

## OPINION

### for a competition for occupation of the academic position “Professor”

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| in the field of higher education:                               | 4. Natural sciences, Mathematics and Informatics  |
| professional field:   | 4.6. Informatics and Computer Science   |
| scientific specialty:   | Informatics (Digital cultural content management systems and e-learning)  |
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| for the needs of:   | Institute of Mathematics and Informatics at the Bulgarian Academy of Sciences (IMI-BAS)<br>Software Technologies and Information Systems Department |
| prepared by:  | Dr. Mariya Mihaylova Nisheva-Pavlova,<br>Professor at IMI-BAS   |
| member of the scientific jury of the competition, according to: | Order № 12 / 29.01.2021 of the Director of IMI-BAS  |

Only one candidate has submitted documents for participation in the announced competition:  
**Assoc. Prof. Dr. Desislava Ivanova Paneva-Marinova, IMI-BAS.**

## I. General description of the submitted materials

### 1. Details of the application

The documents of the applicant comply with the requirements of the Act of the Development of the Academic Personnel of the Republic of Bulgaria (ADAPRB), the Rules for the Implementation of the Act of the Development of the Academic Personnel of the Republic of Bulgaria (RIADAPRB), the Rules for the conditions and the order for acquiring scientific degrees and for occupying academic positions in BAS and the specific regulations for the Institute of Mathematics and Informatics – BAS.

The applicant has submitted for the competition:

- European CV,
- Copies of higher education diplomas,
- Copy of diploma for educational and scientific degree “Doctor”,
- Full list of publications,
- List and copies of the publications presented at the competition,
- Reference for original scientific and applied scientific contributions (in Bulgarian and in English),

- Abstracts of the publications of Assoc. Prof. Dr. Desislava Paneva-Marinova presented at the competition (in Bulgarian and in English),
- Full list of citations of publications of Assoc. Prof. Dr. Desislava Paneva-Marinova,
- List of citations presented at the competition,
- Copy of the publication for the competition in State Gazette,
- Certificate of internship in the speciality,
- Copy of certificate for occupation of the academic position “Associate Professor”,
- References for other activities: project activities, educational activities, organizational activities, expert activities,
- Reference for the fulfillment of the minimum national requirements and the requirements of IMI – BAS for the professional field 4.6. Informatics and Computer Science,
- References from Scopus and Web of Science for the publications submitted for participation in the competition,
- Declaration in connection with Art. 29, para. 1, item 3 of ADAPRB,
- Declaration of consent for storage and processing of personal data.

The documents of the applicant have been prepared carefully and in full compliance with the requirements of the specific regulations for the IMI – BAS.

## **2. Details of the applicant**

The applicant Assoc. Prof. Dr. Desislava Paneva-Marinova has Bachelor's degree in Mathematics and Informatics, completed in 2001 at Plovdiv University, and Master's degree in Informatics (Language and Multimedia Technologies), completed in 2003 at VTU “St. St. Cyril and Methodius”. In 2008, after successfully defending a dissertation on “Semantically-oriented architecture and models for personalized and adaptive access to knowledge in a multimedia digital library” she received a doctoral degree in Informatics. From 2002 to 2013 she worked as a teacher of Informatics and Information technologies. Since 2002 he has been working at IMI - BAS consecutively as a mathematician, senior assistant professor and associate professor.

## **3. General characteristics of the scientific works and achievements of the candidate**

The research activities of Assoc. Prof. Dr. Desislava Paneva-Marinova and the topics of her scientific works are entirely in the field of competition. She has presented at the competition 20 publications, which do not repeat those of the previous procedures for acquiring of her doctoral degree and holding the academic position of associate professor. Thirteen of these publications have IF and/or SJR.

In accordance with the requirements of the rules for the specific conditions for acquiring scientific degrees and for occupying academic positions at IMI – BAS, the candidates for an academic position of professor in professional field 4.6. Informatics and Computer Science must have: 50 points in group of indicators “A”, at least 100 points in group of indicators “B”, at least 220 points in group of indicators “T”, at least 140 points in group of indicators “Д”, at least 150 points in group of indicators “E”. Each of these conditions is stronger than the corresponding requirement under Art. 1a, para. 1 of the RIADAPRB.

According to the submitted documents the applicant covers:

- 50 points in group of indicators “A”,

- 104 points in group of indicators “B”,
- 258 points in group of indicators “Г”,
- 186 points in group of indicators “Д”,
- 225 points in group of indicators “E”.

Therefore, the minimum national requirements and the additional requirements under Art. 1a, para. 2 and para. 3 of the RIADAPRB for occupation of the academic position of “Professor” in the professional field 4.6. Informatics and Computer Science have been completely covered and exceeded by Assoc. Prof. Dr. Desislava Paneva-Marinova.

