

# **REPORT**

by Prof. Evdokia Nikolaeva Sotirova, PhD

“Prof. Dr. A.Zlatarov” - Burgas

on the materials provided by

Assoc. Prof. Zlatinka Svetoslavova Kovacheva, PhD

for a competition procedure for awarding the academic position “Professor,”  
in the higher education area 4. Natural Sciences, Mathematics and Informatics,  
professional field 4.6. Informatics and Computer Science, scientific field “Informatics  
(Information Modeling)” for the needs of the Institute of Mathematics and Informatics,  
Bulgarian Academy of Sciences,

issued by the Government Newspaper in No 98 /13.12.2019

Grounds for writing the report are order No 36 / 05.02.2020 for determining the members of the Scientific Jury and Protocol 1 of the meeting of the Scientific Jury. This opinion has been prepared in accordance with the Law for the Development of Academic Staff in the Republic of Bulgaria (ZRASRB), the Rules for the Implementation of the ZRASRB, the Rules for the Terms and Conditions for Acquisition of Academic Degrees and Occupation of Academic Positions at the Bulgarian Academy of Sciences (BAS) (amended and supplemented on 20.05.2019) and the Rules on the Terms and Conditions for Acquisition of Academic Degrees and Occupation of Academic Positions at the Institute of Mathematics and Informatics (IMI) at BAS (last modified on 19.07.2019).

The only candidate for the competition is Assoc. Prof. Zlatinka Svetoslavova Kovacheva, PhD.

## **1.General details of the applicant**

Zlatinka Svetoslavova Kovacheva graduated with a master's degree in mathematics in 1981 at Sofia University „St. Kliment Ohridski”, specialization Foundations of Cybernetics and Management Theory. In 1987 at the Technical University, Sofia she obtained a Ph.D.

The attached documents show that the applicant has extensive work experience: in the period 1981-1987 she was a mathematician and Research Associate at the Central Institute of Computing Technique and Technology, Sofia; 1984-1986 and 1989-1991 worked as a part-time assistant at the Technical University, Sofia; 22.12.1987-1996 - Research Associate, 2nd grade and Head of Section at the Institute for Information, Communication and Automation Systems; 1996-31.01.2003 - Research Associate, 1st grade and Head of Section at the Center for Information Technologies in Communications; 01.02.2003 -31.08.2015 - Associate Professor at the Higher College of Telecommunications and Posts; 02.2005 - 06.2006 – Assist. Prof. at Sultan Qaboos University, Muscat, Sultanate of Oman; 09/02/2006 - 05/11/2013 - Assist. Prof. at Higher College of Technology, Muscat, Sultanate of Oman; 05/12/2013 - 09/30/2018 – Professor and Head of Department of Mathematics and Applied Sciences at Middle East College, Muscat, Sultanate of Oman; from November 2018 till now works at IMI, BAS; from February 2019 to the present – Assoc. Prof. as a part-time at the University of Mining and Geology “St. Ivan Rilski”, Sofia.

## **2. Description of the presented materials**

The presented materials and documents for participation in the competition, arranged in 17 sections are in accordance with the Rules on the Terms and Conditions for Acquisition of Academic Degrees and Occupation of Academic Positions of IMI.

For participation in the competition Assoc. Prof. Zlatinka Svetoslavova Kovacheva presented 32 scientific publications, all after receiving the scientific title „Assoc. Prof.” from the Higher Education Academy, of which:

- 4 publications with Impact factor (IF): [4], [10], [22], [32], of which [4] in quartile Q3, [10] in quartile Q2, total IF = 1.667;
- 9 publications with SJR index: [4], [5], [10], [14], [17], [18], [22], [23], [24], of which [22] and [32] in quartile Q4;
- 5 publications in which the candidate is the only author: [2], [8], [9], [13], [25];
- 6 publications in which the candidate is in first place; [1], [6], [11], [15], [18], [19].

Reports on co-authored university textbooks and e-lectures, a summary of lectures and exercises by Assoc. Prof. Zlatinka Kovacheva, as well as references for research projects and certificates for the implementation of some of them, are presented.

Attached are 2 reports on the candidate's citations: a report on citations noted in WoS or Scopus with 202 citations of 7 candidate's publications ([4], [5], [10], [18], [22], [23], [32]), and a report on the citations in dissertations (10 abroad and 1 in Bulgaria).

### **3. General characteristics of the applicant's teaching, research and applied activities**

Assoc. Prof. Zlatinka Kovacheva is the co-author of 2 university textbooks (“Intermediate Calculus” and “Intermediate Mathematics”) and electronic lectures (“Engineering Mathematics 2” and “Probability”) used for training in the Department of Mathematics and Applied Sciences of Middle East College, Muscat Oman. She has lectured and practiced many mathematical and informational disciplines at the University of Mining and Geology, the High College of Telecommunications and Posts and the Technical University of Sofia, as well as at the Higher College of Technology - Muscat, Oman, at Middle East College, Muscat, Oman. All this gives me reason to highly appreciate the pedagogical experience of the candidate in the competition.

Assoc. Prof. Zlatinka Kovacheva has combined her practical experience in the development and implementation of information systems and models, including OLAP-based technologies, with her scientific interests, which has led to interesting scientific and applied scientific results. Assoc. Prof. Kovacheva's scientific interests are mainly focused on neural network modeling, knowledge retrieval, OLAP technologies, and Big Data. I support the scientific contributions presented in the author's report, and the grouping of the applicant's main achievements in the following five main areas: OLAP, Big Data, Data Mining, Neural Networks, and Second-Order Impulse Differential Equations with Nonlocal Conditions. The largest share (59%) is occupied by the publications in the fourth group, which is completely justified, considering the studies of Prof. Kovacheva on delayed processes. I find the use of discrete and continuous neural networks as a suitable tool for modeling of systems with discrete or infinite delays, systems without delays, neutral systems. In support of the above, 3 of the IF publications and 8 of the SJR index publications are in this group.

### **4. Critical notes and recommendations.**

There are some inaccuracies in the documents presented.

I would recommend Assoc. Prof. Zlatinka Kovacheva to concentrate her efforts in working with PhD students and young researchers.

## 5. Conclusion

The materials and documents presented by Assoc. Prof. Zlatinka Kovacheva fully satisfy the requirements of the ZRASRB and the Rules for its implementation. The number of points in the groups of scientometric indicators satisfies the minimum number of points in accordance with the Rules for the conditions and procedures for acquiring scientific degrees and for occupying academic positions at BAS, and significantly exceeds them in group "D". The additional requirement of the Rules on the conditions and procedures for obtaining academic degrees and for occupying academic positions at the Institute of Mathematics and Informatics at the BAS from the submitted publications for participation in the competition for the academic position of "Professor" that the candidate must have at least 10 publications in IF or SJR issues is also satisfied.

This is the reason to give my positive evaluation of the materials for participation in the competition and to recommend to the honorable members of the Scientific Jury to vote for the adjudication of Assoc. Prof. Zlatinka Svetoslavova Kovacheva to the academic position "Professor" in the field of Higher Education 4. Natural Sciences, Mathematics and Informatics, professional field 4.6. Informatics and Computer Science, scientific field "Informatics (Information Modeling)" for the needs of the Institute of Mathematics and Informatics, Bulgarian Academy of Sciences.

03.05.2020

Assessor: .....

Burgas

(Prof. Evdokia Sotirova, PhD)