REVIEW

by Prof. Galina Bogdanova-Todorova, PhD
Institute of Mathematics and Informatics, the Bulgarian Academy of Sciences

in connection with a competition for the academic position of "Professor"
at the Institute of Mathematics and Informatics at the Bulgarian Academy of Sciences
Field of Higher Education: 4. Natural Sciences, Mathematics and Informatics
Professional Field 4.6 Informatics and Computer Science
Scientific specialty "Informatics"
(Open Science and Innovation in Digital Cultural Heritage)

This review has been prepared on the basis of an order №87/08.09.2026 of the Director of the Institute of Mathematics and Informatics at the Bulgarian Academy of Sciences (IMI-BAS), Decision of the Scientific Council of IMI-BAS (Protocol No.7/10.07.2026) and Protocol №1 (24.09.2026) from the first meeting of the scientific jury in connection with the procedure for occupying the academic position of "Professor" for the needs of the "SofTIS" section at IMI-BAS, in the field of higher education 4. Natural Sciences, Mathematics and Informatics; professional field 4.6 Informatics and Computer Science; scientific specialty "Informatics" (Open Science and Innovations in Digital Cultural Heritage), announced in State Gazette No. 63/10.07.2026. A single candidate, Assoc. Prof. Milena Petrova Dobreva, PhD submitted documents for participation in the competition.

1. Description of the materials received and data about the applicant

Data on the set of documents submitted by the applicant

The set of documents presented at the competition by Assoc. Prof. Milena Dobreva, PhD include: an application to the Director of IMI-BAS for admission to participate in the competition: professional CV; diploma for completed higher education; diploma for acquired educational and scientific degree "Doctor"; general list of publications; list of publications for participation in the competition; reference for the original scientific contributions in the works for participation in the competition; summaries of publications for participation in the competition in Bulgarian and English; copies of the papers for participation in the competition; general list of citations; list of citations for participation in the competition; state gazette with the announcement of the competition; certificate of internship in the specialty; certificate for academic position "Associate Professor"; other documents: (list of research projects with the candidate's supervision or participation (with attached evidence); list of published textbooks and teaching aids – printed and/or electronic); reference in a template for the fulfillment of the minimum national requirements.

As a member of the scientific jury for the competition, I have received the candidate's documents in electronic form. The documents submitted under the competition by Assoc. Prof. Milena Dobreva, PhD comply with the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria (LDASRB), the Regulations for the Implementation of the Law on the Implementation of the Law on the Acquisition of Scientific Degrees (RILDASRB) and the Rules on the Terms and Conditions for Acquiring Scientific Degrees and Occupying Academic Positions at IMI-BAS (IMI–BAS Rules).

Applicant details

Assoc. Prof. Milena Dobreva, PhD graduated from Sofia University "St. Kliment Ohridski" (Sofia University), specialty "Informatics" in 1991 with the qualification of Master of Informatics. In 1999 she successfully defended her doctoral dissertation in informatics at IMI-BAS (Diploma No: 26465/01.02.2000, protocol No: 8/19.11.1999) on the topic "Modeling of variation in Old Bulgarian texts". She was appointed at IMI-BAS as an Associate Professor in the period from 22.06.2001 to 26.11.2009. Milena Petrova Dobreva, PhD is a researcher in the field of information science, digitalization and media literacy with extensive international experience. She is the Head of the Research Group on Detection and Research of Disinformation at the GATE Institute (Sofia University) and Head of the Department of Digital Cultural Heritage at IMI-BAS under the FOCUS project. She has taught as an Associate Professor at the University of Strathclyde (Scotland), UCL Qatar (Qatar) and the University of Malta. Her main research interests include digital transformation, open science, combating disinformation, information behaviour and building innovative laboratories in the field of cultural heritage (GLAM labs).

