Appendix 12d

REPORT

to occupy the academic position:

"Professor"	
"Associate Professor"	×
	one of the academic positions indicated shall be marked with the sign "X"

Candidates to occupy the position:

1	Chief Assistant	PhD	Vladislava	Hristova	Ivanova	UCTM
№	academic position	scientific degree	name	middle name	last name	workplace

Scientific area:

4	Natural sciences, mathematics and computer science
code	name

Professional area:

4.1	Physical Sciences
code	name

Scientific specialty:

Condensed Matter Physics with French

The competition has been announced:

102	03.12.2024	Physics	Chemical Technology
in SG issue	date	for the needs of the Department	Faculty

The report was written by:

Assoc. prof.	PhD	Vania	Georgieva	Ilcheva	IEES - BAS
academic position	scientific degree	name	middle name	last name	workplace

1. Report for the candidate:

Chief Assistant	PhD	Vladislava	Hristova	Ivanova

academic position	scientific degree	name	middle name	last name

1.1. Meeting the minimum requirements under the Regulations:

A) The candidate meets the minimum requirements	20 points	×
B) The candidate doesn't meet the minimum requirements	0 points	
		one of the answers given is marked with the sign "X"

It must be filled in if answer B is marked. The publication activity of the candidate is analyzed. The response of the results achieved (quoted) is analyzed.
The candidate, Chief assistant Dr. Vladislava Hristova Ivanova, participates in this competition with a total of 19 publications, 6 of which are presented as habilitation papers. The publications are referenced in global databases for scientific information (Scopus and/or Web of Science), with two of them falling into the highest quartile category - Q1, six - in Q2, seven - in Q3, and three - in Q4. The candidate's reference contains a total of 25 citations of scientific publications. In addition to the required documents, Vladislava Ivanova has also submitted evidence of participation in a national scientific project, as well as co-authorship of a textbook supplement. It follows from the report made on the fulfilment of the minimum national requirements according to the LDASRB (Art. 24, para. (1), item 4.) and the Regulations for the terms and conditions for acquiring scientific degrees and for holding academic positions at the UCTM that the points collected, necessary to cover the minimum national requirements, are available and cover the minimum required threshold for all indicators.

1.2. Relevance of scientific and / or applied research:

A) The research is relevant. Part of the research is pioneering (no results are known on the topic by other authors)	8 points	×
B) Research is relevant. Results from other authors are known for each of the topics and / or applications studied.	6 points	
C) Most of the research is relevant, but also some results are presented that have no scientific and / or applied value	4 points	
D) The smaller part of the research is relevant	2 points	
E) Research is not relevant	0 points	
		one of the answers given is marked with the sign "X"

The evaluation of the relevance of the research must be substantiated.

The scientific research presented by Chief assistant Dr. Vladislava Hristova Ivanova is up-to-date and in line with the most modern trends in the field of materials science and condensed matter physics. Her work is aimed both at studying the physicochemical and optical properties of materials with potential high-tech applications in currently relevant areas (optoelectronics, biosensors, etc.), and at research and analysis of problems concerning the training of students in engineering specialties, which is an important priority in ensuring quality research personnel.
Some of the research used in the proposed publications are distinguished by their pioneering nature, as they present modern methodological approaches and original experimental results, demonstrating not only their high relevance, but also the candidate's contribution to the expansion of knowledge in the field of materials science. A significant part of the publications is in prestigious international scientific journals, which further confirms the importance and quality of the presented research.
In addition to the candidate's research activity, there is also the possibility of practical application of the obtained results, which is essential for technological progress in various industrial sectors.
The experimental methods used by Dr. Ivanova can serve as a basis for future developments aimed at creating new materials with improved properties, as well as for optimizing existing technologies.

1.3. Objectives of the research:

A) Realistic and of scientific and / or applied interest	8 points	×
B) Realistic, but not of scientific and / or applied interest	4 points	
C) Unattainable (unrealistic)	0 points	
		one of the answers given is marked with the sign "X"

Objectives must be specified. The type of the set objectives must be justified
The goals of the research work of Chief assistant Dr. Vladislava Ivanova are clearly defined within the three thematic areas, and are aimed at: 1. Synthesis and detailed characterization of physicochemical, mechanical and optical properties of chalcogenide systems with different composition and structure, with a view to clarifying important dependencies that are of key importance for potential modern applications; 2. Conducting review studies on lactate biosensors and peptide mimetics with a view to further developing effective and accessible analytical approaches; 3. Creating an effective learning environment through the integration of digital technologies and the development of new laboratory exercises to modernize the teaching of Physics and Materials Science. The goals set are justified, realistic and based on accumulated scientific results, established methods and innovative approaches in research and educational activities.

