**Appendix 12d**

**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 | **Assistant Professor** | **PhD** | **Dimitar** | **Cvetkov** | **Peshev** | **UCTM, Sofia, Bulgaria** |
| № | academic position | scientific degree | name | middle name | last name | workplace |
| 2 | | | | | | |
| № | academic position | scientific degree | name | middle name | last name | workplace |
| 3 | | | | | | |
| № | 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**:

| |
|---|
| Processes and apparatuses in chemical and biochemical technology |

**The competition has been announced:**

| | | | |
|---|---|---|---|
| 101 | 27.12.2019 | Chemical Engineering | Chemical and Systems Engineering |
| in SG issue | date | for the needs of the Department | Faculty |

**The report was written by**:

| **Associated Professor'** | **Doctor** | **Petar** | **Ninov** | **Velev** | **UCTM Sofia, Bulgaria** |
|---|---|---|---|---|---|
| academic position | scientific degree | name | middle name | last name | workplace |

**1. Report for the candidate:**

| **Assistant Professor** | **PhD** | **Dimitar** | **Cvetkov** | **Peshev** |
|---|---|---|---|---|
| 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" |

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| 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. |
| Indicator 4, Habilitation work in the form of no less than 10 publications in journals, summarized and indexed in world databases is completed with 128.6 points, with a minimum of 100 points required.<br>Indicators 7 (14 publications in journals referenced in Web of Science and Scopus) and 8 (7 publications in non-refereed journals) were calculated to 177.5 (publications) and 51.4 ( publications), respectively, or a total of 228.9 points, with a minimum requirement of 200 points.<br>Indicators 12 collected a total of 319 points, far exceeding the required minimum of 50 points.<br>According to indicators 17-21, the candidate has 135 poins and is also a author of one university textbook (40 points). |

**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" |

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| The evaluation of the relevance of the research must be substantiated. |
| The research in the applicant's papers submitted for the post of Associated Professor is entirely in the field of the scientific area in which the competition is announced.<br>The main results published in the scientific papers with which the candidate participates in the competition for "associate professor", as well as the corresponding scientific contributions, are presented in 5 groups according to the topic of the problems studied.<br>The research is up-to-date, and the results obtained can be related to the enrichment of the scientific field with new knowledge, as evidenced by the considerable number of citations. |

**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 set in the various topics of the conducted research are realistic and substantiated. The results achieved on this basis are of considerable scientific and applied interest. |

**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. |
| After the work on the dissertation was completed, additional papers on scientific topics were published. It proposes a new method for determining the flowability threshold for viscous-plastic non-Newtonian fluids, and for the first time proposes a solution to the convective mass transfer equation |

for neglecting the molecular transfer along the radial coordinate and the convective transfer by the axial coordinate for the case of describe with the power-low rheological model. This model explicitly showed that the most significant operation parameter intensifying the dissolution is the angular speed of rotation.
Thus, research related to rheology, hydrodynamics and mass transfer in a film stream on a horizontal rotating disc, with some interruptions, continues until 2016.
Applicant contributions to the biosorption of heavy metals with free and immobilized microorganisms (Trichosporon cutaneum R57) and modeling of biosorption kinetics and isothermal chemical reactions (9 publications) are of significant scientific and applied interest and greatly enrich the advances in this scientific field knowledge. The same can be said for studies in the field of nanofiltration in aqueous media, organic solvents and reverse osmosis (12 publications). Two of the publications are among the pioneering studies demonstrating the applicability of nanofiltration in the processing of plant extracts obtained by solid-liquid extraction with organic solvents. As a result, publication [T10] was awarded the most cited article in the Chemical Engineering Research and Design (Elsevier) magazine for 2011 and 2012, and has been cited in several books and two encyclopedias.
It is concluded that there is really no difference in SEC between FO with NF (nanofiltration) regeneration and RO processes. In addition, it has been shown that even if any of the membranes, FO, RO or NF has infinite permeability and 100% retention, this will not significantly change the SEC. On the basis of these simulations alone, the FO process with regeneration of the osmotic solution by nanofiltration (NF) cannot be considered competitive with the RO process, taking into account the additional capital costs required for the FO technology.
Two of the publications are on studies on modeling of chemical vapor deposition. They provide useful theoretical tools that allow these installations to be used to experiment with multicomponent precursor mixtures.
The other two works are related to the application of plasma-assisted vapor-phase chemical deposition to modify nano- and ultra-filtration membranes. Reliable nanofiltrations have been carried out in a number of organic solvents.
During the last 2 years, the applicant has also been working on the encapsulation of natural extracts using spouted-bed. In [T13] for a first time was reported an investigation of the efficiency of a batch spouted bed encapsulation of hydro-alcoholic rosemary extracts at mild temperatures (up to 40 oC). The antioxidant activity and composition [T13] as well as the antibacterial activity [T12] of the obtained encapsulated forms were investigated. Their long-term stability has also been investigated by monitoring their antibacterial activity for a period of ten months when stored in the absence of light and at temperature of 4 $^{o}$C [T11].
I believe that the contributions from the candidate's research are highly appreciated.

**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. |

**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" |

| |
|---|
| 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 (80 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 |
|---|
| |

**2. Report for the candidate:**

| | | | | |
|---|---|---|---|---|
| academic position | scientific degree | name | middle name | last name |

The structure of the report under the previous point 1 shall be respected.

**3. Report for the candidate:**

| | | | | |
|---|---|---|---|---|
| academic position | scientific degree | name | middle name | last name |

The structure of the report under the previous point 1 shall be respected.

**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 | **Assistant Professor** | **PhD** | **Dimitar** | **Cvetkov** | **Peshev** | **80** |
| place | academic position | scientific degree | name | middle name | last name | points |
| 2 | | | | | | |
| place | academic position | scientific degree | name | middle name | last name | points |
| 3 | | | | | | |
| place | academic position | scientific degree | name | middle name | last name | points |

| | | |
|---|---|---|
| **20.03.2020** | The report was written by: | |
| date | | signature |