From the attached documents it can be seen that Assoc. Milena Dobreva, PhDmeets the conditions under Art. 29, para. 1, item 2 of the Law on Associate Professor for the required work experience at the position of "Associate Professor" (the candidate must have held the position of "Associate Professor" for at least two years). Her work experience is certified by an official note from the Director of IMI-BAS, Corr. Prof. Dr. P. Boyvalenkov, which shows that she worked at IMI-BAS as an Associate Professor in the period from 22.06.2001 to 26.11.2009 with a total work experience of seven years and two months.

2. Data and analysis of the submitted publication materials on the subject of the competition

For participation in the competition, the candidate, in accordance with Art. 29, para. 1, item 3 and item 4 of the Law on Scientific and Scientific Research, has submitted 18 scientific publications in journals and in collections of papers at international conferences.

- All submitted scientific publications are on the subject of the competition.
- All publications under the competition are in the period from 2010 to 2026.
- No evidence of plagiarism or unreliability of the submitted scientific data by the applicant within the meaning of Art. 29, para. 1, item 6 of the Law on Plagiarism and Unreliability of the Scientific Data Submitted by the Applicant has been established.
- According to Art. 29, para. 1, item 3 of the Law on Applied Mathematics, applicants must "have submitted a published monographic work or equivalent publications in specialized scientific journals, which do not repeat those submitted for the acquisition of the educational and scientific degree of "Doctor", the scientific degree of "Doctor of Sciences" and for occupying the academic position of "Associate Professor". Under this procedure, 18 publications have been submitted that have not been used in previous procedures.

For the competition for professor at IMI-BAS, professional field 4.6 "Informatics and Computer Science", the specific requirements for IMI-BAS are specified in Art. 3, para. 1, item 4 and Art. 3, para. 3 of the Regulations of IMI-BAS.

These requirements relate to:

(i) Number of publications in journals with IF or SJR: According to Art. 3, para. 1, item 4, the candidate must have at least 12 publications in journals with IF (Impact Factor) or SJR (SCImago Journal Rank),

submitted for participation in the competition for professor.
(ii) At least half of the publications must be after the previous procedure. According to Art. 3, para. 3, at least half of the required number of publications must have been published or accepted for publication after the date of the last procedure for acquiring the degree of Doctor, scientific degree of Doctor of Sciences or occupying an academic position. With a requirement of 12 publications, this means at least 6 publications after the last procedure.
Assoc. Prof. Milena Dobreva, PhD has presented: 14 pcs. publications in journals indexed with IF in Web of Science or with SJR in Scopus, which satisfies the requirement for the minimum required 12 pcs. in (i). All publications that Assoc. Prof. Milena Dobreva, PhD has submitted and has been published after the date of the last of the procedures, which also fulfills the requirement (ii).
Therefore, the candidate fully meets and exceeds the additional specific requirements for publications for participation in the competition, according to the Institute of Applied Sciences, to the candidates for the academic position of "Professor".

Table 1 presents a reference for the fulfillment of the minimum requirements by the applicant by groups and subgroups. In the first column with bold are marked the indicators on which the candidate is active. The report shows that the criteria for groups of indicators have been exceeded and the presented publication materials correspond to the minimum national and additional requirements of BAS and IMI-BAS for groups of indicators defined in PIMI for occupying the academic position of "Professor" for professional field 4.6.

Table 1: Reference for the fulfillment of the minimum requirements by the applicant.

Indicator group	Number of points per applicant	PIMY	Nats. minimum
A 1. Dissertation for the Doctoral Degree. 2. Dissertation for the degree of Doctor of Science.	**50**	50	50
B 3. Habilitation work – monograph. **4**. Hub.trud **– Scientific publications in ref.i and ind. editions.**	**130**	100	100
G 5. Published monograph outside the habilitation work. 6. A published book based on a defended dissertation. **7. Scientific publications. in ref. and ind. publications outside the hub. work.** 8. Published chapter of a book or collective monograph. 9. Invention, patent or utility model with a protected document. 10. Published patent application or utility model.	**248**	220	200
D11. Citations in n. editions, mon.and coll., volumes and patents.	**282**	140	100
E -> items 14, 15, 16, 17, 19 and 20 12. Acquired scientific degree "Doctor of Science". 13. Guidance of a successfully defended PhD student. 14. Participation in a national scientific or educational project. 15. Participation in an international scientific or educational project. 16. Management of a national scientific or organ. project. 17. Leadership of Bulgarian. team in intermediate. scientific or formal. project. 18. Attracted funds for projects led by the applicant. 19. Published university textbook. 20. Published university textbook.	**550** 2x10=20 3x20=60 2x20=40 3x50=150 5x40=200 4x20=80	150	100

