

OPINION

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Regarding the competition for appointment to the academic position of Associate Professor in the field of higher education: 4. Natural Sciences, Mathematics and Informatics
professional field: 4.1. Physical Sciences
scientific specialty: Physics

announced in the State Gazette, issue No. 50 of June 2, 2026, for the Department of Physics and Biophysics at the Medical University of Varna.

Candidate: Natalina Konstantinova Panova

I was appointed as a member of the Scientific Jury by Order No. P-109-265 of July 30, 2026 by the Rector of MU-Varna.

1. Brief biography and career development of the candidate.

Natalina Panova was born on August 3, 1978, in Provadia. In 2000, she graduated with a master's degree in Physics and the professional qualification of Physicist and Teacher of Physics. Between 2006 and 2009, she completed specialist training in Biophysics at MU-Varna. She is fluent in English and Russian.

Her academic career can be summarized as follows:

- Assistant from September 17, 2001, to December 1, 2008, in the Department of Medical Physics, Chemistry and Biology, MU-Varna;
- Assistant from December 1, 2008, to February 12, 2025, in the Department of Physics and Biophysics, MU-Varna;
- Chief Assistant Professor since February 12, 2025, in the Department of Physics and Biophysics, MU-Varna.

2. General description of the materials submitted in the procedure

The documentation submitted by Natalina Panova fully complies with the Act on the Development of Academic Staff in the Republic of Bulgaria, the Regulations for the Implementation of the Act on the Development of the Academic Staff in the Republic of Bulgaria and the Regulations of MU-Varna governing competitions for appointment to the academic position of Associate Professor.

For the present competition, the candidate has submitted 10 scientific publications in lieu of a habilitation thesis, 21 publications in scientific journals peer-reviewed and indexed in world-renowned databases of scientific information, and 4 textbooks and teaching materials. She has participated in 24 scientific conferences and 6 research projects as a team member.

3. Evaluation of research activity and scientific contributions

Natalina Panova is the author or co-author of 21 publications in international peer-reviewed journals indexed in Web of Science and Scopus with an impact factor or SCImago Journal Rank (SJR), including 10 publications in Q1, 1 in Q2, 7 in Q3, and 3 in Q4, as well as 5 publications in international and national journals indexed in other databases. She has participated in 24 international and national scientific conferences, presenting oral and poster contributions.

According to Scopus, Panova's h-index is 5, while it is 3 in Web of Science, 7 in Google Scholar, and 6 in ResearchGate. The total impact factor of the journals in which she has publications is 55.3.

The research activity and publication record of N. Panova, cover three main areas:

1. Biologically active substances in extracts and essential oils: composition, properties, therapeutic potential, and applications in pharmacy, cosmetics, and dietary supplements.

The original scientific contributions in this field are:

- a comparative chemotypic and functional assessment of essential oils from chamomile species cultivated in Bulgaria has been carried out;
- a scientifically substantiated distinction between the cosmetic potential of German and Roman chamomile has been established;
- a comprehensive chemical and biological characterization of essential oil from *Hypericum perforatum* L. from Bulgaria has been completed;
- a multispectroscopic approach to metabolic profiling and quality control of *Moringa oleifera* has been established.

2. Applications of extracts from various algal species in the food, pharmaceutical, and cosmetic industries.

In the second area, the original scientific contributions can be summarized as follows:

- a procedure for optimizing and modelling the drying of functional fruit products containing microalgae has been developed;
- sustainable functional foods containing algae have been developed on a scientific basis;
- a chemical and metabolomic characterization and safety assessment of *Arthrospira platensis* from Bulgaria have been performed;
- encapsulation systems using calcium alginate microspheres to stabilize phycocyanin have been developed;
- an evaluation of the functional and pharmacokinetic properties of phycocyanin has been conducted;
- a relationship between the metabolic composition, particle size, and bioactivity of *Chlorella vulgaris* has been established.

3. Applications of materials science to the corrosion resistance of steels in biological fluids and of 3D printing to pharmaceutical products.

In the third area, the main contributions are:

- a systematic review and comparison of existing 3D printing technologies in personalized pharmacy;
- demonstration of the beneficial effect of laser melting on the corrosion resistance of AISI 321 steel in biological media;
- a proposed model of the mechanism of corrosion failure and an explanation of the influence of microstructure and dendrite orientation on corrosion pit development.

Natalina Panova's publications have received recognition from the scientific community, with 55 citations in Scopus, 26 in Web of Science, 133 in Google Scholar, and 103 in ResearchGate.

4. Teaching activity

Panova has co-authored four teaching resources totalling 550 pages for students at MU-Varna. The supporting documents submitted for the competition for the academic position of Associate Professor demonstrate that she has over 24 years of teaching experience, teaching both Bulgarian and international students. Her annual teaching load exceeds 900 hours.

5. Critical remarks and recommendations

Based on the materials submitted by the candidate for this competition, I have no substantive critical remarks and recommendations.

CONCLUSION:

The scientometric indicators of Natalina Panova, scientific contributions, and teaching activity exceed the minimum national requirements under the Act on the Development of Academic Staff in the Republic of Bulgaria, as well as the minimum requirements of MU-Varna, for appointment to the academic position of Associate Professor. In view of the above and the compliance of the submitted materials with the Act and the regulations of MU-Varna, I give a wholly positive assessment of her candidacy.

I recommend that the esteemed Scientific Jury vote in favour of electing the candidate to the academic position of Associate Professor.

Date: October 2, 2026
Plovdiv

Opinion prepared by: ...

(Assoc. Prof. Ivanka Vlaeva, PhD)

Заличено на основание чл. 5,
§1, б. „В“ от Регламент (ЕС)
2016/679