

**REPORT**

to occupy the academic position:

"Professor"	<b>X</b>
"Associate Professor"	
	one of the academic positions indicated shall be marked with the sign "X"

**Candidates to occupy the position:**

1	<b>Assoc. Prof.</b>	<b>PhD</b>	<b>Nikolai</b>	<b>Iliev</b>	<b>Georgiev</b>	<b>UCTM</b>
№	academic position	scientific degree	name	middle name	last name	workplace

**Scientific area:**

<b>5</b>	<b>Technical sciences</b>
code	Name

**Professional area:**

<b>5.10</b>	<b>Chemical technologies</b>
code	Name

**Scientific specialty:**

<b>Technology of fine organic and biochemical synthesis</b>
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**The competition has been announced:**

<b>23</b>	<b>19.03.2024</b>	<b>Organic synthesis</b>	<b>Faculty of Chemical Technology</b>
in SG issue	date	for the needs of the Department	Faculty

**The report was written by:**

<b>Prof.</b>	<b>PhD</b>	<b>Rositca</b>	<b>Dimitrova</b>	<b>Nikolova</b>	<b>FCF - SU</b>
academic position	scientific degree	Name	middle name	last name	workplace

**1. Report for the candidate:**

<b>Assoc. Prof.</b>	<b>PhD</b>	<b>Nikolai</b>	<b>Iliev</b>	<b>Georgiev</b>
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>X</b>
B) The candidate doesn't meet the minimum requirements	0 points	
		one of the answers given is marked with the sign "X"

Must be filled in if bullet B is marked. The publication activity of the candidate is analyzed. The response of the results achieved (quoted) is analyzed.

The candidate Assoc. Prof. Dr. Nikolay Georgiev is a co-author of 78 scientific publications, 71 of which are referenced in Scopus. 1517 citations registered in Scopus were noted, where the h-index of Assoc. Prof. Georgiev is 26.

In the competition for professor, Assoc. Prof. Dr. Georgiev participates with 29 publications, refereed and indexed editions in the Scopus or Web of Science databases. 15 of them are in Q1, 11 in Q2, 2 in Q3 and 1 in Q4, which unequivocally indicates a very high level of scientific research, a fact confirmed by the author's high citation rate. He is also the author of the textbook "Individual high-energy materials (Explosives)", included in the publishing plan of UCTM for 2024. He is the co-author of a patent from 2020.

**According to indicator A1.**

The candidate Nikolai Georgiev has defended his dissertation on the topic "Design and synthesis of 1,8-naphthalimide dendritic antennas. Resonance-energy transfer and homosensory properties" in 2009, developed in UCTM - Sofia. (50 points).

**According to indicator C4.**

10 scientific publications are presented, 6 of which in Q1, 3 in Q2 and 1 in Q4. According to this indicator, the candidate exceeds the minimum requirements of 100 points almost twice (177 points).

**According to indicator D5 - D8.**

19 scientific publications are presented. The candidate exceeds the minimum requirements of 200 points (226 points) as well.

**According to indicator E11.**

The minimum requirements for this indicator for UCTM are 100 points. The candidate has submitted 35 citations (350 points), which many times exceeds the requirements.

**According to indicator F20.**

Dr. Georgiev is the author of a textbook. (40 points), the scientific supervisor of a successfully defended doctoral student (40 points), participates in 3 scientific projects (30 points) and is a co-author of a patent (40 points). The required number of points for this indicator is 100, and Dr. Georgiev has 190 points.

The analysis of the presented scientific results shows that Dr. Georgiev not only fulfills, but in most indicators far exceeds the minimum requirements of the competition.

**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>X</b>
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 presented scientific publications are entirely in the field of the scientific specialty for which the competition has been announced. The candidate's scientific research is related to the design and synthesis of 1,8-naphthalimides, 9-phenylxanthenes and perylenes as fluorescent compounds and their application as sensors for energy transfer at the molecular level.

For the first time, benzylether light-harvesting systems, made entirely of 1,8-naphthalimide fluorophores, have been synthesized and studied. Twisted intramolecular charge transfer has been established, which makes it possible to obtain fluorescent sensor systems for the determination of water in organic solvents. The possibilities of applying molecular sensors as molecular logic devices have been explored.

The research is current and significant, related to the solution of important problems for society and has a high potential for application in new technologies for rapid diagnostics. The obtained results can be attributed to the enrichment of the scientific field with new knowledge.

### 1.3. Objectives of the research:

A) Realistic and of scientific and / or applied interest	8 points	<b>X</b>
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

High and realistic goals have been set, appropriate methods have been selected for their realization, and the achieved results have a significant scientific contribution and a high potential for application.

### 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>X</b>
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 candidate's works submitted for review are part of a consistent, in-depth and targeted study of photophysical properties of new organic compounds and possibilities for their application. The candidate's main contributions relate to:

- Investigation of new multichromic energy transfer systems at the molecular level based on polyamidoamine and benzyl ether systems containing 1,8-naphthalimide donor units. On this basis, for the first time, a multi-component molecular device including a light-harvesting system, a molecular rotor and a molecular switch has been developed.

- Fluorescent sensor molecules operating on different principles, which are suitable indicators for detecting protons, metal ions and water content in organic solvents, have been synthesized and studied.

- Water-based fluorescent micelles with pH sensing properties with good cell penetration and low cytotoxicity were obtained, which determines the possibilities of their application in medicine and biology as indicators.

- The possibilities of applying molecular sensors as molecular logic devices have been studied

The candidate's contributions are of significant scientific and applied interest and enrich the achievements in the scientific field.

#### 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>X</b>
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>X</b>
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.

The candidate's scientific research is of a complex nature, includes various methods of obtaining the objects for research, as well as methods for their characterization and the possibilities of their application. The leading participation and contribution of Associate Professor Georgiev cannot be doubted.

### 1.7. Critical notes:

A) Lack of critical notes	8 points	<b>X</b>
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 <b>POSITIVE</b>	This evaluation is assigned to a total number of at least 50 points	<b>X(80 points)</b>
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

In conclusion, I believe that Assoc. Prof. Dr. Nikolai Georgiev is an established scientist with a recognizable profile and a teacher with excellent theoretical and experimental training and active educational activity and not only meets, but also exceeds all the requirements of the Law on holding the academic position of Professor in Technology of fine organic and biochemical synthesis - scientific achievements and teaching activity.

On the basis of the attached documents, I confidently propose to the members of the honorable Scientific Jury and to the members of the Scientific Council of the University of Chemical Technology and Metallurgy

to award the academic rank "Professor" to Assoc. Prof. Dr. Nikolay Iliev Georgiev in professional direction 5.10. Chemical technologies (Technology of fine organic and biochemical synthesis).

<b>26.07.2024</b>	The report was written by:	
date	<b>Prof. Dr. Rositca Nikolova</b>	Signature