REVIEW

by **prof. Valentina Ilieva Markova, Technical university of Varna**
on the materials submitted for participation in the competition
for the academic position of "associate professor"
field of higher education – 5. Technical sciences,
by professional direction – 5.3. Communication and computer technology,
scientific specialty – " Platform-based design "

1. General information and biographical data

The current competition for the academic position of "Associate Professor" was announced in the State Gazette, issue 89 of 24.10.2025, for the needs of the Department of "Computer Systems and Technologies" at the Faculty of Technical Sciences of the Burgas State University "Prof. Dr. Asen Zlatarov". The competition is in the field of higher education 5. Technical Sciences, professional field 5.3. "Communication and Computer Engineering". The only candidate who submitted documents and was admitted to participate in the competition is Senior Asst. Dr. Radovesta Todorova Stewart.

Radovesta Stewart completed her higher education at the University "Prof. Dr. Asen Zlatarov" - Burgas, where she obtained the educational and qualification degree "Master" in the specialty "Software Engineering" (2012). In 2018, she successfully defended her dissertation on the topic "Models and tools for digitization of cultural and historical heritage sites" in the professional direction 5.3. "Communication and computer technology".

Since 2021, Dr. Stewart has held the academic position of "Senior Assistant" in the Department of "Computer Systems and Technologies" of the Bulgarian State University "Prof. Dr. Assen Zlatarov", where she leads lecture courses and exercises in disciplines such as "Web Design", "Programming of Client Web Applications" and "Web Services". In parallel with her teaching work, she develops research activities within the framework of the UNITe project (Universities for Science, Informatics and Technologies in the e-Society).

The candidate's rich administrative and practical experience in the field of cultural heritage management is also impressive. This experience allows Dr. Stewart to successfully transfer fundamental engineering knowledge to solving complex practical tasks.

Currently, Dr. Stewart is an established specialist with over 10 years of experience in the development of semantic models, digital libraries, and software platforms for data storage and visualization, which fully matches the profile of the announced competition.

2. General description of the presented materials

In connection with the competition for the academic position of "associate professor", senior assistant professor Dr. Radovesta Todorova Stewart participated with a total of 26 scientific papers published after obtaining the ONS "doctor". The submitted materials are categorized according to the requirements of the ZRASRB and the university regulations, as follows:

- Independent monographic work: 1 (Indicator B.3), which presents a comprehensive framework for the digitization of the Bulgarian cultural heritage.
- Scientific publications in refereed and indexed databases (Scopus/Web of Science): 19 (Group D, indicator 7), carrying 215.03 points.
- Published book based on a defended dissertation for the award of the educational and scientific degree "Doctor" or the award of the scientific degree "Doctor of Sciences"
- Scientific publications in non-refereed scientific journals with scientific review: 5 (Group D, indicator 8), carrying 129.94 points.

It is noteworthy that a large part of the works have been published in prestigious international journals and series, indexed in Scopus, which is a certificate of the high technological level of the developments and international recognition.

The analysis of the scientometric indicators shows that the candidate meets all the minimum requirements:

• Group A: Possesses the ONS "doctor" (50 points).

• Group B: Habilitation work - monograph (100 points with a minimum of 100 points).

• Group D: Sum of indicators from 5 to 11 - the candidate achieves 318.37 points with a required 300 points

• Group E: Citations (210 points with a minimum of 100 points).

• Group E: Participation and management of projects - the candidate demonstrates an exceptional result of 490 points, formed by the management of international and national projects, although for this group of indicators the BSU regulations require a mandatory minimum of 100 points.

The total score of 1168.37 points unequivocally proves that Ch. Asst. Prof. Dr. Radovesta Stewart is an active researcher with recognized contributions, whose work exceeds the required thresholds for academic growth.

3 General characteristics of the candidate's research and applied scientific activities

The research and applied activities of Assistant Professor Dr. Radovesta Stewart are focused on current and high-tech aspects of the professional field 5.3. "Communication and Computer Engineering". Her work is distinguished by a clear focus on the design of distributed information systems and architectures for semantic data management, successfully integrating modern computer methods for automation in specific application areas.

The main areas of the candidate's research and applied activities include:

• Design of semantic models and ontologies. Development of adaptive ontological structures (based on the CIDOC CRM and Dublin Core standards), which provide semantic operability and scalability in the description of heterogeneous information arrays.

• Integration of machine learning methods. Application of artificial intelligence algorithms (Deep Learning) for intelligent processing and extraction of knowledge from unstructured archives, which is a key element of modern platform-based design.

• Technology Project Lifecycle Management. Dr. Stewart has demonstrated a high level of expertise in the operational management of 10 projects (5 of which as project manager). This is evidence of her ability to transform conceptual models into working software platforms (e.g. MusLib and ORCHIS), successfully implemented in real institutional environments.

