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REVIEW

From Professor PhD Antonia Yordanova Yanakieva, MD

Member of the Scientific Jury, appointed with Order № RD-310/12.12.2019

by the Rector of the University Prof. Dr. Asen Zlatarov, Burgas

Regarding: Competition for the academic position of *Professor* in the high education area *7. Public health care and sport* with professional field *7.4 Public health,* scientific (academic) field *Organization and management of non-material production (health management)* at the *University of Prof. Dr. Asen Zlatarov, Burgas,* published in State Gazette, issue 93 from 26.11.2019.

Pursuant to order of the Rector of the *University of Prof. Dr. Asen Zlatarov, Burgas* I have been appointed as a member of the Scientific Jury for a competitive procedure for obtaining the academic position of *Professor* in the high education area *7. Public health care and sport* with professional field *7.4 Public health*, scientific (academic) field *Organization and management of non-material production (health management)* and Report № 4020/ 10.12.2019 issued by *the Dean of the Faculty of Public Health and Healthcare*.

I. Analysis of the applicant's career profile

Associate Professor Stoyanka Petkova Petkova- Georgieva completed her higher education in 1999 at *the University of Prof. Dr. Asen Zlatarov, Burgas* with a Master's degree in *Industrial Management*. In 2000 she obtained a second Master's degree in *Crude oil technology and chimmotology*. In 2006 she obtained a PhD degree with specialty code *05.02.21 Management and organization of production processes (according to branches and sub-branches),* scientific field *3.7.Administration and management*. Since 2016, Assoc. Prof. Stoyanka Petkova Petkova-Georgieva is the *Head of the Department of Organization and Management of Public Healthcare at the*

Faculty of Public Health and Healthcare at the *University of Prof. Dr. Asen Zlatarov, Burgas*. She is a member of the Academic and Faculty Council at the *Faculty of Public Health and Healthcare* and the *Faculty of Social Studies*. The applicant has experience as both participant and leader of 17 research projects. She is fluent in English, German and Russian. Has very good communication and digital skills.

II. General description of the submitted documents for the competition

For the competition Assoc. Prof. Stoyanka Petkova Petkova-Georgieva has presented scientific production, which exceeds both in volume and quality the required scientometric indicators for the degree of *Professor* in accordance with the *Terms and Conditions for Acquisition of Academic Degrees and Occupation of Academic Positions* of the *University of Prof. Dr. Asen Zlatarov, Burgas*.

In total, the applicant has submitted 47 scientific papers. Assoc. Prof. Stoyanka Petkova Petkova-Georgieva has presented 19 scientific publications in specialised scientific journals with referenced and indexed in acknowledged scientific databases containing scientific information. A total of 19 publications and reports have been published in non-refereed peer-reviewed journals with scientific reviewing or published in edited collective volumes. The applicant has also entered the competition with four chapters published in collective monographs, four participations in university books. Two of them written entirely by her. The total number of quotations in submitted scientific papers after the competition for *Associate Professor* amounts to 79. The chronological characteristics of the publication activities show a balanced performance throughout the years.

III. Assessment of the applicant's scientific work for the entire academic development.

- ✓ **General characteristics of the scientific production and publication activity.**

The scientific publications of Assoc. Prof. Stoyanka Petkova Petkova-Georgieva are thorough, innovative and have an analytical character. The main directions, which can be described according to the research's nature and the innovative methods, which have been implemented are *Health risk prevention in cases of socially significant diseases; Mathematical modeling of thermal processes in laser beam penetration into biological tissue; Solving organizational and management problems in the field of public health.*

The scientific papers presented by the applicant reflect current problems, trends and innovative approaches in the field of healthy, safe and ergonomic work conditions, the direct toxic effects of petroleum and petroleum products on the vital functions of all living beings and the extent of health risk in this aspect as well as research, which improves management functions by increasing the effectiveness of controlling.

- ✓ **Scientific activity- spreading and applying the scientific and practical outputs of the applicant.**

Assoc. Prof. Stoyanka Petkova Petkova-Georgieva has participated in a number of international and national scientific forums where she published and presented the results of her researches in well-acknowledged scientific journals with an impact factor.

