OPINION

by
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for

the competition for occupation of the academic position "Professor" in the professional field 4.5 „Mathematics", speciality „Computational mathematics, announced in the State Gazette, issue 50/15.06.2021 for the needs of department of „Mathematics, Informatics and Natural Sciences", Technical University of Gabrovo, with an applicant Assoc. Prof. Dr. Todor Dimitrov Todorov

1. Description of the presented materials

As a member of the Scientific Jury, determined on 24.09.2021 with order no. 3-01-380 of the Rector of the Technical University of Gabrovo and regarding to the decisions in the first meeting of the Scientific Jury on 28.09.2021 г. to prepare an opinion, I received the following documents: curriculum vitae of the applicant in European format, a copy of the diploma for higher education, a copy of the diploma for Doctor of Philosophy, certificate for Associate Professor, list of scientific publications with information about references, list of quotations with information about references, abstracts of the scientific publications in Bulgarian language, copy of the scientific publications for the competition, information about the implementation of the minimum national requirements and specific requirements of Technical University-Gabrovo, information about the contributions in the scientific works, information about the leadership of projects and grants, documents for defended PhD student, list of books, declaration of veracity of the results, as well as many other documents and publications required under the Terms and Conditions for holding the academic position of "Professor" at the Technical University of Gabrovo, including those related to previous procedures.

All tehese documents give a clear conception of the overall scientific activity of Assoc. Prof. Dr. Todor Todorov.

The submitted documents are in accordance with Law for Development of Academic Staff in Republic of Bulgaria (LDASRB), the Regulations for applying LDASRB and the rules and conditions of the Technical University - Gabrovo for acquiring scientific degrees and holding academic positions.

2. Brief biographic information about the candidate

Assoc. Prof.Todor Todorov was born in 1962. In 1986 he graduated from "Paisii Hilendarski" University of Plovdiv with a degree in Mathematics. Almost the entire work experience of Assoc. Prof. Todor Todorov is at the Technical University of Gabrovo. He received the educational and scientific degree "Doctor" in 1997 and since 2006 he has been an associate professor. Since 2020 he has been the head of the Department of Mathematics, Informatics and Natural Sciences at the Technical University of Gabrovo.

3. General characteristics of the presented materials

From the submitted documents for the competition it is clear that the candidate meets the additional requirements of the Technical University of Gabrovo to hold the academic position of "professor". The emphasis of this opinion is on the implementation of the minimum national requirements, according to the regulations of the Technical University of Gabrovo.

Assoc. Prof. Dr. Todor Todorov has presented 34 publications for the competition for academic position "professor" . In international journals and series, refereed in Scopus, Web of Science or Zentralblatt are 14 publications. More concrete they can be classified as:

- 9 papers from the list of publications are in journals with impact factor [A29, A35, A40, A46, A47, A49, A50, A52, A55] with the total impact factor 19.472, as 7 papers has Quartile 1 (Q1) and 2 papers has Quartile 4 (Q4);
- 3 papers are with SJR rank, refereed in Scopus;
- 2 papers are refereed in Zentralblat

Assoc. Prof. Dr. Todor Todorov is the author of 4 textbooks, presented for the competitions. They are written after 2016.

A list of 68 citations is presented. Referred in Scopus and/or Web of Science are 39 of them.

Assoc. Prof. Todor Todorov was a supervisor of a PhD student who successfully defended in 2018. All four textbooks are self-authored.

The following table summarizes the information submitted by the applicant for the implementation of the minimum national requirements under Art.2b, para. 2 and 3 of LASDRB and requirements of Technical Uniwersity- Gabrovo

Group	Requirements of IICT for minimum credits	Credits
A	50	50
B	100	336
G	200	387
D	100	312
E	100	210

In groups B and G are presented publications, while the credits in group E are formed by indicator E13 – successfully defended PhD student and indicator E19- published university textbook.

The candidate's credits in four of the groups (B, G, D, E), exceed the required minimum number of credits, according to the specific requirements of the Technical University of Gabrovo.

4. General characteristic of the scientific and applied-scientific contribution of the applicant

In the presented abstracts of the scientific works, the obtained results are presented in six thematical directions:

1. Conformal methods for dividing a bounded domain into multidimensional Euclidean spaces
2. Nonlinear nonlocal boundary value problems;
3. Linear boundary value problems;
4. Квадратурни формули върху неструктурирани мрежи;
5. Теория на крайноелементните мрежи;
6. Числен анализ на невронни мрежи и системи за гласово разпознаване.

The first group includes 7 publications [A35, A47, A49, A50, A55, A60, A61], which are presented as habilitation work. Five of them have an impact factor. In the publications in this group, new refinement methods have been obtained that are optimal with respect to the degeneracy measure and similarity classes.

In the second group, 6 articles are presented [A39, A40, A42, A46, A48, A52] and 3 of them are with impact factor. In this thematic area, elliptic boundary value problems containing a nonlocal multiplier in the differential operator, through which the equation is described or included in the boundary conditions, are studied.

The publications included in the third thematic area are [A29, A31, A56], as A29 has an impact factor. In these papers multigrid methods for a linear telegraph equation with periodic boundary conditions and a reaction-diffusion equation are developed. A reaction-diffusion equation and the problem for computing the flow through a two-dimensional closed Lipschitz continuous boundary in domains with complex geometry are considered.

The fourth group includes 3 articles [A58, A59, A62]. Finite element bases, orthogonal bases and quadrature formulas on 4D transition elements have been developed. These publications are presented to meet the additional requirements of the Technical University of Gabrovo. The same situation is for the publications in the fifth direction.

The sixth section includes 7 articles, devoted to the application of neural networks for solving differential equations and classification of voice signals. Three of the publications [A38, A45, A52] are presented to meet the minimum national requirements.

The research activity of Assoc. Prof. T. Todorov fully corresponds to the scientific specialty "Computational Mathematics". The candidate has received new scientific and applied-scientific results. I completely agree with the contributions, formulated by Assoc. Prof. Dr. Todor Todorov, of the presented scientific papers.

5. Reflection of the candidate's works in the works of other scientists

The list provided by Assoc. Prof. Dr. T. Todorov contains 68 citations, 66 citations are in the works of foreign authors.

6. Evaluation of the personal contribution of the candidate

Assoc. Prof. Dr. T. Todorov participates in the competition with 9 self-authored and 25 collective publications. I have no doubt about his equal personal contribution in each of them. Impressive are the three self-authored articles published in Computers & Mathematics with Applications with quartile 1 (Q1) on the Web of Science.

7. Personal impressions

I dont know Assoc. Prof. Dr. T. Todorov personally. Searching through Scopus, the author's name is visible with 21 publications, 85 citations, and h-index 4. For reference in Web of Science: 24 publications, 81 citations and h-index 5.

8. Conclusion

On the based on the presented documents for the competition, the contributions and the significance of the scientific works, I believe that Assoc. Prof. Dr Todor. Todorov fully satisfies the indicators for holding the academic position "professor", according to the criteria of LDASRB, the Regulations for the Application of LDASRB and the specific requirements of Technical University of Gabrovo.

I strongly recommend the scientific jury to propose to the Faculty Council of Technical University of Gabrovo to elect Assoc. Prof. Dr. Todor Todorov to hold the academic position "professor" in the field of higher education 4. "Natural Sciences, Mathematics and Informatics", professional field 4.5 "Mathematics", specialty "Computational Mathematics" for the needs of department of „Mathematics, Informatics and Natural Sciences", Technical University of Gabrovo.

23.10.2021   Author of the opinion:……/signature/……..
                                                (Assoc. Prof. DSc Miglena Koleva)