The candidate's publication activity is impressive and testifies to sustainable upward scientific development. The 26 scientific papers submitted for the competition (excluding the dissertation) reflect Dr. Stewart's long-standing scientific and practical activity, focused on the design of information systems for data management, the standardization of processes and the development of large-scale digital libraries. The presented works demonstrate purposefulness and international recognition, covering a wide range of research - from the analysis of virtual resources to the application of artificial intelligence algorithms in their processing. Of particular significance is the presence of her publications in refereed editions of the world databases Scopus and Web of Science, as well as her participation in authoritative international forums under the patronage of UNESCO (DiPP). A reference in Scopus shows that Dr. Stewart has an h-index of 4 and 35 citations of her publications, which is evidence of the relevance of her works in relation to contemporary scientific priorities.

4. Assessment of the candidate's pedagogical activities

The educational and pedagogical activity of Dr. Radovesta Stewart fully corresponds to the profile of the Department of Computer Systems and Technologies at the Faculty of Technical Sciences.

A reference is provided for the hours of lectures and exercises led by the candidate in the disciplines "Web Design", "Client-side Web Application Programming", "Web Services" and "Project Management".

Dr. Stewart's active engagement with the educational process is also confirmed by the successful management of educational and production practices (EPP). During the period 2024–2025, she coordinated the practical training of a total of 91 students, which is evidence of her organizational skills and ability to work with large student groups in a real work environment.

Her administrative commitment and participation in the academic life of the university characterize her as a responsible and proven member of the academic staff.

5 . Main scientific and applied contributions

Based on the works and monographic research presented for the competition, the research and applied activity of Chief Assist. Prof. Dr. Radovesta Stewart can be summarized in the following key directions, defining her main contributions:
Design of adaptive semantic models and ontologies for data management.

1. A methodology has been developed for the integration of heterogeneous metadata through the application and upgrading of established international standards. The proposed ontological structures solve the problem of data incompatibility by providing a high degree of semantic interoperability and scalability in distributed information environments.

2. Architectural design and technological implementation of scalable platforms for digital repositories. An innovative approach for structuring digital objects has been proposed and implemented, which allows dynamic management and expansion of information attributes without the need for change in the base program code. The theoretical concepts have been successfully validated through the deployment of software platforms in real operational conditions for the management of large digital datasets.

3. Creation of methodological frameworks for the digital transformation of specialized resources. Generalized algorithms and methodological guidelines have been formulated for the transition from unstructured analog archives to standardized open-access digital datasets. The contribution is distinguished by its universality, as the proposed architectures are applicable both for documentary funds and for complex systems for monitoring spatial data.

4. Automated analysis of unstructured data through machine learning algorithms. The possibilities have been investigated and deep learning algorithms have been applied – in particular convolutional neural networks, for the processing of visual datasets. The effectiveness of the models for knowledge extraction, object recognition, and classification on input data with a high level of noise has been proven.

5. Technological transfer and integration of innovative solutions for interactive visualization. A successful integration of modern technologies (VR – virtual reality, AR – augmented reality and 3D modeling) has been realized in the design of user interfaces for specialized information environments. These developments demonstrate the candidate's ability to transform complex computer technologies into accessible solutions with high social and economic impact.

6 . Significance of the contributions to science and practice

The significance of the results achieved by Assist. Prof. Dr. Radovesta Stewart is determined by their applicability in solving contemporary engineering tasks in professional field 5.3. "Communication and Computer Engineering". The developed software architectures (e.g., the MusLib platform and the ORCHIS system) have been successfully integrated into a real institutional environment for the management of large-scale digital datasets.

The scientific significance of the works is expressed in the creation of robust ontological models for the semantic interoperability of heterogeneous databases and in the successful

application of deep learning algorithms for the automated analysis of unstructured visual information.

The high value of the contributions is indisputably proven by their international recognition and the indexing of the key publications in the global databases Scopus and Web of Science.

7. Critical remarks and recommendations

I have no substantial critical remarks regarding the works presented by the candidate, Assist. Prof. Dr. Radovesta Stewart. The submitted papers reflect the candidate's in-depth and systematic research work.

For the future academic development of Assist. Prof. Dr. Radovesta Stewart, I would recommend focusing her efforts on publishing in established international journals with a high Impact Factor (IF).

8. Personal impressions and reviewer's statement

I do not know the candidate personally. The materials outline the profile of Chief Assist. Prof. Dr. Radovesta Stewart as a well-prepared researcher with a pronounced affinity for the practical application of modern technological tools.

9 . Conclusion

The presented materials provide grounds for an objective assessment of the qualities of Assist. Prof. Dr. Radovesta Todorova Stewart. The formal comparison of the documents with the national requirements and the university regulations proves that the minimum indicators are met.

In conclusion, the aforementioned gives me full grounds to propose to the honorable Scientific Jury that Chief Assist. Prof. Dr. Radovesta Todorova Stewart be elected to hold the academic position of "Associate Professor" in the field of higher education 5. Technical Sciences, professional field 5.3. "Communication and Computer Engineering", scientific specialty "Platform-based design".

27.02.2026 **Reviewer:.**

/prof. Valentina Markova/