From Table. 1 it can be seen that 4 publications (group B) are presented as habilitation work. The remaining 14 publications are in group D.
The submitted publication materials - 18 pcs. publications of the candidate in publications indexed in Web of Science or Scopus meet (and exceed) both the minimum national requirements under Art. 2b,

para. 2 and 3 of the LDASRB, as well as the additional requirements under Art. 2b, para. 5 of the LDASRB, according to the submitted reference and the attached evidence.

3. Analysis and evaluation of the activities and contributions of the candidate, according to the materials of the competition

Assessment of the candidate's scientific and applied scientific activities

The analysis of the submitted scientific papers for participation in the competition Assoc. Prof. Milena Dobreva, PhD shows that they can be classified as follows:
- by type – of the presented materials, eight articles are in refereed scientific journals, nine publications are in international conferences, one of which is a chapter of a thematic collection;
- by importance - Of all articles, 14 are in Impact Factor (IF) editions on Web of Science and/or Impact Rank (SJR) in Scopus, 3 of them are in Impact Factor (IF) and 11 articles are in Impact Rank (SJR) editions, including Springer's Lecture Notes in Computer Science series. 4 articles are indexed in the WoS and/or Scopus databases. Two scientific publications have a Q2 quartile and one is a Q3 quartile in Web of Science.
- by number of co-authors: independent - 2 pcs.; with one co-author - 2 pcs.; the rest have two or more co-authors. Most of the presented scientific publications are co-authored, but I have no doubt about the personal participation and contribution of the candidate in the proposed works.
- In 7 scientific publications submitted for the competition, Assoc. Dr. Milena Dobreva is the first author.
- by period and significance – the scientific papers submitted for participation in the competition include 18 scientific publications covering the period 2010-2026.
- by language in which they are written (in English) – 18 pieces;
- The candidate's participation in research and educational projects – international and national projects related to the subject of the competition, in which she is also the leader, are presented.
- Assoc. Prof.. Milena Dobreva. PhD has a wide academic participation in the scientific community through participation in editorial boards of international scientific journals; membership in program committees and organization of scientific forums.

Contributions and citations

The original scientific contributions in the works of Assoc. Prof. Milena Dobreva, PhD in connection with participation in the competition are organized in five interrelated thematic areas and some of the publications relate to more than one field.

The main contributions are grouped in the following areas:

- Computer Methods for Processing, Searching and Accessing Digital Cultural Heritage - [1], [9], [16]
- User models, requirements and evaluation of digital information systems - [5], [6], [7], [8], [12]; intersecting [4], [15]
- Datafication, collections as data, semantic connectivity and open infrastructures for digital cultural heritage - [2], [4], [15], [17]
- Open science, civic participation and co-creation of knowledge - [13], [14]; intersecting [1], [2], [4], [15], [17]
- Education and competences for data analysis in Digital Cultural Heritage - [3], [10], [11], [18].

I accept the defined scientific contributions of the candidate, as well as the summarized main contributions, which include:

- Creation of scientific approaches for automatic categorization, search and post-OCR correction of digitized historical texts, including specialized datasets and software solutions for Bulgarian

digital cultural heritage, which have been experimentally validated.
- Research that integrates monitoring of consumer behavior, scenarios and use cases, prioritization of digitalization, and evaluation of use, value and impact.
- The transition from digital collections to large-scale e-infrastructures such as data spaces has been formulated and operationalized. Aspects related to semantic connectivity and Wikidata are considered.
- Analysis of the features of the application of the field of citizen science in the humanities. Observations on the application of approaches based on open science and innovation are summarized.
- Approaches to improve the training and education of professionals, students and pupils focused on computing skills, as well as literacy for working with data and with the applicability of artificial intelligence methods in the field of digital heritage.

