REVIEW
to occupy the academic position:

"Professor"	
"Associate Professor"	X
	one of the academic positions indicated shall be marked with the sign "X"

Candidates to occupy the position:

1	Assist. Prof.	PhD	Stefan	Mihaylov	Filipov	HTMU
№	academic position	scientific degree	name	middle name	last name	workplace

Scientific area:

4	Natural sciences, mathematics and informatics
code	name

Professional area:

4,6	Informatics and computer scinces
code	name

Scientific specialty:

Informatics

The competition has been announced:

34	11.04.2023	Informatics	Chemical and Systems Engineering
in SG issue	date	for the needs of the Department	Faculty

The review was written by:

Prof.	D.S.	Stefka	Stoyanova	Fidanova	IICT-BAS
academic position	scientific degree	name	middle name	last name	workplace

1. Review for the candidate:

Assist. Prof.	PhD	Stefan	Mihaylov	Filipov
academic position	scientific degree	name	middle name	last name

1.1. Completion of the provided documents:

A) The competition documents are in full compliance with the Regulations	3 points	**X**
B) The documents are complete but do not fully comply with the requirements of the Regulations	2 points	

C) The documents are not completed in accordance with the requirements of the Regulations	0 points	
		one of the answers given is marked with the sign "X"

Missing documents and violated requirements must be described if response C is marked.

1.2. Meeting the minimum requirements under the Regulations:

A) The candidate meets the minimum requirements	20 points	X
B) The candidate doesn't meet the minimum requirements	0 points	
		one of the answers given is marked with the sign "X"

It must be filled in if answer B is marked. The publication activity of the candidate is analyzed. The response of the results achieved (quoted) is analyzed.
The candidate has submitted a monograph published by a Bulgarian publishing house; three impact factor publications, one in Q1 and two in Q4; one with impact rank and 6 publications referenced in Scopus. A total of 8 citations of two of the publications are presented.

1.3. Relevance of scientific and / or applied research:

A) The research is relevant. Part of the research is pioneering (no results are known on the topic by other authors)	7 points	
B) Research is relevant. Results from other authors are known for each of the topics and / or applications studied.	5 points	X
C) Most of the research is relevant, but also some results are presented that have no scientific and / or applied value	3 points	
D) The smaller part of the research is relevant	2 points	
E) Research is not relevant	0 points	
		one of the answers given is marked with the sign "X"

The evaluation of the relevance of the research must be substantiated.
The studies carried out are up-to-date and have application in the evaluation of real processes. Citations confirm the relevance of research.

1.4. Knowledge of the problems subject of research:

A) The candidate knows in detail the achievements of other authors on the researched topics and/or applications	6 points	X
B) The candidate is partially familiar with the achieved results on the researched topics and / or applications	4 points	
C) The candidate has no prior knowledge of the status of the researched problems	0 points	
		one of the answers given is marked with the sign "X"

The evaluation must be substantiated if answer C is marked.
A review of the achievements of other authors in the candidate's publications shows a good knowledge of the subject.

1.5. Type of research:

A) Theoretical	4 points	X
B) Applied	4 points	
C) Theoretical with application elements	4 points	
D) It does not correspond to the level specified in the Act for the Development of the Academic Staff in the Republic of Bulgaria and the Regulations	0 points	
		one of the answers given is marked with the sign "X"

The level of research must be substantiated if answer D is marked.

1.6. Objectives of the research:

A) Realistic and of scientific and / or applied interest	8 points	X
B) Realistic, but not of scientific and / or applied interest	4 points	
C) Unattainable (unrealistic)	0 points	
		one of the answers given is marked with the sign "X"

Objectives must be specified. The type of the set objectives must be justified.
Изследванията са реалистични и представляват научен интерес.

1.7. Methods of research:

A) Adequate to research and set scientific objectives and /or applications	8 points	X
B) Partially appropriate, enabling part of the scientific objectives and / or applications to be achieved	4 points	
C) Inappropriate methods	0 points	
		one of the answers given is marked with the sign "X"

Methods must be specified. The type of methods used is justified.
Research methods correspond to the set goals. They build on and further develop what other authors have achieved.