1.4. Candidate research contributions:

A) With lasting scientific and / or applied response, they form the basis for new research and applications	20 points	

B) They are of significant scientific and / or applied interest, complete and / or summarize previous research	16 points	
C) They are of scientific and / or applied interest	12 points	×
D) Lack of significant contributions	8 points	
E) Lack of contributions	0 points	
		one of the answers given is marked with the sign "X"

Contributions must be specified. The type of results achieved must be justified.
The presented scientific works of Chief assistant Dr. Vladislava Ivanova are distinguished by their versatile direction and are presented with an emphasis on her personal contribution both in the technological optimization of experimental synthesis approaches and in the detailed analysis of the obtained results with a vision of potential opportunities for real applicability. The most notable contributions are: • A series of chalcogenide materials from the systems $(GeTe_y)_{100-x}In_x$, $(GeTe_4)_{100-x}Cu_x$ (publications A2, A4, A11, A12, G2, G3, G4, G5, G6), Ge_xSe_{100-x}, and $(GeSe_5)_{100-x}Me_x$ (Me = Ga, In) (publications A2, A5), obtained by single-temperature synthesis in a closed volume, have been studied and analysed in detail. The dependence of important physicochemical parameters (density and molar volume) of the studied chalcogenide systems on the composition has been analysed and discussed, and a composition – structure - properties correlation has been established. A precise selection and technological optimization of various methods for preparation of chalcogenide materials in thin-film form has been carried out, which expands the possibilities for their application. Thin films of $(GeTey)_{100-x}In_x$, Ge_xSe_{100-x}, $(GeSe_5)_{100-x}Me_x$ and $Bi_2(Se_{1-x}Te_x)_3$ have been deposited on two types of substrates - glass (publications A5, A11, G2, G4, G5, A13) and silicon, including specially designed cantilevers used for study of the mechanical stress (publications G5, G6). The Doctor blade technique has been used for the synthesis of thin films for photovoltaic solar cells (publication A7). Composite materials based on an azopolymer doped with chalcogenide particles $(GeTe_4)_{100-x}Cu_x$ have been obtained by electrospray technique (publication A6). Important parameters of the films (evaporation kinetics, structure, morphology, photoinduced changes in optical properties, thermally induced crystallization, mechanical properties, etc.) have been studied, indicative of their potential for various applications. • A detailed review of enzymatic methods for lactate determination has been carried out, summarizing the latest achievements in the field with an emphasis on simplification, automation and reduction of analysis costs. The effect of a peptide mimetic on the physicochemical properties of lipid membrane models has been studied, which contributes to a better understanding of their selectivity and toxicity (publication A9). • Innovative approaches have been proposed for the modernization of Physics and Materials Science education through the implementation of digital technologies, aimed at creating a favourable environment for the development of qualitatively trained future scientists. As a result of the research and analysis conducted, an interactive approach for data collection, digitization and visualization using a web camera has been developed.

The results of the candidate's research activities demonstrate in-depth experimental work, a systematic approach and a multidisciplinary focus of the presented scientific works.

1.5. Participation of the candidate in the achievement of the presented results:

A) The candidate has at least an equal participation in the submitted papers	8 points	
B) The candidate has at least an equal participation in most of the submitted papers	7 points	×
C) The candidate has a secondary participation in most of the submitted papers	4 points	
D) The candidate participation is unnoticeable	0 points	
		one of the answers given is marked with the sign "X"

Critical notes must be provided if one of the items C or D is marked.

1.6 Pedagogical activity:

A) The candidate has effective and sufficient pedagogical activity at the university. The textbooks issued are modern and useful (they meet the requirements of the Regulations). The work with undergraduate and doctoral students is at a high professional level.	8 points	×
B) The candidate has sufficient pedagogical activity at the university. The textbooks issued satisfy the requirements of the Regulations.	6 points	
C) The pedagogical activity and / or textbooks issued are insufficient (do not meet the requirements of the Regulations)	0 points	
		one of the answers given is marked with the sign "X"

Critical notes must be provided if one of the items B or C is marked.

1.7. Critical notes:

A) Lack of critical notes	8 points	×
B) Critical notes of a technical nature	7 points	
C) Critical notes that would partially improve the results achieved in a small part of the research	5 points	
D) Critical notes that would partially improve the results achieved in most of the research	3 points	
E) Significant critical notes	0 points	
		one of the answers given is marked with the sign "X"

Critical notes must be provided if one of the answers C, D or E is marked.

1.8. Conclusion

A) The evaluation of the candidate's activity is **POSITIVE**	This evaluation is assigned to a total number of at least 50 points	×
B) The evaluation of the candidate's activity is **NEGATIVE**	This evaluation is assigned to a total number below 50 points	
		one of the answers given is marked with the sign "X"

To be filled in if requested by the member of the scientific jury
The materials presented by Chief assistant Dr. Vladislava Ivanova are in the thematic area of this competition and fully meet the requirements of the Low on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its implementation and the Regulations on the terms and conditions for occupying academic positions at the University of Chemical Technology and Metallurgy. Based on the above, I propose Chief assistant Dr. Vladislava Hristova Ivanova to be elected as an associate professor in the professional field 4.1. Physical Sciences, scientific specialty "Condensed Matter Physics with French language" at UCTM - Sofia.

	The report was written by:	
date	**Assoc. Prof. Vania Ilcheva**	signature