

OPINION

by Assoc. Prof. Dr. Plamena Zlateva

Institute of Robotics - Bulgarian Academy of Sciences

on the competition for the academic position "**Professor**",
under the scientific field 4. Natural Sciences, Mathematics and Informatics,
professional area 4.5. Mathematics, specialty "Mathematical modeling and application of
mathematics in 3D digitization and microstructural analysis"

for the needs of the department "Scientific Calculations with Laboratory for 3D Digitization and
Microstructural Analysis", Institute of Information and Communication Technologies -
Bulgarian Academy of Science, published in the State Gazette no. 103 of 12.12.2023.

The Opinion has been prepared in my capacity as a member of the Scientific Jury
of the competition for occupation of the academic position "**Professor**" in the professional area
4.5. Mathematics, specialty "Mathematical modeling and application of mathematics in 3D
digitization and microstructural analysis" for the needs of the department "Scientific Calculations
with Laboratory for 3D Digitization and Microstructural Analysis", at the Institute of
Information and Communication Technologies – Bulgarian Academy of Science (IICT-BAS),
according to Order № 40 / 09.02.2024 of the Director of IICT-BAS, with a single candidate
Associate Professor Dr. Ivan Georgiev Georgiev.

1. Brief biographical data about the candidate

Assoc. Prof. Dr. Ivan Georgiev Georgiev obtained the Master degree, specialty
"Mathematics" in 1999 at SU "St. Kliment Ohridski". In 2007, he obtained the educational and
scientific degree "Doctor" in the scientific specialty "Computational Mathematics" from the
Specialized Scientific Council "Informatics and Mathematical Modeling".

Ivan Georgiev has been working since 2003 at the Bulgarian Academy of Sciences, initially
at the Institute of Mathematics and Informatics, first as a mathematician, and from 2007 to 2014
as a chief assistant. In 2015, he held the position of "Associate Professor" at the Institute of
Information and Communication Technologies. Since 2021, he has been the Scientific Secretary
of Department 1. "Information and Communication Sciences and Technologies" of the BAS.

Assoc. Prof. Dr. Ivan Georgiev has participated in numerous national and international
scientific projects as leader, team leader from IICT, member of the Management board and leading
researcher.

In the period 2008-2013 (38 months), he has specialized and worked at the Johann Radon
Institute of Computational and Applied Mathematics of the Austrian Academy of Sciences,
Austria.

He taught at the Faculty of Mathematics and Informatics of the SU "St. Kl. Ohridski".

Ivan Georgiev received the "Ivan Evstratiev Geshov" Award of the BAS for 2006.

He is a member of national and international scientific and professional organizations.

2. General information about the submitted documents and the fulfillment of the minimum requirements for occupation of the academic position "Professor"

The documents presented in the competition by the candidate, Assoc. Prof. Dr. Ivan Georgiev, *fully comply with the requirements* of the Act for the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its implementation, the Regulations on the terms and procedures for acquiring scientific degrees and for occupying academic positions in the Bulgarian Academy of Sciences and the Regulations for the specific conditions for acquiring scientific degrees and for occupying academic positions in the IICT-BAS.

For participate in the competition, the candidate, Assoc. Prof. Dr. Ivan Georgiev, has submitted a total of 21 publications, of which 18 publications are indexed in Scopus and/or Web of Science; 2 publications have IF (Impact Factor), 16 publications have SJR (Impact Rank), 1 publication is indexed in ACM Digital Library.

All submitted publications are on the topic of the competition.

The publications submitted for participation in the current competition do not repeat the publications that were submitted by the candidate for the acquisition of the educational and scientific degree "Doctor" and for the occupation of the academic position "Associate Professor".

Assoc. Prof. Dr. Ivan Georgiev has submitted a Declaration that no plagiarism has been proven in the competition publications.

The candidate Assoc. Prof. Dr. Ivan Georgiev, has attached a correctly completed reference for the fulfillment of the minimum requirements of IICT-BAS for the academic position "Professor" - achieving the required minimum number of points for the set groups of indicators:

A. Dissertation work for the award of the educational and scientific degree "Doctor":

Information about a defended dissertation on a topic "Iteration methods for non-conforming finite elements" is presented. Diploma No. 31417, issued on 23.05.2007 by the Higher Attestation Commission under the Council of Ministers of the Republic of Bulgaria /50 points/

B. Habilitation thesis - scientific publications in editions that are referenced and indexed in world-famous databases with scientific information (Web of Science, Scopus, Zentralblatt, MathSciNet, ACM Digital Library, IEEE Xplore and AIS eLibrary):

The candidate has submitted 7 publications, of which 6 publications are in Scopus with SJR. The number of points obtained /120/ exceeds the required minimum number of points /100/.

