

# OPINION

concerning the competition for a tenured track position "Professor" in the professional field: **5.2. Electrical Engineering, Electronics and Automation**, Scientific specialty: "Electrotechnology", announced in the Bulgarian State Gazette no. 93 of 26.11.2019.

Applicant: **Assoc. Prof. Bohos Rupen Aprahamyan, PhD**

Member of the Scientific Jury: **Prof. Todor Dimitrov Ganchev, PhD**

## 1. General characteristics of the applicant's research activities

Assoc. Prof. Aprahamyan is the only Applicant who has submitted documents in the competition for tenure track position "Professor". His research activities are presented through scientific publications and by utility models, satisfying the minimal national requirements for the academic position "Professor". Specifically, in order to meet the requirements of the group of indicators "B", the Applicant submitted a monography published in 2019, which he co-authored with two co-authors. In this regard, the Applicant provided a protocol signed by all co-authors, which shows that Assoc. Prof. Aprahamyan had a major involvement in the preparation of the monograph that is estimated to 55% of the total.

In order to cover the requirements of the group of indicators "G", the applicant submitted two lists with a total of 38 scientific publications. Among these, he is the author of 3 and 35 were developed in co-authorship. Nine of these publications are grouped for the fulfilment of requirements of indicator "G.7 - publications indexed in SCOPUS. (An inquiry as of 02/21/2020 shows that the applicant co-authored 20 publications indexed in SCOPUS). The list of non-refereed publications (G.8) consists of 29 titles.

In accordance with the requirements of the Bulgarian law for the occupation of academic positions and the regulations for the implementation of the law, the applicant has submitted lists of publications necessary for fulfilling the minimum national requirements for the occupation of Associate Professor position (45 publications in total) and for obtaining the PhD degree (5 publications in total).

Within the group of indicators of category "D", lists of 33 citations were presented. Among these are:

- (i) a list of 13 citations in publications indexed in SCOPUS and WoS (indicator "D12"),
- (ii) a list of 3 citations of publications not indexed in in SCOPUS and WoS (indicator "D.13"), and
- (iii) a list of 17 citations in publications that are in non-refereed scientific journals (indicator "D.14").

With respect to the group of indicators of category “E”, the Applicant provided information about:

- (i) "E.17" - a reference letter, indicating that Assoc.Prof. Aprahamyan supervised/ co-supervised nine PhD students. Three of them successfully earned the PhD degree. Among these one was supervised by Assoc. Prof. Aprahamyan and two were co-supervised with another professor;
- (ii) "E.18" - a reference letter, certifying 3 participations in a national research or educational project;
- (iii) "E.23" - a list of 2 co-authored academic textbooks, including one where the Applicant is first author;
- (iv) "E.24" - a list of titles of 5 co-authored teaching manuals, including 4 in which the Applicant is the lead author;
- (v) 'E. 26 "- a list of 5 approved utility model applications, including 4 in which the Applicant is the lead author.

Based on the provided list of academic courses (indicator "ZH"), it is obvious that for the last 3 years the Applicant has taught 1299 academic hours of lectures, which cover 15 different academic courses included in the curricula for the Professional Bachelor, Bachelor, and Master Degree.

Comparison of the supporting documents presented by Assoc. Prof. Aprahamyan with the minimal national and institutional requirements for the tenure track position “Professor” is shown in the table below:

<b>Group of indicators</b>	<b>Indicators</b>	<b>Minimum requirements for "Professor"</b>	<b>Points Assoc. Prof. Aprahamyan</b>
<b>A</b>	Indicator 1	50	<b>50</b>
<b>B</b>	Indicator 2	NA	<i>NA</i>
<b>B</b>	Indicator 3 or 4	100	<b>100</b>
<b>G</b>	Amount of performance from 5 to 11	200	<b>369</b>
<b>D</b>	Amount of indicators from 12 to 15	100	<b>173</b>
<b>E</b>	Amount of indicators from 16 to 28	150	<b>368.3</b>
<b>ZH</b>	Indicator 29	120	<b>1299</b>
	<b>Total (all indicators)</b>	720	<b>2359.3</b>

