

**REPORT**

to occupy the academic position:

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

**Candidates to occupy the position:**

1	Senior Assistant Professor	PhD	Vladislava	Hristova	Ivanova	
№	academic position	scientific degree	name	middle name	last name	workplace

**Scientific area:**

4	Natural sciences, mathematics and informatics
code	name

**Professional area:**

4.1	Physical sciences
code	name

**Scientific specialty:**

Condensed Matter Physics with French
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**The competition has been announced:**

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

**The report was written by:**

Prof.	PhD	Dimana	Ilieva	Nazarova	UCTM/IOMT
academic position	scientific degree	name	middle name	last name	workplace

**1. Report for the candidate:**

Senior Assistant Professor	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	X
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.

### 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	X
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 achievements and main results of the candidate are summarized and presented in three main areas, the relevance of which I have considered separately: - Preparation and study of chalcogenide materials, where thin layers with current compositions were obtained and modern methods for their characterization were applied; - Research on biosensors and peptide mimetics, which are of increased research interest due to their wide application in clinical analysis and control of fermentation processes in the food industry;

-- Development and advancement of methods to increase the engagement and interest of engineering students in Physics and Materials Science education. Creating a more interactive learning environment and incorporating new digital technologies to modernize education increases the engagement and interest of students in the learning process and enhances their creativity, which is of great necessity.

### 1.3. Objectives of the research:

A) Realistic and of scientific and / or applied interest	8 points	X
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 objectives of the research under consideration are of scientific and applied interest and are as follows:

1. To obtain chalcogenide materials of various compositions, to deposit thin layers of them and to characterize their structure, morphology, topology and composition, their mechanical, physicochemical, electronic and optical properties;
2. To investigate, discuss and summarize enzymatic methods and recent achievements in the development of lactate biosensors.
3. To develop and advance methods for increasing the engagement and interest of engineering students in the study of Physics and Materials Science.

### 1.4. Candidate research contributions:

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

In my opinion, the most significant contributions are the following:

- The application of new methods of analysis, such as atomic models, through ab initio molecular dynamics and density functional theory simulations;
- The obtained results on the influence of the composition on the microhardness and elastic modulus in the As<sub>2</sub>Se<sub>3</sub>-Ag<sub>2</sub>Te-GeTe system;
- The results of the comparative analysis of the physicochemical properties of bulk samples and in particular the density of the compositions of the (GeSe<sub>5</sub>)<sub>100-x</sub>In<sub>x</sub> and (GeTe<sub>5</sub>)<sub>100-x</sub>In<sub>x</sub> systems, which show higher values of the Te-containing ones;
- The electronic properties of ternary chalcogenide systems studied for the first time;

### 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	X
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.  
 The contributions are summarized in three areas and the candidate's personal contributions are clearly distinguished, which leaves no doubt about his competence and the quality of the work performed.

### 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	X
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"
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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	X
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.
I have no critical remarks.

**1.8. Conclusion**

A) The evaluation of the candidate's activity is <b>POSITIVE</b>	This evaluation is assigned to a total number of at least 50 points	X
B) The evaluation of the candidate's activity is <b>NEGATIVE</b>	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 documents and materials submitted by Senior Asst. Prof. PhD Vladislava Ivanova meet all the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its Implementation and the Regulations for the Acquisition of Scientific Degrees and Occupation of Academic Positions at the UCTM. The candidate has submitted a sufficient number of scientific papers published in international specialized journals. The developments have original scientific and scientific-applied contributions. I give my positive assessment and recommend to the Scientific Jury to vote for awarding the academic position of "associate professor" to Senior Asst. Prof. PhD Vladislava Ivanova in the scientific specialty of Physical Sciences at the Bulgarian Technical University.

<b>25.03.25</b>	The report was written by: Prof. PhD Dimana Nazarova	
date		signature