G. Scientific publications in editions that are referenced and indexed in world-famous databases with scientific information (Web of Science, Scopus, Zentralblatt, MathSciNet, ACM Digital Library, IEEE Xplore and AIS eLibrary), outside the Habilitation thesis /B/:

The candidate has submitted 14 publications, of which 2 publications are in Web of Science with IF, one publication is with Q1 quartile, and the other is with Q2 quartile of JCR, 10 publications are in Scopus with SJR, 1 publication is in ACM Digital Library. The number of points obtained /302/ exceeds the required minimum number of points /260/.

D. Citations in scientific publications, monographs, collective volumes and patents, referenced and indexed in world-famous databases with scientific information (Web of Science, Scopus, Zentralblatt, MathSciNet, ACM Digital Library, IEEE Xplore and AIS eLibrary):

The candidate has submitted 57 citations, noticed in scientific publications referenced and indexed in Web of Science / Scopus. The number of points obtained /342/ exceeds the required minimum number of points /140/.

E. Management and/or participations in national and international scientific or educational projects:

- Participation in a national scientific or educational project:

The candidate has participated in 5 national scientific or educational projects - 50 points.

- Participation in an international scientific or educational project:

The candidate has participated in 3 international scientific or educational projects - 60 points.

- Management of a national scientific or educational project:

The candidate has managed 2 national scientific or educational projects - 40 points.

- Management of an international scientific or educational project:

The candidate has managed 1 international scientific project - 50 points.

The total number of points obtained under indicator E /200/ exceeds the required minimum number of points /150/.

The obtained points on the group indicators (A, B, D, D, E) clearly show that the candidate Assoc. Prof. Dr. Ivan Georgiev *fulfills and even exceeds in some of the indicators the minimum requirements* (national and of IICT-BAS) for occupying the academic position "*Professor*" in the professional area 4.5. Mathematics at IICT-BAS.

3. General description of the proposed contributions of the candidate

I accept the stated original scientific and scientific-applied contributions in the report submitted by the candidate, Assoc. Prof. Dr. Ivan Georgiev, as enriching the scientific field of the competition with new knowledge and opportunities for real applications.

I indicate the following contributions as the most significant:

- Methods for segmentation of images obtained by industrial X-ray computed tomography of porous materials are investigated.
- A technique has been developed for two-phase segmentation of tomographic data, in which important physical characteristics of the scanned object are guaranteed to be inherited.
- A hybrid numerical-experimental homogenization strategy is proposed to determine the elastic properties of closed-pore materials.
- Methods for determining effective material characteristics of composite materials by applying microstructural analysis and high-performance calculations are investigated.
- The relationship between the structure and properties of silicate materials obtained by using a large percentage of metallurgical waste is investigated.
- Applications of methods and tools for three-dimensional digitization (3D laser scanning and industrial X-ray computed tomography) in the study and characterization of bone samples are investigated.
- A functional prototype of a radar antenna obtained by three-dimensional printing and metallization is created and studied.

I accept that all the contributions proposed by Assoc. Prof. Dr. Ivan Georgiev *completely coincide with the theme of the competition and are significant enough* for the occupation of the academic position of "*Professor*" at IICT-BAS.

4. Personal impressions about the candidate

I know Assoc. Prof. Dr. Ivan Georgiev as a thorough and responsible professional in his research activities, as well as a benevolent and supportive colleague.

5. Conclusion

In conclusion, I declare that the documents and materials submitted for participation in the competition by Assoc. Prof. Dr. Ivan Georgiev present results that *fully cover the set of requirements for the academic position "Professor"* according to the Act for the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its implementation, the Regulations on the terms and procedures for acquiring scientific degrees and for occupying academic positions in the Bulgarian Academy of Sciences and the Regulations for the specific conditions for acquiring scientific degrees and for occupying academic positions in the IICT-BAS in scientific field 4. Natural Sciences, Mathematics and Informatics, professional area 4.5. Mathematics, specialty "Mathematical modeling and application of mathematics in 3D digitization and microstructural analysis".

I confidently give my *positive assessment and recommend* to the Scientific Jury to propose to the Scientific Council of the Institute of Information and Communication Technologies-BAS *to elect Assoc. Prof. Dr. Ivan Georgiev Georgiev* to the academic position of "*Professor*" in scientific field 4. Natural Sciences, Mathematics and informatics, professional area 4.5. Mathematics.

07.04.2024
Sofia

Prepared the opinion
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