REVIEW REPORT
for a competition for the academic position
"Associate Professor"

in the field of higher education:	4. Natural Sciences, Mathematics, and Informatics
professional field:	4.6. Informatics and Computer Science
scientific specialty:	Informatics (Adaptive educational software systems)
published in:	State Gazette no. 63/10.07.0206 and on the IMI website
for the needs of:	Institute of Mathematics and Informatics at the Bulgarian Academy of Sciences (IMI-BAS)
prepared by:	Prof. Aleksandar Dimov, Phd, Faculty of Matematics and Informatics, Sofia University "St. Kliment Ohridski"
member of the scientific jury of the competition, according to:	Order No. 88/08.09.2026 of the Director of IMI-BAS

Only one candidate has submitted documents for participation in the announced competition:

D-r Dessislava Dakova Vassileva

1. General Description of the Submitted Materials

The candidate has submitted a set of documents and scientific materials in compliance with the relevant laws and regulations of the Republic of Bulgaria and the Institute of Mathematics and Informatics (IMI) in Bulgarian Academy of Sciences (BAS). These include:

1. Application for admission to the competition.
2. Curriculum vitae.
3. Higher education diploma.
4. Diploma for the educational and scientific degree of Ph.D..
5. Full list of publications, inventions, and other scientific and applied results.
6. List of publications, inventions, and other scientific and applied results submitted for participation in the competition.
7. Reference about the original scientific contributions and works submitted for the competition.

8. Abstracts of the publications for participation in the competition (in Bulgarian and English language).
9. Copies of the publications and patents submitted for participation in the competition.
10. Full list of citations.
11. List of citations submitted for participation in the competition.
12. Copy of Issue No. 63 of the State Gazette containing the announcement of the competition.
13. Certificate of professional experience in the specialty, in accordance with the requirements of the corresponding legislation.
14. Reference on the fulfillment of the minimum national requirements and the requirements of IMI-BAS for holding the academic position of "Associate Professor".
15. Declaration of compliance with the administrative requirements of the documents submitted in the competition.
16. Declaration of consent for the storage and processing of personal data.

To participate in this procedure, the candidate, Dr. Desislava Vasileva, has submitted a total of 22 publications and 2 certificates issued by the Patent Office of the Republic of Bulgaria for the ownership of patent models.

The documentation submitted this way by the candidate is well-structured and prepared. It complies with the legislation requirements in Republic of Bulgaria, the Bulgarian Academy of Sciences and Institute of Mathematics and Informatics.

2. Application Details

Dr. Desislava Vasileva finished her master's degree at the Faculty of Mathematics and Informatics (FMI) of Sofia University "St. Kliment Ohridski" in 2002, in "Mathematics" with a specialization in "Information and Communication Technologies." In 2011, she defended her Ph.D. degree in professional field 4.6. Informatics and Computer Sciences, also in FMI. The topic of her dissertation was "Adaptive Software Systems for E-Learning."

Dr. Vasileva also has rich professional and research experience in the scientific field of this procedure, with over 25 years of experience as a programmer, software engineer, and senior software engineer, with some years also spent abroad. The candidate has also worked for over 7 years as a research fellow and researcher (R2) at Sofia University "St. Kliment Ohridski." Her research activities during this time were related to adaptive learning systems. A positive impression is also made by the candidate's participation in peer-reviewing of scientific publications, master's theses, and other works.

Based on the above, the candidate possesses the necessary educational and scientific qualification to hold the academic position of "Associate Professor" in the professional field and scientific specialty of the competition. I believe that in her professional and academic development, she has built a profile combining in-depth theoretical knowledge, research competencies, and rich practical experience in the field of adaptive software learning systems.

3. Content Analysis of the Applicant's Scientific and Scientific-Applied Achievements Contained in the Materials for Participation in the Competition

The main area of work of the candidate is technology-enhanced learning. There is a large amount of research worldwide in this field, which shows the significance of her research activities.

According to the publications submitted for participation in the competition, the following clearly defined and consistently developed research directions stand out in the scientific output of Dr. Vasileva:

- Adaptive educational software systems
- Personalization of learning
- Application of educational video games to increase the efficiency of the educational process

More specifically, the candidate has worked on conceptual and formal models of adaptive educational systems, which includes the development and expansion of models for representing the learner, the learning content, and the adaptation mechanisms, including formalization of adaptation rules through predicate logic. Methods for personalization and adaptive learning management have also been developed by adapting learning paths, content, and navigation to individual learning styles and knowledge levels. Some of her publications present adaptive assessment methods, and experimental validation has also been performed.

Of particular interest is the work on the intelligent and emotional adaptation of educational games, using physiological, emotional, and behavioral indicators for the dynamic adaptation of the gameplay process.

One of Dr. Vasileva's most significant publications, with an impact factor in Q1 (Web of Science) and more than 40 citations, proposes a new classification of playing styles and develops and validates a specialized questionnaire to measure these styles.

Architectures and tools for the automated generation, personalization, analysis, and evaluation of educational games have also been developed.

