

REVIEW

by competition for an academic position **Professor**
professional field 5.2. **Electrical engineering, electronics and automation**

scientific specialty **Electrotechnologies**

announced in SG 93 /26 Nov 2019

Applicant: **Bohos Rupen Aprahamyan**, Dr., Associate Professor

Reviewer: **Ivan Stoyanov Yatchev**, D.Sc., Professor

1. General and biographical data

Bohos Aprahamyan graduated from TU-Varna, majoring in Electrical Machines and Apparatus in 1987 with excellent grade. He has worked as a technologist, constructor, lecturer, assistant and associate professor. He has been teaching since 1990 as a part-time assistant at the Technical University of Varna (1990-1997), a lecturer at the Technical School of Electrical Engineering (1991-1997), Assistant Professor (1997-2001) and Associate Professor (2001-2009) at Naval Academy in Varna and Associate Professor at TU-Varna (since 2009). There are also leadership positions held by the applicant at TU-Varna: Head of the Department of Electrical Engineering and Electrotechnology (2011-2019), Dean of the Faculty of Electrical Engineering (from 2019), Director of the Lifelong Learning Directorate (from 2019) .

The competition for the academic position of "Professor" has been announced in State Gazette no. 93 of 26.11.2019 after decisions of the respective collective bodies in TU-Varna as follows:

- Departmental Council of the Department of Electrical Engineering and Electrotechnology - Minutes No. 21 / 06.03.2019;
- Faculty Board of the Faculty of Electrical Engineering - Minutes No. 14 / 21.06.2019;
- Academic Council - Minutes No. 6 / 28.10.2019.

2. General description of the materials presented

The applicant has submitted 1 monograph and a list of 17 of its publications to it, 38 scientific papers, 2 textbooks, 5 textbooks and 5 utility model patents. Information about citations, participation in research and educational projects, lectures during the last three years, as well as implementations and awards were presented.

The candidate is the first author in the 17 publications in the monograph.

The scientific works are divided into two groups:

- scientific publications in editions that are referenced and indexed in world-renowned scientific information databases (SCOPUS and Web of Science) - 9;
- scientific publications in non-refereed journals with scientific review or in edited collective volumes - 29.

The submitted materials show that the minimum national requirements for the academic position of "professor" have been fulfilled - the data for the applicant are given below.

Table 1. Compliance with the minimum national requirements by groups of indicators

Group of indicators	Contents	National requirement	Applicant data
A	Indicator 1	50	50
Б	Indicator 2	-	-
В	Indicators 3 or 4	100	100
Г	Sum of the indicators from 5 to 11	200	369,01
Д	Sum of the indicators from 12 to 15	100	173
Е	Sum of the indicators from 16 to 28	150	368,34

3. General characteristic of the applicant's scientific and applied research

The applicant's research and application activities are mainly in the field of electrical technology. Assoc. Prof. Aprahamyan has worked in several directions in this field, with the majority of his scientific production related to various types of induction heating, processes in magnetic separators and application of nanostructured coatings on contacts of electrical apparatus to improve their electrical endurance and corrosion resistance.

It should be noted that in a number of his studies there are experiments that confirm the theoretical results obtained.

A strength of the applicant's research and development activities is the presence of registered 5 utility model patents.

4. Assessment of pedagogical ability and activity of the applicant

The applicant has almost 30 years of experience as a lecturer at two higher education institutions in Bulgaria. The reference to his lectures during the last three years is very impressive - Assoc. Prof. Aprahamyan has given lectures in 14 disciplines to students from the professional bachelor's, bachelor's and master's degrees.

Assoc. Prof. Aprahamyan has been the supervisor of three successfully defended PhD students. He has authored and co-authored 19 study programmes for the three educational degrees.

His teaching and pedagogical work should be highly appreciated.

5. Main scientific and applied scientific contributions

The main scientific and applied contributions relate to the applicant's three main areas of research:

1) A new technology for deposition of nanostructured coatings and superlattices on the contact bodies of contacts of electrical appliances has been created and successfully experimented, and the technological parameters used and their influence on the process of obtaining solid, wear-resistant and corrosion-resistant nanostructures coatings on contacts of electrical appliances have been proved and substantiated. This group of contributions is in the candidate's monographic work and is related to the 17 publications to it.

2) Computer models have been developed for the study of different inductor-detail systems for volume and surface heating for realization of technological processes with desired parameters. This group of contributions is mainly presented in publications Г.8.4., Г.8.5., Г.8.7., Г.8.8., Г.8.10., Г.8.12., Г.8.15., Г.8.16., Г.8.23., Г.8.26..