1.8. Candidate research contributions:

A) With lasting scientific and / or applied response, they form the basis for new research and applications	20 points	X
B) They are of significant scientific and / or applied interest, complete and / or summarize previous research	16 points	
C) They are of scientific and / or applied interest	12 points	
D) Lack of significant contributions	8 points	
E) Lack of contributions	0 points	
		one of the answers given is marked with the sign "X"

Contributions must be specified. The type of results achieved must be justified.
The contributions have a lasting scientific impact and are valuable for new directions of research. The applicant has submitted the following contributions: The H1-semi-norm of the difference between two functions is proposed as a measure of functional shape similarity in solving certain optimization and function approximation problems. It is proposed that the arithmetic difference in metrics based on the L2-norm and the H1-semi-norm be replaced by the geometric difference for approximation/optimization problems where the solution must be a positive function separated from the target function by an approximately equal distance in a relative (percentage) sense in each point of the definition area. A general solution is obtained for the case of network functions. A procedure was developed for solving the resulting systems of nonlinear equations A new technique has been developed for the numerical solution of Poisson and Laplace partial differential equations. A new Monte-Carlo simulation algorithm for predicting fatal events in multicomponent systems is developed. It is proved that the linearization of a nonlinear boundary-value problem and subsequent application

of MCR is equivalent to the discretization of the boundary-value problem by MCR after linearization of the resulting system of nonlinear algebraic equations.
A numerical technique is proposed to replace the MKR with sequential application of the non-linear arrow method.
A constant-slope linearization method is proposed for solving nonlinear boundary value problems.
A new Newton's arrow method is proposed for solving a certain type of nonlinear boundary value problems.

1.9. Participation of the candidate in the achievement of the presented results:

A) The candidate has at least an equal participation in the submitted papers	8 points	X
B) The candidate has at least an equal participation in most of the submitted papers	7 points	
C) The candidate has a secondary participation in most of the submitted papers	4 points	
D) The candidate participation is unnoticeable	0 points	
		one of the answers given is marked with the sign "X"

Critical notes must be provided if one of the items C or D is marked.
The candidate is the sole author of the presented monograph and is the first author in 4 of the remaining 6 publications.

1.10. Pedagogical activity:

A) The candidate has effective and sufficient pedagogical activity at the university. The textbooks issued are modern and useful (they meet the requirements of the Regulations). The work with undergraduate and doctoral students is at a high professional level.	8 points	X
B) The candidate has sufficient pedagogical activity at the university. The textbooks issued satisfy the requirements of the Regulations.	6 points	
C) The pedagogical activity and / or textbooks issued are insufficient (do not meet the requirements of the Regulations)	0 points	
		one of the answers given is marked with the sign "X"

Critical notes must be provided if one of the items B or C is marked.
The presented teaching aids are from the last two years and meet the requirements of the competition.

1.11. Critical notes:

A) Lack of critical notes	8 points	X
B) Critical notes of a technical nature	7 points	
C) Critical notes that would partially improve the results achieved in a small part of the research	5 points	
D) Critical notes that would partially improve the results achieved in most of the research	3 points	
E) Significant critical notes	0 points	
		one of the answers given is marked with the sign "X"

Critical notes must be provided if one of the answers C, D or E is marked.

1.12. Conclusion

A) The evaluation of the candidate's activity is **POSITIVE**	This evaluation is assigned to a total number of at least 65 points	X
B) The evaluation of the candidate's activity is **NEGATIVE**	This evaluation is assigned to a total number below 65 points	
		one of the answers given is marked with the sign "X"

To be filled in if requested by the reviewer
My assessment of the candidate is positive, his total point asset is 98.

03.08.2023	The review was written by: **Prof. D.S. Stefka Fidanova**	
date		signature