- ✓ **Assessment of research activities**

Assoc. Prof. Stoyanka Petkova Petkova-Georgieva has presented a list of publications in specialized scientific journals:

- Publications referenced and indexed in globally-acknowledged databases, containing scientific information;

- Publications in non-referenced, peer-reviewed journals or collective volumes;
- Monographs;
- Study materials in co-authorship;

The research activity of the applicant is concentrated in the following thematic areas:

The first and most important and in-depth analysis has been conducted in the field of *Organization and management of healthy and ergonomic work conditions.* The most important contribution of scientific and theoretical nature as well as applied nature is related to:

- **Health risk prevention in cases of socially significant diseases.** Scientific observations and practical examples prove that adherence to the prescriptions for healthy, safe and ergonomic work conditions is a prerequisite for reducing diseases, which are part of the group of socially significant diseases.
- The development of comprehensive theoretical and applied analysis and presenting different solutions, which help the constant improvement of the processes of organizing and managing healthy and safe labor conditions.
- Research and development of a validated methodology for the algorithmic estimation of the operator's activity, when in need of a quantitative assessment of the human activity in **the system Human-Machine**. The applicant has presented an algorithmic description of the management process, which will enable all parties to manage technological processes by following certain rules and procedures when dealing with processed information.
- A methodology for **Modeling the Uncomfortable Working Posture of the Operator** has also been proposed. Based on collected empirical data the applicant has conducted an analysis on the interaction between

human-machine and is planning to implement tools for building adequate assessment models for improving the ergonomic performance with a limited timeframe, which is part of a detailed study of the mentioned system.

- A methodology based on the direct link between physical activity, stress relief, depression and anxiety for conducting cyclical monitoring of the motor activity of the able-bodied population has also been proposed.

The second in-depth analysis has been conducted in the field of **Health Risk of Toxic Impact of Pesticides, Crude Oil and Petroleum Products**. The following contributions of the applicant can be obtained:

- Research on the direct toxic impact of crude oil and petroleum products on the vital functions of all organisms and the health risks in this aspect.
- A complete theoretical analysis on the problematic of the day regarding the toxic impact pesticides have on the health of humans and on the eco-balance of the wildlife.

The third in-depth analysis is regarding the field of **Health Risk of Toxic Impact of Substances Containing Chemical Nanocomponents**. The most significant scientific contributions are as follows:

- Laboratory tests have been conducted as part of an international research project of the Organization for the Prohibition of Chemical Weapons (OPCW) part of The United Nations. The risk of toxic exposure to living organisms in an environment with nanoparticles has been studied as their use in skincare products has increased significantly.
- All predictable health risks, which may arise from the use of nanomaterials have been classified according to the damage they may cause to the human health. They have been identified in the following fields: specific nanotoxicology, increased biological mobility, impact on

the skin, lack of accurate product information on products containing nanomaterials, the danger they may pose to public health and risks in workplaces.

The fourth in-depth analysis is regarding the field of *Mathematical modeling of thermal processes in laser beam penetration into biological tissue.* The most significant contributions are presented as models for mathematical modeling as follows:

- Proving the role of irradiation depending on the change of all optical parameters of the tissues and the thermal influence;
- The role of the length of the wave, time of exposure and the size of the initial thermal source and the importance of impulse sequence for the adjustment of time of the exposure of the treated tissue volume;
- The importance of temperature and time of exposure and the following changes in different biological tissues as well as the ability to control all processes by changing the above-mentioned parameters;
- The chance to determine the treated tissue volume and realtime observation of the healing process.

Other fields

Assoc. Prof. Stoyanka Petkova Petkova-Georgieva has conducted scientific research and published scientific papers in the following fields: **Mathematical models for examining the interdependence between the degree of decentralization in micro and macro decision making in public health and the construction of an appropriate structure of a balanced system of indicators.** The most significant contributions are presented as methods for studying the relations between the level of decentralization of the decision-making processes within the organization and the structure of a balanced system of indicators, as well as an approach for modeling the cause and effect

relationships between mid-term strategic objectives within and between different perspectives by using available tools of fuzzy sets and fuzzy logic. An empirical calculation model of the need for parallel decision-making regarding the process of decentralization together with a selection system for calculating external factors has been proposed.

