

REPORT

to occupy the academic position:

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

Candidates to occupy the position:

1	Assoc. Prof.	Dr	Desislava	Staneva	Grabcheva	UCTM
№	academic position	scientific degree	name	middle name	last name	workplace

Scientific area:

5	Technical Sciences
code	name

Professional area:

5.10	Chemical technologies
code	name

Scientific specialty:

Chemical technology of fibrous materials
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The competition has been announced:

23	19.03.2024	Textiles, leather and fuels	Chemical technologies
in SG issue	date	for the needs of the Department	Faculty

The report was written by:

Prof.	DSc	Sonia	Varbanova	Ilieva	Faculty of Chemistry and Pharmacy, Sofia University "St. Kl. Ohridski"
academic position	scientific degree	name	middle name	last name	workplace

1. Report for the candidate:

Assoc. Prof.	Dr	Desislava	Staneva	Grabcheva
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 analysed. The response of the results achieved (quoted) is analysed.

Prof. Grabcheva participated in the current competition with 45 publications, of which 41 in reputed peer-reviewed international journals in Scopus or Web of Science databases, 3 publications in non-refereed peer-reviewed journals, 1 publication in a Bulgarian specialized scientific journal and 2 chapters of collective monographs that do not repeat those presented in other competitions for holding academic positions and obtaining scientific degrees.

According to Scopus, the h-index is 16, total number of citations 749 (without self-citations). The total number of participations in national and international scientific forums with posters and reports after acquiring the academic position of associate professor in 2018 is 44. In the competition, Assoc. Prof. Grabcheva presents herself with the following parameters:

Indicator 1 – 50 points from the doctoral degree;

Indicator 4 – 112.1 points from 10 publications (required minimum 100 points);

Indicators 5 – 11 – total number of points 328.9 (required minimum 200 points), of which 295.5 points from publications in refereed and indexed scientific journals;

Indicators 12 - 14 - 620 points (required minimum 100 points).

She has supervised 4 scientific projects financed by BNSF and participated in 5 projects.

For the period 2018-2024, she was the co-supervisor of 2 defended doctoral students, 1 - dismissed with the right of defense and 1 - in the process of preparation; supervisor of 8 bachelor's and master's theses.

He is the co-author of a textbook for students of the Master's degree "Medical Textiles" at UCTM "Textile Materials with Sensory Properties and Photodynamic Activity", ISBN 978-954-91951-6-3, 2024.

From the data presented, it can be seen that according to all indicators, Assoc. Prof. Grabcheva as a candidate for the academic position of "professor" meets and exceeds the minimum requirements of the Law for the Development of the Academic Staff in the Republic of Bulgaria and the relevant regulations for its implementation.

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"

<p>The evaluation of the relevance of the research must be substantiated.</p> <p>Assoc. Prof. Grabcheva's field of scientific research is quite topical. The development of technologies for the production of antimicrobial textile materials is essential for several reasons. Emergence of new microorganisms: over time, new strains of bacteria, viruses and fungi appear, which can be more resistant and aggressive. These new microorganisms require innovative approaches and technologies to be effectively controlled and eliminated. Resistance to existing antimicrobial agents: With the increasing use of antimicrobial agents, many microorganisms have developed resistance to them. This makes the need for new and more effective antimicrobial technologies even more urgent.</p> <p>Antimicrobial textile materials play an important role in preventing the spread of infections and providing a safe living environment. New technologies seek to create sustainable and environmentally friendly solutions that minimize the negative impact on nature.</p> <p>The application of dendrimers with a larger number of functional groups allows the inclusion of various biologically active molecules in one supramolecular structure, which leads to an increase in antimicrobial efficiency. In addition to dendrimers, the microbiological activity of modified hyperbranched polymers and their complexes was investigated. For the first time, 1,8-naphthalimides and their modified dendrimers have been used as photosensitizers in antibacterial photodynamic therapy.</p> <p>Next stages in the scientific research of Assoc. Prof. Grabcheva are related to the development of textile materials with sensory properties, materials releasing biologically active substances, antiviral textiles, and textile materials for ecological applications.</p> <p>A large part of the research carried out is pioneering, which is clearly presented in the applicant's statement of scientific contributions.</p>

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 main goals in the scientific work of D. Grabcheva are design, synthesis and research of photophysical characteristics, biological and microbiological activity of new modified textile materials for biomedical and environmental applications. The scientific developments have, in addition to a fundamental nature, a clearly highlighted potential for application. I would like to emphasize the interdisciplinary nature of the scientific research, which is confirmed by the published scientific works.

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.

Scientific contributions are grouped into three main thematic areas:

1. New textile materials with biomedical application:

- Antimicrobial textile materials with antibacterial, antifungal and virucidal properties;
- Textile materials with photodynamic antimicrobial activity;
- Textile materials releasing biologically active substances.

2. Preparation, characterization and investigation of textile materials for ecological applications:

- Adsorbents for oil, oil products and dyes dissolved in water;

- Photocatalyst and heterogeneous Fenton catalyst.

3. Textile materials with sensory properties.

First, second and third generation poly(amidoamine) (PAMAM) dendrimers modified with 1,8-naphthalimide fluorophores were used to prepare the new antimicrobial materials; a fluorescent tripod containing a 3-substituted benzanthrone as a fluorophore and its zinc complex; a second-generation polypropylene imine dendrimer modified with 4-chloro-7-nitrobenzofurazan; hyperbranched polymers modified with 1,8-naphthalimide, acridine and dansyl fluorophores and their copper complexes. For the first time, 1,8-naphthalimides and their modified dendrimers were used as photosensitizers in antibacterial photodynamic therapy.

The innovative research carried out has the potential for application in modern therapeutic methods, for example in antibacterial photodynamic therapy, in local skin treatment and transdermal therapy, theranostics, etc.

The obtained results are the basis for further scientific research and applications.

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	X
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 materials presented by the candidate for participation in the competition show that Assoc. Prof. Grabcheva has an active participation in the conceptual and practical development of the presented scientific works.

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
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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	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.

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	X 79 points
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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
<p>According to the materials and scientific papers presented for the competition, the above analysis of their importance, scientific contributions, and high application potential, as well as the undoubted scientific and pedagogical qualifications of the candidate, I confidently give my positive assessment and recommend the Scientific Jury to vote for awarding the academic position of 'Professor' to Assoc. Prof. Dr. Desislava Staneva Grabcheva, professional field 5.10 Chemical technologies (Chemical technology of fibrous materials), UCTM-Sofia.</p>

190.06.2024	The report was written by:	
date	Prof. DSc Sonia Ilieva	signature