

**REVIEW**

to occupy the academic position:

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

**Candidates to occupy the position:**

<b>1</b>	<b>Assist. Prof.</b>	<b>Dr</b>	<b>Anton</b>	<b>Hristov</b>	<b>Georgiev</b>	<b>UCTM</b>
<b>№</b>	academic position	scientific degree	name	middle name	last name	workplace

**Scientific area:**

<b>4</b>	<b>Natural sciences, mathematics and informatics</b>
code	name

**Professional area:**

<b>4.2</b>	<b>Chemical sciences</b>
code	name

**Scientific specialty:**

<b>Organic Chemistry</b>
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**The competition has been announced:**

<b>37</b>	<b>21.04.2020</b>	<b>Department of Organic Chemistry</b>	<b>Faculty of Chemical Technologies</b>
in SG issue	date	for the needs of the Department	Faculty

**The review was written by:**

<b>Professor</b>	<b>DSc</b>	<b>Liudmil</b>	<b>Manolov</b>	<b>Antonov</b>	<b>Institute of Electronics, BAS</b>
academic position	scientific degree	name	middle name	last name	workplace

**1. Review for the candidate:**

<b>Assist. Prof.</b>	<b>Dr</b>	<b>Anton</b>	<b>Hristov</b>	<b>Georgiev</b>
academic	scientific	name	middle name	last name

position	degree			
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### 1.1. Completion of the provided documents:

A) The competition documents are in full compliance with the Regulations	3 points	<b>X</b>
B) The documents are complete but do not fully comply with the requirements of the Regulations	2 points	
C) The documents are not completed in accordance with the requirements of the Regulations	0 points	
		one of the answers given is marked with the sign "X"

Missing documents and violated requirements must be described if response C is marked.

All documents comply with the form and content of the requirements. There are minor inaccuracies between the Model for the criteria for the academic position "Associate Professor" and the detailed description of the points by indicators. The attached Annex 2b as a technical document does not correspond to the same annex in the Regulations (page 39).

### 1.2. 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"

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 minimum requirements have been significantly exceeded. The candidate has a very good publishing activity, both quantitatively and qualitatively. The presented publications are mainly in peer-reviewed scientific journals in rank Q1 and are very well cited (including in important technical patents from Samsung).

### 1.3. 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)	7 points	<b>X</b>
B) Research is relevant. Results from other authors are known for each of the topics and / or applications studied.	5 points	
C) Most of the research is relevant, but also some results are presented that have no scientific and / or applied value	3 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.

Research is generally focused into three main areas:

1. Design of photochemical switching systems, study of their action in solution and in polymer matrix. Most of the systems are new. Taking into account that such systems can be used in molecular electronics, as protective agents against UV radiation and as prototypes of molecular machines, this type of research can be considered cutting-edge.
2. Development of technologies for deposition of thin layers based on polyimide matrix. The obtained results are cited in Samsung patents, showing their high practical significance and relevance.
3. Study of the oxidative stability of petroleum products by IR spectroscopy, where a method for selective oxidation at atmospheric pressure of sulfur products in light catalytic gas oil is proposed. This type of research is important not only for monitoring oil products, but also has up-to-date environmental value.

#### 1.4. Knowledge of the problems subject of research:

A) The candidate knows in detail the achievements of other authors on the researched topics and/or applications	6 points	<b>X</b>
B) The candidate is partially familiar with the achieved results on the researched topics and / or applications	4 points	
C) The candidate has no prior knowledge of the status of the researched problems	0 points	
		one of the answers given is marked with the sign "X"

The evaluation must be substantiated if answer C is marked.

Based on the works presented for reviewing and my personal impressions of the candidate, I can definitely underline that he knows very well and thoroughly the previous research in the scientific fields in which he works.

#### 1.5. Type of research:

A) Theoretical	4 points	
B) Applied	4 points	<b>X</b>
C) Theoretical with application elements	4 points	

D) It does not correspond to the level specified in the Act for the Development of the Academic Staff in the Republic of Bulgaria and the Regulations	0 points	
		one of the answers given is marked with the sign "X"

The level of research must be substantiated if answer D is marked.

#### 1.6. 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.

As noted above, the goals of the candidate's research are subordinated to the main scientific fields in which he works. They can be formulated as follows:

1. Development of effective molecular switches using UV radiation as a switching stimulus. The long-term goal is to develop effective molecular devices. This goal is of considerable scientific and (in the long run) applied interest. Given that the Nobel Prize in Chemistry was recently awarded for such research, we can say that the goal is realistic.
2. Development of methodologies for monitoring of oil products. Fully realistic goal (IR-spectroscopy is one of the major tools for fast and non-destructive analysis of petroleum products) with great applied interest.

#### 1.7. Methods of research:

A) Adequate to research and set scientific objectives and /or applications	8 points	<b>X</b>
B) Partially appropriate, enabling part of the scientific objectives and / or applications to be achieved	4 points	
C) Inappropriate methods	0 points	
		one of the answers given is marked with the sign "X"

Methods must be specified. The type of methods used is justified.
The candidate uses a multidisciplinary approach to the methods, which is very highly valued. Synthetic organic chemistry (including methods for structural characterization and proof) is the major tool, as it physically creates the molecules needed for the studied. The properties are then studied using the methods of molecular spectroscopy (UV-Vis absorption and emission, IR, NMR, dynamic photophysical experiments) in solution and/or polymer matrix, and the observed changes are explained using theoretical calculations. This creates a comprehensive picture of the observed changes and ensures a high degree of objectivity in the interpretation.

#### 1.8. 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.
Work on molecular switches is of significant scientific interest. The quality of the journals in which the results are published, as well as by the citations, can be used as a proof. The work is going on by using two primary switching mechanisms - E/Z isomerization and proton transfer. The second one is new to science.

#### 1.9. 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.

Based on my personal impressions and the attached documents I can underline with confidence that Anton Georgiev is a very skilled scientist in the field of synthetic organic chemistry, with very deep knowledge and practical skills in spectral methods of analysis and in quantum chemistry. Therefore, I can say with certainty that he has at least an equal (and in many cases leading) participation in the conducted research.

#### 1.10. 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.

Dr Georgiev has sufficient pedagogical activity in the field of organic chemistry and spectral methods for investigation. He works well with colleagues and is able to attract young people.

#### 1.11. 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.

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### 1.12. Conclusion

A) The evaluation of the candidate's activity is <b>POSITIVE</b>	This evaluation is assigned to a total number of at least 65 points	<b>X</b>
B) The evaluation of the candidate's activity is <b>NEGATIVE</b>	This evaluation is assigned to a total number below 65 points	
		one of the answers given is marked with the sign "X"

To be filled in if requested by the reviewer
Dr. Anton Georgiev is a promising young researcher with extensive scientific expertise, highly critical of his own results, able to work in a team, creative and motivated. I warmly support his promotion as an associate professor.

### Candidate ranking (in case of more than one candidate who has received a positive evaluation to occupy the academic position):

Based on the assigned points, the candidates who have received a **positive** evaluation are ranked as follows:

1	<b>Assist. Prof.</b>	<b>Dr</b>	<b>Anton</b>	<b>Hristov</b>	<b>Georgiev</b>	<b>100</b>
place	academic position	scientific degree	name	middle name	last name	points

<b>18.09.2020</b>	The review was written by:	
date		signature