

REVIEW

of the application package, submitted for participation in the competition for a tenure track position "Associate Professor" in professional area 5.2. "Electrical Engineering, Electronics and Automation", academic course on "Power Electronics Convertors", Dept. of Electronics and Microelectronics, at the Faculty of Computer Engineering and Automation, Technical University of Varna, which has been announced in the Bulgarian State Gazette no. 93 / 26.11.2019.

Applicant: **Eng. Angel Stanimirov Marinov, PhD.**

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

1. General provisions and biographical data

The competition for the tenured position "Associate Professor" was opened by the Department Council of the Department of Electronics and Microelectronics (ETM), approved by the Faculty Council of the Faculty of Computer Engineering and Automation (FITA) and the Academic Council of the Technical University of Varna (TU-Varna). The only candidate who has submitted application package and afterwards was admitted to the competition is Eng. Angel Stanimirov Marinov, PhD.

In brief, Angel Marinov graduated from TU-Varna as an Electrical Engineer in 2006. In 2007 he received the Master degree in Electronics, and in 2012 he earned the PhD degree from the same university.

During the period 2009-2016, Angel Marinov holds the academic position "Assistant Professor" at Department ETM. From March 2016 to January 2017 he has been appointed as an "Assistant Professor" at the TU-Varna College. Subsequently, during the period Feb.- Sept. 2017 he held an academic position "Associate Professor" in the same college. From October 2017 to October 2019 he had worked as an Electronics engineer at Mantov Ltd., where he gained considerable experience in RTD activities and actively participated in the development of prototypes of new power electronics equipment. Since October 2019 he has been appointed at the Research Institute of TU-Varna, serving as the Section Head for professional area 5.13 "General Engineering".

2. General description of the materials presented

In the application package submitted for participation in the competition for a tenure track position "Associate Professor", Angel Marinov provided 50 scientific publications and two teaching manuals. Among these are 13 scientific publications that satisfy the requirements of the indicator "B.4", equivalent to habilitation thesis, and cover the requirements of the group of indicators "B". Among these are 12 publications indexed in SCOPUS and 1

indexed in Web of Science that were co-authored with Bulgarian and foreign scholars. Specifically, Dr. Marinov is the first author in 3 of these papers, in another 3 he is the second author, in 6 publications he is the third and 1 the fourth author.

In order to satisfy the requirements attributed to the group of indicators "G", the applicant submitted two lists with a total of 37 titles. In 6 publications, he is the single author (about 16% of the total amount), and the other 31 he co-authored with Bulgarian and foreign scientists. Eleven of these publications, incl. 2 where he is single author, satisfy the requirements of indicator "G.7" - publications indexed in SCOPUS. The list of non-refereed publications satisfying indicator "G.8" consists of 26 titles, among which he is the single author of 4 publications. In accordance with the requirements of the Bulgarian law for appointment of academic positions and the corresponding regulations and by-laws, the applicant has submitted the list of publications used for the acquisition of the PhD degree (in total 15 publications, including 2 indexed in SCOPUS). After studying the provided lists of publications, their abstracts and the full text of papers, in the present review I consider these in the full volume. A summary of the contributions, reported in these publications is summarized in section 5 below.

In order to satisfy the requirements of the group of indicators "D", the applicant presented three lists with a total of 17 citations by independent authors. Among these are 8 citations in publications indexed in SCOPUS (indicator "D.12"), 2 citations in collective volumes (indicator "D.13") and 7 citations in non-indexed publications (indicator "D.14").

In order to satisfy the minimal requirements for tenured track position "Associate Professor", with respect to indicator "ZH", the applicant has provided information about 91 hours of lectures, he has taught during the past 3 years.

Comparison of the quantitative indicators presented in the application package and the groups of indicators corresponding to the minimum national and institutional requirements to the candidates for academic positions "Associate Professor" is presented in a tabular form:

Table. Correspondence between the indicators set in the minimal national and institutional requirements for occupying a tenured track "Associate Professor", in the groups of indicators for scientific area "5. Technical Sciences", and the actual scores reported by the applicant.

A set of metrics	Content by indicators	Minimum requirements for the acquisition of JSC "Professor "	Points Assoc. Prof. Georgiev
A	Indicator 1	50	50
B	Indicator 2	---	---
B	Indicator 3 or 4	100	227
G	Amount of performance from 5 to 11	200	408
D	Amount of indicators from 12 to 15	50	100
E	Amount of indicators from 16 to 28	---	---
ZH	Indicator 29	30	91
	Total by all indicators	430	876

3. A general description of the RTD activity of the applicant

Dr. Marinov's broad scope of research and the high number of scientific publications indicate his extensive and multifaceted scientific output. Among the 50 publications listed in his application package, 24 are indexed in world-renowned scientific databases (48%), incl. 21 indexed in SCOPUS and 3 in Web of Science. A query as of March 06, 2020 shows a total of 24 publications are indexed in SCOPUS and 16 publications are indexed in Web of Science. As of the same date, a query about the number of citations indexed in SCOPUS, excluding citations by all coauthors, shows a total of 40 citations and h-index equal to 4. Such a citation index places the applicant among the top-20 researchers at the Technical University of Varna, with respect to h-index in SCOPUS. The contributions claimed in Dr. Marinov's scientific publications well reflect the applied research results reported in the considerable amount of RTD activities. I provide a summarized overview of his contributions in Section 5 of this review.