The candidate also has two patent models registered with the Patent Office of the Republic of Bulgaria. This fact represents a significant applied contribution.

The developed models include electronic devices for measurement of galvanic skin response as an indicator of the user's emotional state, which is used for adaptation in educational video games.

The research topics are in line with development of the scientific field and reflect the existing needs for creating new methods, models, algorithms, and technological solutions. Especially essential and positive is the fact that the candidate's manages to combine all the aspects of scientific work: theoretical and formal developments, software implementation, and experimental validation in real-world conditions. This means that the research is complete and has significant contributions. The scientific publications show the focus in the research work and a determination to build upon the achieved results.

Additionally, the candidate has h-index of 7 (total of 166 citations) in Scopus and 5 (total of 76 citations) in Web of Science, which shows the high significance of her achievements.

3.1 Evaluation of the Candidate's Publication Activity

The total number of the candidate's publications is 59, of which 36 are indexed in internationally recognized databases (Scopus, Web of Science, ACM DL, IEEE Xplore, or MathSciNet). Of them, 2 publications are with an Impact Factor (IF) (1 in Q1 and 1 in Q2) and 25 publications are with an Impact Rank (SJR). Of these publications, 8 were used for acquiring the PhD degree. 23 of the articles were published after the candidate acquired her Ph.D. degree. A total of 22 publications were submitted for participation in the current procedure competition, all written in English, and they were not used for participation in the previous procedure for acquiring a scientific degree.

These publications are distributed as follows:

- To satisfy the group of indicators B (Habilitation thesis – scientific publications) – 4 publications
- To satisfy the group of indicators G (Scientific publication in editions outside the habilitation thesis) – 18 publications
- Publications in which the candidate is a single author– 3
- Publications with one other co-author – 7
- Publications with 2 co-authors – 3
- Publications with 4 or more co-authors – 9

The submitted publications fully cover and even exceed (by 30 to 60%) the minimum requirements of the Bulgarian legislation and IMI – BAS.

As mentioned above, Dr. Vasileva has a sufficient number of citations, and 25 citations of the publications were submitted for participation in the competition, which exceeds the minimum requirements by 2.5 times.

4. Evaluation of Projects Work and Other Activities

Participation in research and educational projects is an essential element of the candidate's scientific activity, as it provides an opportunity to develop scientific ideas, strengthen research teams, and create practically applicable results. For the current procedure, the candidate provided data about participation in 7 national and 5 international research projects. Her research corresponds to the subjects of these projects. It is particularly important that participation in projects such as ADOPTA and APOGEE, fully matches the professional field and the scientific specialty of the current competition.

Candidate participation in activities related to the development and implementation of tasks that support the achieved scientific and applied scientific is visible by the materials submitted for participation in this procedure. Collaboration with other researchers and the application of modern information technologies are also important.

5. Recommendations

The present review is definitely strongly positive; I have no significant remarks or recommendations. I would express the opinion that the modern and significant research conducted by Dr. Vasileva has the potential to be included in new educational disciplines and programs. In this sense, I recommend an increase in the candidate's teaching activity.

6. Application Conclusion

There exist several significant advantages in Dr. Vasileva's application in the current competition for the academic position "Associate Professor”:

1. Consistency and sustainability of scientific research. There is a clear development from adaptive e-learning to intelligent educational video games.
2. Presence of real software developments – participation in projects such as ADOPTA and APOGEE, where concrete technological results have been achieved, gives practical value to the scientific research.
3. Large amount of experimental validation of the scientific results. Several publications present the results of experiments with learners and players.
4. Relevance and interdisciplinarity – the research covers adaptive systems, data processing, neural networks, emotional adaptation, intelligent agents, and game-based learning.
5. Project work demonstrates skills in planning, organization, task distribution, meeting deadlines, and achieving concrete results. The candidate's participation in these projects is an indicator of her ability

to work effectively in a team and contribute to achieving common research goals.

6. Furthermore, it can be said that the candidate's publications and participation in projects reflect both her teamwork skills and her personal qualities for doing in-depth research, as well as the practical application of this research.

Based on what has been stated above, I believe that the application of Dr. Desislava Dakova Vasileva is absolutely well-suited for occupying the academic position of "Associate Professor" at IMI-BAS.

7. General Conclusion

After getting acquainted with the materials and scientific works presented in the competition, analyzing their significance and the scientific, scientific-applied, and applied contributions contained in them, I find it reasonable to give my positive assessment and recommend that the Scientific Jury propose to the Scientific Council of the Institute of Mathematics and Informatics at the Bulgarian Academy of Sciences to elect d-r Dessislava Dakova Vassileva to take the academic position “Associate Professor” in the field of higher education 4. Natural Sciences, Mathematics, and Informatics, professional field 4.6. Informatics and Computer Science, scientific specialty “Informatics” (Adaptive educational software systems).

Aleksandar Dimov Digitally signed by Aleksandar Dimov
Date: 2026.11.03 10:40:46 +02'00'

Sofia Sign: …….

03.11.2026 (prof. Aleksandar Dimov)