There is no proven plagiarism in the scientific works of Assoc. Prof. Dr. Desislava Paneva-Marinova.

#### **4. Evaluation of work on projects and other activities**

The competition documents contain information about the candidate's participation in many successful research and educational projects - a total of six international and 11 national projects. She has participated in the development of two online educational products - the serious educational game “Thracians” and the serious educational game “Aqua Kalide”. Assoc. Prof. Paneva-Marinova is a leading designer and developer of many software environments for digital cultural content management. She is an editor of the series of proceedings of the International Conference “Digital Presentation and Preservation of Cultural and Scientific Heritage” (an open source series, indexed in Web of Science and Scopus). She works actively with PhD students and was a scientific consultant of a successfully defended PhD student. She has participated with presentations at a total of 34 international scientific conferences.

Assoc. Prof. Desislava Paneva-Marinova has taught a number of academic courses at Sofia University “St. Kliment Ohridski”, the University of Veliko Tarnovo “St. St. Cyril and Methodius” and the National Academy of Music “Prof. Pancho Vladigerov”.

#### **5. Analysis of the scientific and applied research of the candidate, contained in the materials for participation in the competition**

The scientific papers, presented by Assoc. Prof. Desislava Paneva-Marinova for participation in the competition, contain original research results, which can be grouped and summarized as follows:

- Group 1: *Digital cultural content management systems* (publications [2 – 6], [9], [10], [12 – 16], [19], [20] according to the numbering in the list of papers submitted for participation in the competition). A model of a virtual museum has been created and methods and tools for analysis, synthesis, processing and intelligent curation of large datasets, applicable in the development of tools for digital content management of a virtual museum, have been proposed. Methods and tools for creation, exploitation and semantic description of digital libraries content are proposed. Approaches to personalized use of resources and services in digital libraries have been developed. Design solutions aimed at providing interoperability at content level of digital library systems are proposed.
- Group 2: *E-learning* (publications [1], [7], [8], [11], [17], [18]). The role of the so-called serious games in education is analyzed and an original approach for designing serious

educational games is proposed, which is applied in the creation of specific educational games. A new educational approach to the study of ancient history and civilization has been proposed, based on a combination of the “storytelling” method and a serious educational game. An innovative approach to teaching and studying elementary mathematics has been developed.

All scientific papers submitted for participation in the competition are co-authored. I have no doubt about the applicant’s significant personal contribution to them.

In my opinion, the aforementioned results characterize the candidate Assoc. Prof. Dr. Desislava Paneva-Marinova as a well-established scientist with significant achievements, which give reason to claim that she completely covers the concept of a leading researcher in the field of Informatics.

The significance of the applicant’s research results is evidenced by their reflection in the works of other authors. Dr. Desislava Paneva-Marinova submitted data for a total of 371 citations of her publications in papers of other authors, 162 of which are indexed in Web of Science and/or Scopus. An appropriately selected sample of 31 of these citations is presented for participation in the competition.

## **6. Critical remarks and recommendations**

I have no significant critical comments on the materials in the competition and in particular on the scientific works of Assoc. Prof. Dr. Desislava Paneva-Marinova. I am aware of the fact that serious research in the scientific field in which she works is generally a collective matter, but I recommend her to aspire in her future work to a certain number of single-authored publications, presenting results for which she has a key contribution.

## **7. Personal impressions of the candidate**

I have no immediate personal impressions from the candidate’s professional performances outside the competition.

## **8. Conclusion for this application**

The scientific achievements of the candidate meet the requirements of ADAPRB and RIADAPRB, as well as the Rules for the conditions and the order for acquiring scientific degrees and for occupying academic positions in BAS and the specific regulations for the IMI-BAS.

In particular, the candidate satisfies the minimum national requirements in the professional field and no plagiarism has been established in the scientific papers submitted at the competition.

I give a **positive assessment** of the application of Assoc. Prof. Dr. Desislava Paneva-Marinova.

## **II. Overall conclusion**

After getting acquainted with the scientific papers and materials presented in the competition, analyzing their significance and the scientific and applied contributions contained in them, I find it reasonable to give my positive assessment and to **recommend the scientific jury to vote on a proposal to the Scientific Council of IMI-BAS to select Assoc. Prof. Dr. Desislava Ivanova Paneva-Marinova to take the academic position of “Professor”** in the field of higher education 4. Natural sciences, Mathematics and Informatics, professional field 4.6. Informatics and Computer

Science, scientific specialty Informatics (Digital cultural content management systems and e-learning).

March 14, 2021

Signature:

(Prof. Maria Nisheva-Pavlova)