## **2. Assessment of the pedagogical activity of the Applicant**

The pedagogical activity of the Applicant in the academia covers nearly 30-year period, incl. a total of over 18 years at TU-Varna and 12 years at NA “N. J. Vaptsarov”. The high volume of lectures (1299 academic hours for the last 3 academic years), which cover 15

academic courses in the Professional Bachelor, Bachelor and Master degree programs, allow me to conclude that the Applicant duly communicates the gained knowledge and experience to the students. He presented lists with 2 academic textbooks and 5 teaching manuals, published on the subject of the current competition, which is an excellent attestation for the Applicant's work as an Educator.

### **3. Basic research contributions**

The Applicant has presented in a compact way his most significant contributions in the publication groups, related to indicators "B.3", "G.7", and "G.8". Most of the contributions are associated with basic research and applied research activities, and some of the results are registered as utility models. I admit the reported contributions and acknowledge that the publications presented in the present competition reflect the wide scope of research and application activities. Furthermore, I acknowledge that the publications and useful models presented by the Applicant genuinely reflect the scope of his research activities. To my best understanding, of most significant importance are the contributions formulated in the monography:

- Investigation of the options for increasing the service life of contact surfaces by coating on the basis of titanium and titanium compounds (TiN and TiC); Methods and means for controlled application of coatings have been developed in order to achieve specified performance characteristics of coatings;
- The technological parameters affecting the quality of electrical parameters of various coatings applied to extend the service life of contact surfaces were analyzed. Methods for improving the quality of coatings and methods and means for controlling the desired electrical parameters were proposed.

In summary, contributions formulated in the monograph and the specified groups of publications can be categorized as: experimentally obtained new data, proven by new means of already existing theories and hypotheses and confirmatory data, creation of new methods and stands, developed methodologies for analysis and improved prediction of coating characteristics.

Inspecting the team of coauthors for most of the publications, as well as my personal impressions of the Applicant, it can be concluded that the contributions formulated to that end reflect his substantial contribution to the reported results.

### **4. Significance of contributions to basic research and applied research**

The importance of the contributions formulated in the Applicant's monograph and publications I judge by the number of registered useful models and the number of citations by independent authors:

- (i) The Applicant's research and technology development activities have resulted in 5 utility models, which is an excellent certificate for the practical benefit of the applicant's activity and increases the opportunity to deploy these results into practice;
- (ii) A total of 33 citations, 18 of which are visible in SCOPUS, mostly by foreign authors. This is an indicator that the work of the research team led by Assoc. Prof. Arahamyán has attracted the attention of foreign scientists working on similar topics.

## **5. Critical notes and recommendations**

I find the documentation well organized and handy for fact checking. I have the following recommendations to the applicant in order to direct some of his efforts to:

- (i) the development of capacity to attract research funding for the his team, through national and international research projects.
- (ii) gain international recognition for his research activities by increasing the share of publications in indexed research repositories (WoS, SCOPUS, IEEE Digital Library) and publications in Thomson Reuters impacted journals. This would be of significant importance (a) for elevating the position of TU-Varna in the academic rating systems and (b) improving the institutional accreditation of TU-Varna and the accreditation scores in the professional field 5.2.

## **CONCLUSION**

The provided comprehensive application data allow for an objective and multifaceted assessment of the qualities of Assoc. Prof. Bohos Aprahamyan. The unified national requirements and the bylaws of TU-Varna for occupying tenure track position "Professor" are met. Moreover, for two groups of indicators the minimum requirements are exceeded – e.g. for the group of indicators "E" more than twice, and for the group of indicators "ZH" approximately ten times.

In my opinion, Assoc.Prof. Bohos Aprahamyan is qualified for the tenure track position "Professor", and I support the statement that he is eligible to occupy the specific position in the professional field: 5.2 "Electrical Engineering, Electronics, and Automation", scientific specialty "Electrotechnology".

Date : 21.02.2020

Signature: \_\_\_\_\_

/ Prof. Todor Ganchev /