Another field of research is The Application of the Theory of Fuzzy Sets in calculation procedures for aggregating metrics in a controlling system for taking strategic decisions in business organizations in the field of public healthcare as well as contribution in the field of Strategic decisions for the development of health tourism.

IV. Assessment of monographs or equivalent publications presented at the competition for obtaining the degree of Professor of the candidate.

The applicant has presented her own participation in a handbook on the subject *Economics of healthcare* and in a handbook on Stocking where the problem related to the quality, safety, usefulness and competitiveness of raw materials, materials and produce from the moment of the extraction, design, production, consumption or exploitation, according to the standards of health and safety is thoroughly examined; in a Methodological guidebook on risk assessment of ecological and technological risks on the Black Sea coast as well as with participation in a manual designed for beginners in the field of entrepreneurship who have the desire to create sustainable companies in the field of *Production of Food and Beverages* as well as to help already-existing companies to re-consider their activities and present solutions, which will improve their work and their company in general.

V. Comprehensive qualitative assessment of the methodological and teaching activities, including a scientific guidebook for students, PhD students and post-graduate students

The applicant for academic degree *Professor* has been lecturing at the *Univeristy of Prof. Dr. Asen Zlatarov, Burgas* on the following subjects: Micro and Macroeconomics, Health economics, Health financing, Stocking, Science of commodities, Finance management in health organizations, Financial accounting and control, Efficiency and competitiveness of healthcare organizations, Prices and reimbursement in healthcare, Health insurance systems and funds in the field of Health management, Bachelors' degree. Subject with speciality Health management in Masters' degree courses, takes part in lectures in the field of Economics in healthcare, Analysis and design of payment systems in the healthcare sector, Healthcare financing, Scientific research methodology, Economics, Organization and financing of healthcare institutions, Control in medical institutions, Analysis and design of payment systems in medical institutions as well as courses for the subject Health Management as post-graduate qualification.

In the period 2015-2019, within the student's scientific guidance the candidate has been the scientific supervisor of 19 post-graduate students two of whom have successfully defended their PhD thesis.

VI. Critical notes and recommendations

None

VII. Overall assessment of the applicant's compliance with the mandatory conditions and mandatory quantitative criteria and scientometric indicators in accordance with the Terms and Conditions for Acquisition of Academic Degrees and Occupation of Academic Positions of the *University of Prof. Dr. Asen Zlatarov, Burgas*.

The presented documents for the competition, the scientific participations of the applicant, her activities within the community and commitment to it, including

the learning load are a good reason to note that Assoc. Prof. Stoyanka Petkova Petkova-Georgieva fully complies with the requirements to obtain the academic degree *Professor* in accordance with the Terms and Conditions for Acquisition of Academic Degrees and Occupation of Academic Positions of the *University of Prof. Dr. Asen Zlatarov, Burgas*, *The Law for Preserving the Academic Staff in the Republic Bulgaria, and the Conditions for its Implementation.*

VIII. Conclusion

In conclusion, I consider that the research work of Assoc. Prof. Stoyanka Petkova Petkova-Georgieva is up-to-date, innovative and transparent. Her scientific contributions show constant development in the field of economics in healthcare and its practical application for solving problems in the sphere of public health as well as in the field of safe and healthy labor conditions.

Besides the scientometric parameters, which are more than convincing and considering the above-mentioned information, I give the candidate high comprehensive assessment marks and vote positively for the choice of Assoc. Prof. Stoyanka Petkova Petkova-Georgieva to hold the academic degree *Professor* in the high education area 7. *Public health care and sport* with professional field *7.4 Public health*, scientific (academic) field *Organization and management of non-material production (health management).*

02.03.2020 ...

Sofia Prof. Ant