Over the years, the applicant has been involved in 15 RTD projects, including 3 financed by international funding agencies, 3 financed under the Cohesion Programs of Bulgaria, 3 funded by the Bulgarian National Science Fund (BNSF), and 6 TU-Varna projects financed purposely by the national budget. The applicant provided information about 15 research business trips with a total duration of 109 days. This is an indicator of the high activity of Dr. Marinov in seeking international contacts.

4. Assessment of the pedagogical qualification of the applicant

The pedagogical activity of the applicant covers a period of nearly 10 years – starting from his appointment to an academic position "Assistant Professor" at the Dept. ETM, TU Varna, in 2009 until now (except the academic year 2018/2019). According to the information provided, the applicant has taught 91 hours of lectures over the past three years. This teaching duty contributed to 5 different academic courses in the curricula of the "Bachelor" degree students studying "Electronics".

The applicant provided information about 2 teaching guides, including a manual for laboratory exercises on the academic course "Materials and components in electronics", developed in a team of 4 co-authors, and a handbook on "Electronic devices in RES", developed in a team of 2 co-authors. In total, the applicant has co-authored 7 curricula for "Bachelor" and "Master" degree students of "Electronics", "Electrical Engineering", "Renewable Energy Sources", "Technological Entrepreneurship and Innovation" and "Industrial Management".

According to the information provided by the applicant, during his teaching career, Dr. Marinov supervised the diploma theses of 48 Bachelor and Master students. I consider this a reliable indicator of the successful transfer of the experience and knowledge to the students.

5. Major scientific and RTD contributions

I acknowledge that the publications presented in the application package reflect a significant amount of RTD activities. The applicant has presented a summary of the most significant contributions claimed in the groups of publications, corresponding to the indicators "B.4", "G.7 ", and "G.8". I accept the 12 contributions formulated by the applicant. In general, the contributions of the applicant can be summarized as:

- Investigation of methods, algorithms, new materials and structures in the construction of power electronic converters.
- Investigation of electro-thermal devices and processes.
- Investigation of the properties and modeling of the characteristics of piezoelectric polymer elements.
- Investigation on the efficiency of energy systems and creation of new methods and algorithms aiming to improve their efficiency.
- Investigation of renewable energy systems.
- Creating new and improved e-learning tools in the field of electronics.

In summary, the contributions reported in Angel Marinov's publications can be categorized as: experimentally obtained new data proving the already existing theories with new tools, confirmatory data in support of hypotheses, creating new methods and stands, developed methodologies for the analysis of power electronics convertors, improved prediction of the characteristics of various design solutions for power electronic converters, sensors and systems with improved energy efficiency.

Considering the composition of coauthor teams for the majority of publications, my personal impressions is that the applicant, Dr. Angel Marinov, has a considerable contribution to the reported results.

6. Significance of contributions to practice

The significance of the reported contributions, formulated in the applicant's publications, I assess by the number of citations in work of independent authors and the number of participations in RTD projects:

- (1) The applicant has participated in 15 RTD projects, which is an excellent indicator for the practical benefits of his RTD activities;
- (2) In total, publications of the author were cited 40 times by independent (foreign) authors in publications indexed in SCOPUS. This is a good indicator that the research results obtained by Dr. Marinov have attracted the attention of researchers working on similar topics.

7. Critical notes and recommendations

I find the documentation well-organized and convenient for fact-checking.

I have no critical comments on the candidate.

My recommendation to Dr. Marinov is to allocate some efforts to **acquiring an international recognition to his research by increasing the number of publications in scientific journals with impact factor** (according to Thomson Reuters) or to publish his research results in scientific journals indexed in WoS, SCOPUS, IEEE Digital Library etc. This would greatly contribute to the elevation of TU-Varna in the academic rating systems and would contribute to the overall scores elevation in the accreditation of the professional field 5.2 "Electrical Engineering, Electronics, and Automation" and the institutional accreditation of TU-Varna.

8. Personal impressions and opinion of the reviewer

I know the candidate in person since year 2012 and have personal opinion about his research and teaching activities during the period and the 2012 - 2017 when we worked together at the Department ETM. In this regard, I can certify that during the years Dr. Marinov has proved his high-performance, purposefulness, creativity and ingenuity in solving engineering and scientific problems of varied nature.

CONCLUSION

The application package submitted for participation in the competition for the tenure track position "Associate Professor" allow an objective and multifaceted assessment of the qualifications of Angel Stanimrov Marinov. The considerable publication activity and the 40 citations in SCOPUS are good indication about the purposefulness and effectiveness of research activities carried out by the applicant.

A formal comparison of the submitted documents with the uniform national requirements and the rules of TU-Varna for admission to the tenure track position "Associate Professor" clearly indicates that the minimum requirements have been exceeded more than twice for the group of indicators "G", and three times for the indicators "ZH".

All said above motivates me to express explicitly my definite support to the applicant, Dr. Angel Stanimrov Marinov, who undoubtedly possesses the necessary qualifications for acquiring the tenure track position "Associate Professor" in the professional area 5.2 "Electrical Engineering, Electronics, and Automation".

Date: March 06, 2020.

Reviewer: _____

/Prof. Todor Ganchev, PhD /