3) Mathematical and computer models of separators with permanent magnets and technologies with predefined parameters with application in the electrotechnical and food industry have been developed. This group of contributions is presented in publications Г.7.2., Г.7.3., Г.7.4., Г.7.5., Г.7.6., Г.7.7., Г.8.9., Г.8.11., Г.8.20., Г.8.27.

There are a number of other contributions in the applicant's other 18 publications.

The candidate submitted a reference for 13 citations in SCOPUS and Web of Science and 20 out of them. It should be noted that the overwhelming number of citations (28) are from authors from abroad, of which 23 are in journals, 6 of which are indexed in world-renowned scientific information databases.

6. Significance of the contributions to science and practice

The importance of contributions to science and practice is indisputable. The majority of the candidate's work has practical applications in various fields of electrical technology.

The quantitative indicators of the criteria for occupying the academic position of "professor" are met, with the applicant exceeding significantly the minimum requirements in most groups of indicators. As an additional criterion to the national requirements, in the TU-Varna is introduced group Ж - for lectures during the last three years. By this criterion, the applicant has nearly 12 times the number of necessary teaching hours. The quantitative data for the applicant's indicators is given below.

Table 2. Number of candidate points for the relevant indicators

Group of indicators	Indicator	Number of points
A	1. PhD Thesis	50
Б	2. Thesis for scientific degree "DSc"	-
B	3. Habilitation work - monograph	100
	4. Habilitation work - scientific publications (not less than 10) in editions that are referenced and indexed in world-renowned databases of scientific information	-
Г	5. A published monograph that is not presented as a major habilitation work	-
	6. Book published on the basis of a dissertation thesis for the award of educational and scientific degree "doctor" or for the award of scientific degree "doctor of science"	-
	7. Scientific publication in editions that have been referenced and indexed in world-renowned scientific information databases	116,65
	8. Scientific publication in non-refereed peer-reviewed journals or in edited collective volumes	252,36

Group of indicators	Indicator	Number of points
	9. Published chapter of a collective monograph	-
	10. Completed author's projects in the field of architecture or design	-
	11. Leading creative expression in the field of architecture or design	-
Д	12. Citations or reviews in scientific publications, referenced and indexed in world-renowned databases of scientific information or in monographs and collective volumes	130
	13. Citations in monographs and collective volumes with scientific review	9
	14. Citations or reviews in non-refereed scientific peer-reviewed journals	34
	15. Reviews of realized products with authorship in specialized editions in the field of architecture or design	-
E	16. Obtained scientific degree "Doctor of Science"	-
	17. Supervision of successfully defended PhD students (n is the number of supervisors of the doctoral student)	80
	18. Participation in a national scientific or educational project	30
	19. Participation in an international scientific or educational project	-
	20. Leadership of a national scientific or educational project	-
	21. Leadership of an international scientific or educational project	-
	22. Funds raised for projects lead by the applicant	-
	23. Published university textbook or textbook used in the school network	20
	24. Published university manual or manual used in the school network	38,34
	25. Published application for patent or utility model	-
	26. A recognized utility model, patent, or copyright certificate	200
	27. Awards for architecture or design competitions given by national professional forums and organizations	-
28. Awards for architecture or design competitions given by professional forums and organizations abroad	-	

Group of indicators	Indicator	Number of points
Ж	29. Horarium of lectures held in TU-Varna for the last three years (minimum 120)	1389

7. Remarks and recommendations

All the candidate's indexed works presented in the competition are at international conferences in Bulgaria. I would recommend that, when presenting his scientific output, the applicant should publish his results in journals with impact factor.

Regardless of the detailed material presented, it might be advisable to include in them the lists of the candidate's publications as well as the other materials with which he participates in the competition. In the materials presented, such information is contained only in the reference for fulfilling the minimum requirements for occupation of the academic position and in some official documents issued by different organizations.

8. The personal impressions and opinion of the reviewer

I know Assoc. Prof. Aprahamyan mainly in connection with the ELMA and SIELA conferences, in which he is actively involved, including co-chairing of ELMA. My impressions of him are excellent - he has always shown himself to be responsible and correct in his actions.

CONCLUSION

On the basis of acquaintance with the submitted scientific papers, their importance, the scientific, scientific-applied and applied contributions contained in them, as well as the fact that by most indicators the applicant significantly exceeds the minimum requirements according to the Regulations for the terms and order of occupying academic positions in TU-Varna, I find it reasonable to propose Assoc. Prof. Dr. Bohos Rupen Aprahamyan to take the academic position of "Professor" in the professional field 5.2. Electrical engineering, electronics and automation in the scientific specialty Electrotechnologies.

Date: 09 March 2020

REVIEWER:

/ prof. D.Sc. I. Yatchev /

