

## OPINION

on the competition for the academic position of "professor", State Gazette, issue 87 of  
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with candidate Associate Professor Nina Hristova Dobrinkova

by Prof. Dr. Gennady Agre – Institute of Information and Communication Technologies – BAS

By order No. 310 of 13.12.2024 of the Director of IICT-BAS, issued on the basis of a decision of the Scientific Council of IICT-BAS, protocol No. 12 of 27.11.2024, I am appointed as a member of the scientific jury for the competition for the academic position of "professor" in professional field 4.6. "Informatics and Computer Sciences", specialty "Informatics" for the needs of "Modeling and Optimization" Department. Only one candidate has submitted documents for the announced competition – Associate Professor Dr. Nina Hristova Dobrinkova.

### 1. Brief biographical data

The candidate received her bachelor's and master's degrees in informatics at the South-West University "Neofit Rilski", Blagoevgrad. In 2012, she became a doctor in "Informatics" at the Institute of Mathematics and Informatics - BAS. The submitted official note shows that Associate Professor Nina Dobrinkova has over 16 years of work experience at the Institute of Information and Communication Technologies - BAS, of which over 8 years as an associate professor. She has led 6 international projects in the field of environmental protection, one research project funded by the National Science Foundation and has been a participant in 3 projects funded by the National Science Foundation and 1 project under the National Science Program "Environmental Protection and Risk Reduction from Adverse Events and Disasters". Assoc. Prof. Dobrinkova was the supervisor of one PhD student who defended his thesis.

### 2. General description of the materials submitted for the procedure

The following materials have been submitted for the competition, not repeating those submitted for the acquisition of the educational and scientific degree "doctor" and holding the academic position "associate professor":

- 1 monograph, published in Bulgaria in 2018, written in co-authorship with M. Yosifova.
- 17 scientific publications, of which 3 are indexed in Web of Science and 14 - in Scopus (11 are with SJR rank). 3 of the publications are independent, and in 11 - she is in first place. 9 publications are written in co-authorship with foreign scientists.
- 1 utility model in the field of medical robotics, in which the candidate is a co-author together with 4 other scientists.

- A list of 29 independent citations of the candidate's works, of which 1 is in a publication indexed in Web of Science, and 28 - in Scopus. Of these, 25 citations are from foreign authors and 4 from Bulgaria.

The presented publications can be grouped mainly into two areas: a) the use of ICT technologies for environmental protection and supporting decision-making in crisis situations with an emphasis on modeling the development of processes in cases of forest and field fires, floods, landslides and CBRN (chemical, biological, radiological and nuclear emergencies) and b) the application of ICT technologies in STEM education.

### **3. Fulfillment of the minimum requirements and other activities**

According to the regulation of the "Regulations for holding academic positions at ICT-BAS" regarding the fulfillment of the minimum requirements for holding the position of "professor", candidates must have at least 50 points on indicator A, 100 points on indicator B, 260 points on indicator D, 140 points on indicator E and 150 points on indicator E. Assoc. Prof. Dobrinkova presented the completed NACID report, which contains 50 points on indicator A, 100 points on indicator B, 463 points on indicator D, 224 points on indicator E and 410 points on indicator E. The presented indicators show that the formal requirements of the Regulations are not only fulfilled, but also exceeded, especially on indicators D, E and E.

The Scopus report shows that Assoc. Prof. Dobrinkova has a total of 34 publications indexed in this database, which have a total of 54 citations, with h index equal to 5.

As an additional indicator of the high activity of Assoc. Prof. Dobrinkova the results of the attestations of the scientific staff of the institute conducted at ICT-BAS in 2020 and 2023 can be used. The attestation evaluates such indicators as "Scientific results", "Scientific capacity and reproduction", "Social and economic impact" and "Scientific and organizational activity" for the 3-year period. In both attestations, Assoc. Prof. Dobrinkova was ranked on the 2<sup>nd</sup> place among a total of 24 associate professors participating in the attestation.

### **4. Scientific and applied scientific contributions in the materials for the competition**

I accept the scientific and applied scientific contributions proposed by Assoc. Prof. Dobrinkova, broken down as follows:

- Development of a methodology for processing riverbed data based on geodetic surveys and Shezi's formulas for river runoff in order to determine the most realistic flood zones, which would be a priority in the event of a flood. The developed methodology has been applied to the territory of the Svilengrad municipality and test areas in Armenia [B1, Г12, Г15, Г16, Г17].
- Development and testing of web-based modules or systems to support decision-making of services responding on the ground in the event of a disaster. The



development took into account practices for STEM and ICT training [Г1, Г2, Г4, Г7, Г8, Г9, Г10, Г13].

- Development and testing of optimization approaches for simulation of forest and field fires in Bulgaria with an emphasis on the need to develop a comprehensive map of possible combustion models for non-urbanized territories [Г3, Г6, Г11, Г14].
- Development and testing of the Dirichlet method for the development of the spread of a biological agent that has the potential for very rapid infection of biological tissues. The development has been applied to predict the spread of the virus causing COVID [Г5].
- Development of a system for analysis and control of the mechanical properties of biological tissues, which allows doctors to better operate in cases of bloodless surgery. [Г18]

## Conclusion

Based on the submitted materials, scientific and scientific-applied contributions, as well as the comprehensive assessment of other indicators in the competition, I give a **positive vote** for the appointment of Assoc. Prof. Dr. Nina Hristova Dobrinkova to the academic position of "professor".

The candidate meets all the requirements of the Act of the Development of the Academic Personnel of the Republic of Bulgaria, the Rules of the Academic Personnel of the Republic of Bulgaria and the Regulations on the Regulations for occupying academic positions at the Institute of Information and Communication Technologies - BAS. This gives me a reason to recommend to the Honourable Scientific Jury to **positively evaluate the scientific works in the competition and to propose to the Scientific Council of IICT-BAS to elect Assoc. Prof. Dr. Nina Hristova Dobrinkova for the academic position of "professor" in professional field 4.6. "Informatics and computer sciences" specialty "Informatics" for the needs of "Modeling and Optimization" Department at IICT-BAS,**

Sofia, 10.02.2025

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