOPUS since 2003 2008-2013 and 2017–2020 20t. 2003-2007 and 2021–2024 15t.
Journal of Thermal Analysis and Calorimetry	1 publ.	link	Referenced and indexed in SCOPUS since 1999 20
Minerals	2 publ.	link	Referenced and indexed in SCOPUS since 2012. 20
ChemistryOpen	1 publ.	link	Referenced and indexed in SCOPUS since 2013. 20
Archaeological and	1 publ.	link	Referenced and indexed in

Anthropological Sciences			SCOPUS since 2010 25
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The publications with which the candidate participates in the competition are formally divided into two groups for indicators 4 and 7. Since indicator 4 of group B provides for an analogue of a habilitation thesis, it would be more correct to group the publications for this indicator thematically. For indicator 4 of group B, the candidate has included 11 publications, as follows: four in "Geosciences", of which 1 before 2010, for which I do not award points – **18 points**; four in "Review of the Bulgarian Geological Society" before 2023 – **32 points**; one in "Geologica Balcanica" in 2018 – **12 points**; one in "Comptes Rendus de L'Academie Bulgare des Sciences" – **20 points**; one in "Archaeological and Anthropological Sciences" – **25 points**. The total number of points for **indicator 4 in group B is 107**. For group D, indicator 7, 23 articles are presented, of which I do not recognize points for one, the one published in the First International Electronic Conference on Mineral Science, listed under No. 19 in the Report on the fulfillment of the minimum criteria provided by the candidate. For the other publications, the points have been correctly assigned and the total is **220 points for group G**. There are 56 citations, which give **215 points for group D**. **The total number of points** calculated from the documents submitted to meet the minimum criteria **is 542**, which exceeds the required 430 points according to the Regulations on the conditions and procedure for acquiring scientific degrees and occupying academic positions at the Bulgarian Academy of Sciences. I must note that the calculations in the table submitted by the candidate are inaccurate, the links are incorrect, some of the ISSN numbers do not correspond to the relevant journal, etc., which greatly complicates the review and evaluation process. I recommend greater attention and precision in the preparation of documents, especially in such cases where there is room for different interpretations of the definitions in the regulatory documents.

In the author's report, Senior Assistant Professor Tacheva links her scientific contributions to participation in field work, preparation of thin sections, dune sections, mineral separation, observations under a polarizing microscope and petrographic description of natural objects, conducting research using scanning electron microscopy and electron probe microanalysis, discussing analytical data and preparing results for publication. The candidate's scientific activity covers several scientific areas, which she summarizes in the following fields:

- Mineralogical, geochemical, and geochronological characteristics of the Petrohan pluton (Western Stara Planina, Bulgaria)
- Geochemistry of pyrite from the Sarnak deposit, Eastern Rhodopes
- Geochemical behavior of tungsten in the oxidation zone, soils, and waters of the Gruncharitsa River in the Gruncharitsa deposit area, Western Rhodopes.
- Electron microscopic studies of natural and artificial mineral phases, to which I add archaeomineralogical studies.

In the author's report, Senior Assistant Professor Tacheva has correctly presented the results published in each of the listed areas, summarizing her contribution to solving specific scientific problems. The main competence of Senior Assistant Professor Tacheva is in the use of electron microscopic methods for characterizing natural and synthetic materials and is directly related to the professional field 4.4 Earth Sciences (mineralogy and crystallography) announced in the

competition. SEM analysis is undoubtedly one of the mandatory methods for studying natural and synthetic objects with mixed compositions, providing information on morphology, phase relationships, crystal structure, and chemical composition. And although these methods have been used for over a hundred years and are considered routine when working with crystalline and amorphous materials, modern materials science poses specific challenges, related to the characterization of substances and their properties, requiring the improvement of known methods and the development of new approaches, for which specialists with comprehensive training are needed. As part of the team of the scientific direction "Mineralogy and Mineral Resources," Senior Assistant Professor Tacheva leads her own task on the topic "Crystal chemical features and petrological significance of minerals from granitoids and metamorphites from the Western Balkan region and the Rhodope metamorphic terrain. According to the documents for participation in the competition, the candidate's experience in preparing scientific research projects and training young specialists cannot be assessed. According to the documents submitted for the competition, it is not possible to assess the candidate's experience in preparing scientific research projects or in training young specialists. I have known Senior Assistant Professor Tacheva since she joined the institute. She is precise and accurate in planning and carrying out analytical scientific research. She develops her own topics and participates in scientific teams working on projects funded by the National Science Fund and the European Structural Funds. Senior Assistant Professor Tacheva has experience in the use of analytical methods and is familiar in detail with their theoretical foundations and the technical characteristics of analytical equipment. This makes her one of the most sought-after specialists for working with scientific equipment and interpreting results.

The materials *submitted for participation in the competition* exceed the requirements of the regulatory documents for the academic position of "associate professor." Senior Assistant Professor Tacheva is an established specialist in the field of geochemistry and structural mineralogy, has the skills to formulate scientific problems, and has experience in solving scientific tasks. I recommend that she take on greater responsibility for training young specialists and for maintaining the equipment in the electron microscopy laboratory. Her work is part of the scientific research in the field of "Mineralogy and Mineral Resources" at the Institute of Mineralogy and Cosmology at the Bulgarian Academy of Sciences. The participation of Assoc. Prof. Tacheva in scientific teams carrying out projects of national and European importance and her responsibility for conducting research in the electron microscopy laboratory will contribute to the development of scientific topics in the future, including geochemical assessment of natural objects, research into their crystal structures and physicochemical characteristics. Therefore, I propose that the esteemed members of the scientific jury vote in favor of the selection of Senior Assistant Professor Tacheva for the academic position of "associate professor" in professional field 4.4. Earth Sciences (Mineralogy and Crystallography).

Based on the above positive assessment, I recommend that the Scientific Council of the Institute of Mineralogy and Crystallography at the Bulgarian Academy of Sciences support the election of Senior Assistant Professor Tacheva to the academic position of "associate professor" in professional field 4.4. Earth Sciences (Mineralogy and Crystallography).

Date: 15.09.2025

Prepared by: Prof. Rositsa Nikolova

**Заличено съгласно
чл. 2 от ЗЗЛД**