

S T A T E M E N T

on the materials submitted for participation in the competition
for holding the academic position "Professor"
in the field of higher education 5. Technical sciences,
by professional field 5.6. Materials and materials science,
scientific specialty Materials science and technology of machine-building materials,
Member of the scientific jury: Prof. DSc Ivo Krastev Malakov,
Technical University of Sofia

In the competition for professor position, announced in the State Gazette, issue 53 of 12.06.2020 and on the website of MU-Varna for the needs of the Department of Dental Materials Science and Propaedeutic of Prosthetic Dentistry at the Faculty of Dental Medicine, as the only candidate is Assoc. Prof. Eng. Tsanka Dimitrova Dikova.

1. General characteristics of the candidate's research and applied-research activity

For participation in the competition, Assoc. Prof. Tsanka Dikova presents 2 published monographs - "Cobalt-chromium dental alloys produced by selective laser melting" and "Design of equipment for cold sheet stamping", 61 scientific publications (articles in journals and conference papers) and 4 textbooks, 2 of which are in English. The publications are grouped in two lists. The first is a list of "Information on covering the minimum requirements for acquiring of AP "Professor" according to the Law on the Development of the Academic Staff in the Republic of Bulgaria (LDASRB) from 2018", which includes a total of 21 scientific publications. Nine of these are in scientific journals, referenced and indexed in world-renowned databases with SJR factor, and 12 in scientific peer-reviewed journals, not referenced in world-renowned databases of scientific information. The second list includes papers outside the reference to the minimum requirements, which presents another 40 scientific publications, 19 of which are in international scientific journals, and 21 - in Bulgarian scientific journals. Eleven of all publications are in journals, refereed and indexed in world-renowned databases, as 10 are with SJR factor and 12 in peer-reviewed journals, not referenced in world-renowned databases with scientific information.

In 10 of the 61 scientific publications (articles and reports), mentioned in the two lists, Assoc. Prof. Dikova is the only author, in 20 publications the candidate is the first author, in 24 she is the second author, and in the other 7 works she is the subsequent author. Four of these publications are in journals with an impact factor. There are 12 works in Bulgarian, 2 in Russian and the remaining 47 in English.

The publications do not repeat the articles and reports used in the competition documentation for obtaining PhD and DSc degree as well as the academic position "Associate Professor".

The list of citations for participation in the competition includes 14 issues in scientific journals, referenced and indexed in world-famous databases of scientific information (Web of Science, Scopus) and 20 citations in collective volumes and in non-refereed journals with scientific review. The individual h-index of the author is 8 according to Google Scholar, 4 according to ResearchGate and 3 according to Scopus and Web of Science.

The candidate has participated in 5 research projects - 1 national funded by the Fund for Scientific Investigations, Ministry of Education and Science, 2 - university (MU-Varna) and 2 international, which won scholarships for specialization in Japan and "Fulbright". Assoc. Prof. Dikova leads and participates in the development of 31 engineering and implementation projects and tasks at the company "Mauer Locking Systems" Ltd.

The research and applied-research activities of the candidate are in problem areas relevant to science and practice and she uses modern methods and tools to solve the problems and achieve the relevant goals.

I believe that in terms of volume and quality the results of the scientific and scientific-applied work of the candidate meet the requirements for acquiring the academic position "Professor" and meet the requirements of the Law on the Development of Academic Staff in the Republic of Bulgaria (LDASRB), the Regulations about the application of LDASRB and the Regulations for the Development of the Academic Staff (RDAS) in MU-Varna. All quantitative indicators of the criteria for acquiring the academic position "Professor" of RDAS of MU-Varna are overfulfilled.

2. Evaluation of the pedagogical training and activity of the candidate

I evaluate the pedagogical training of the candidate and her work as a teacher at the level of the academic position "Professor" on the basis of the following:

- Conducts training (lectures and laboratory classes) in a number of disciplines included in the curricula for Bachelor's and Master's degrees in both Bulgarian and English. The high level of lecturing to students is due not only to her good professional and language training, but also to the experience gained during the specializations in prestigious universities and research centers – Tokai University - Japan, Rice University - USA, St Petersburg Marine Technical University - Russia, as well as her active participation in a number of important international scientific forums in Russia, Germany, Turkey, Japan, Bahrain, Malaysia, India, Ukraine, France, Taiwan, Macedonia, Dubai, China, Poland and Italy.
- She is author of 4 textbooks, 2 of which are in English;
- Author and co-author of 6 curricula.
- She is the supervisor of over 6 graduates in Bachelor's and Master's degrees.
- Supervisor of 4 PhD students.
- Chair of the State Examination Commission in the discipline "Dental Materials Science, Apparatus and Instruments" of students majoring in "Dental Technician" at the Medical College, MU-Varna.

- She has developed methods and systems for evaluation in face-to-face and computer-based form of education, which are consistent and meet modern requirements and reality.
- Assoc. Prof. Dikova has given 8 lectures at universities in Japan, USA and China.

3. Major scientific and applied contributions

There are sufficient in importance and number of scientific, scientific-applied and applied contributions in the presented works. They are in seven directions, related to the application of the technologies for 3D printing in dental medicine; nanomaterials and nanocoatings in mechanical engineering, general and dental medicine; apparatus, technologies and dental materials for restoration of defects of teeth and dentitions; unconventional and surface heat treatments of alloys with concentrated energy flows; corrosion processes in steels and alloys with application in dentistry and mechanical engineering; design and application of modern software in mechanical engineering, digitalization in dentistry and education. In the reference of the candidate 8 scientific, 11 scientific-applied and 15 applied contributions are indicated in all directions. Contributions can be attributed to the groups of proving with new means of significant new aspects of already existing scientific fields, problems, theories, hypotheses; creating new classifications, methods, constructions, technologies and obtaining confirmatory facts.

I accept the scientific, scientific-applied and applied contributions formulated by the candidate, as some of them can be edited and summarized.

4. Significance of contributions to the science and practice

I believe that the scientific and applied contributions, contained in the works of the candidate, are relevant and important for the development and enrichment of the research in the field of materials science in dentistry and mechanical engineering. The presented works are also important for the practice with the necessary degree of applicability. The reference for the citations (196 in total) shows that the candidate is known among the scientific community in the considered field.

5. Critical remarks and recommendations

In the works of the candidate, I did not find any fundamental omissions, incorrect statements or conclusions. Significant research and applied research has been carried out, which has led to convincing results in scientific and applied aspects. In general, the presented materials for participation in the competition leave a very good impression with their detailed and precise organization.

My main remark is on the presented report of the contributions. Contribution claims are much differentiated. They need to be systematized, edited and summarized.

I recommend the candidate to concentrate her research activity in less scientific problems and areas and to intensify the participation and management of significant national and international projects.

CONCLUSION

Based on my acquaintance with the materials of the competition, my positive assessments of the research, implementation and pedagogical activities of the candidate, the relevance and significance of the achieved scientific, scientific-applied and applied contributions, I recommend Assoc. Prof. Tsanka Dimitrova Dikova to take the academic position "Professor" in the professional field 5.6. Materials and materials science in the specialty Materials science and technology of machine-building materials in department "Dental materials science and propaedeutic of prosthetic dentistry" of the Faculty of Dental Medicine at MU - Varna.

30.09.2020

Scientific jury member: 

(Prof. DSc Ivo Malakov)