It should be noted that the candidate's key scientific contributions are in an interdisciplinary scientific field with a decidedly strong social effect. The unifying contribution of Digital Cultural Heritage consists in the systematic modeling of digital cultural heritage as an information environment in which data, algorithms, users, infrastructures, open participation models and competences are interdependent. The research builds a consistent transition from user-oriented digital libraries to computational access, compliance with the FAIR principles and inclusion in educational practice.

Citations: The significance of the candidate's research results is evidenced by their reflection by the international scientific community. Assoc. Prof. Milena Dobreva, PhD has presented a list of 47 citations of her scientific papers, all in the world scientific databases. The candidate has 282 points and significantly exceeds the minimum national requirements (100 points) and the additional requirements of IMI-BAS (140 points) for the number of points under indicator D.

Projects, teaching, conferences, etc. Activities

Table 1 shows that in indicator E Assoc. Prof. Dr. Milena Dobreva has 550 points and many times exceeds the required 150 points from PMI. Assoc. Prof. Milena Dobreva, PhD has many years of teaching experience and is the author of teaching aids. I highly appreciate the teaching activity of Assoc. Prof. Milena Dobreva, PhD in international terms. She has held the position of Associate Professor in Scotland at the University of Strathclyde, in Qatar - UCL Qatar and in Malta (University of Malta) and leads a research group on the detection and research of disinformation at the GATE Institute (Sofia University) and the Department of Digital Cultural Heritage at IMI-BAS under the FOCUS project. He is also a member of the Board of the Media Literacy Coalition and has an interest in innovative laboratories in the field of cultural heritage (GLAM labs). Scopus h-index of Assoc. Prof. Milena Dobreva, PhD is 7. She is a researcher and lecturer in the field of information science with extensive international experience (in areas such as digital transformation, open science, combating disinformation).

The analysis of the contributions and the scientific and applied scientific and applied activities of the applicant shows that

Assoc. Prof. Milena Dobreva, PhD is a scientist with significant scientific achievements and a serious presence in the international scientific community in the field of informatics and digitization of cultural heritage and in the current scientific field of the competition and fully meets the requirements in the professional field 4.6 Informatics and Computer Science, scientific specialty "Informatics" (Open Science and Innovations in Digital Cultural Heritage).

4. **Critical remarks and recommendations**

I have no critical comments on the materials submitted by the candidate.

No plagiarism was noticed.

I know Assoc. Prof. Milena Dobreva, PhD from her work at IMI-BAS and from her participation in international and national events. She has a serious presence in the international scientific community, numerous participations in prestigious international forums and publications, as well as a very high activity in project activities at national and world level. The candidate has extensive research experience in the field of open science and innovations in digital cultural heritage and her projects are in priority areas for Bulgaria. I recommend her to continue to actively transfer her scientific experience and scientific knowledge in this current field, training PhD students and ensuring the continuity of her research activities, building her own broad "scientific family tree".

GENERAL CONCLUSION

After getting acquainted with the materials and scientific papers presented in the competition, analyzing their significance and the scientific, applied and applied contributions contained therein, I find it reasonable to give my positive assessment and recommend that the Scientific Jury propose to the Scientific Council of IMI-BAS to choose Assoc. Prof. Milena Petrova Dobreva, PhD to take the academic position of Professor at IMI-BAS in the field of higher education 4. Natural Sciences, Mathematics and Informatics, professional field 4.6 Informatics and Computer Science, scientific specialty "Informatics" (Open Science and Innovations in Digital Cultural Heritage).

Veliko Tarnovo
31.10.2026

Prepared the review:
(Prof. Galina Bogdanova-Todorova, PhD)