

SCIENTIFIC OPINION

Concerning a procedure for obtaining an academic position „professor “
at professional field

5.2 „Electrical engineering, electronics and automation”,
Scientific specialty „Electronization”,

Announced in the State Gazette issue 38 from 10.05.2019,
for the needs of the department of “Electronic engineering and microelectronics”,
Faculty of Computer Engineering and Automation, TU - Varna
with an applicant Assoc. Prof. Eng. Anton Slavchev Georgiev, DSc

Member of the scientific jury: Prof. Marin Hristov Hristov, Ph.D.

1. General characteristics of the applicant's research and applied activities

The applicant participates in the competition with a total of 156 publications, in accordance with the scientific requirements for obtaining the academic position of "Professor", of which I have reviewed 70 publications in the competition for "Professor" in the specialty "Electronization". They include an annotation of a monographic work on the topic "Reliability of electronic products", 3 textbooks, 12 study-books, 54 publications and scientific reports, 16 of which are scientific publications in publications referenced in scientific databases - SCOPUS, 38 articles in scientific magazines/conferences in Bulgaria and abroad, 27 articles are in English, in 9 textbooks and study-books the candidate is the only author, as well as in two publications, participates in scientific projects and others. The comparison of the quantity and quality of the submitted works with the minimum national requirements (according to the Appendix to Article 1 of the Academic Staff Development in the Republic of Bulgaria Act) and the minimum requirements of the Technical University - Varna shows a significant over-performance by the applicant of all groups of indicators.

2. Evaluation of the applicant's pedagogical training and activities

Assoc. Prof. Anton Georgiev has been a lecturer since 1988. During the last three academic years he has lead lectures in 10 different disciplines. He teaches fundamental disciplines such as Electronics, Semiconductor Devices and Integrated Circuits, Electronic Components, Analog Circuits, and specialty disciplines such as Reliability and Diagnostics of Electronic Equipment, Design and Technology in Electronics and Communications and others. He is the head of 5 PhD students, one of whom successfully defended his dissertation, one has completed the PhD study with the right to defence and three are in the process of studying. Prof. Georgiev is the author of a textbook on "Design and technology of electronic equipment" and co-author of two textbooks - on "Semiconductor Devices and integrated circuits" and "Introduction to Electronics" - part I, as well as 12 study-books. I evaluate the candidate as a teacher and organizer of the academic activity, having well-deserved recognition among the academic community.

3. Main scientific and applied research contributions of the applicant.

I classify contributions as proving by new means the essential new sides of already existing scientific fields, problems, theories, hypotheses.

I accept the contributions formulated by the applicant and systematize them as follows:

Monograph Work "Reliability of Electronic Products" [IV.1]

Scientific contributions

- Methodologies have been developed to select the appropriate number of backup electronic blocks, as well as valuation of their number in systems where security is required at a high level of reliability.
- Methods for pre-testing the reliability of new electronic devices are proposed.
- An approach has been developed to determine the preventive period and a methodology to determine the duration of the burn-in of electronic products to increase their performance reliability.

Scientific and applied contributions

- The formulated research contributions have been applied to various electronic systems in practice and recommendations for practical use have been made through the results of the analysis.
- The derived analytical dependencies can be used directly in engineering practice.

Publications not included in the monograph work

Scientific contributions

- New models for evaluating the reliability of electronic products have been developed [IV. 3.1-1, -3, -7, -8, -10, -11, -12, IV.3.2-2, -31, -32, -34, -35, -36, -37, -38].
- An original approach is proposed to evaluate the reliability of lightning protection equipment in power distribution substations [IV.3.1- 2, -9, IV.3.2 -8, -32].
- New techniques for improving operational reliability by improving the maintenance of electronic systems are presented [IV.3.1 -6, IV.3.2 -1, -7].
- The possibilities of applying the Bayesian theory have been explored in cases where insufficient data are available on the reliability of a particular type of devices [IV.3.2 -3, -9, -10, -11, -28, -29, -30].
- Various communication systems and elements have been explored and measures have been proposed to increase their reliability [IV.3.2 -4, -33, -5, -6, -8, -23, -27, -32); [IV.3.2 -13, -16, -19, -20, -21, -22, -24, -25, -26].

Scientific and applied contributions

- Practically specific measures and procedures have been proposed and implemented to increase the reliability of telecommunication systems and networks [IV.3.2. -5, -6, -8, -23, -27, -32], lightning protection equipment in power distribution substations [IV.3.1 -2, IV.3.1 -9, IV.3.2 -8, IV.3.2 -32], medical electronic products [IV 3.1 - 3, IV.3.1 -10, M.3.2 -9, IV.3.2 -10, IV.3.2 -11], electronic devices for stage effects [IV.3.1 -7, IV. 3 1 - 12].

I believe that the main part of the contributions is the applicant's personal work.

The reason for this is the fact that the candidate is the first author among the authors in 36 of the publications.

4. The importance of contributions to science and practice.

The contributions to the applicant's scientific work are significant and highly appreciated by the scientific community at Bulgaria and abroad. My categorical opinion is based on the numerous citations of the works of Assoc. Prof. Georgiev - over 80 in different classifiers. He has participated in 29 scientific or educational projects, 14 of which are international.

Associate Professor Anton Georgiev is an approved teacher and scientist with a clear vision for his diverse activity and creative achievements.

5. Critical remarks and recommendations.

I have no significant comments, recommendations or comments on the materials presented. I note only the following:

- I would recommend the applicant to devote more attention and time to publishing and summarizing his research results in major international journals and conferences.

- The contributions formulated are too schematic and short. They do not contain sufficient information and evidence to clearly identify the most important and specific claims of the author.

- There are some technical gaps and inaccuracies in the submitted documents, such as – the research projects, in which Assoc. Prof. Georgiev participated are not sufficiently documented, no information about implementation, many of the summaries of the competition, such as references, etc. are not signed by the applicant.

CONCLUSION

After I got acquainted with the presented numerous well-formed and arranged materials for participation in the competition, their reliability, significance and certain scientific, research-applied and educational-methodical contributions, the large and varied teaching activity, the guidance of successfully defended Ph.D., and I rightly and firmly propose Associate Professor Eng. Anton Slavchev Georgiev, DSc, to take the academic position of "Professor" in the professional direction 5.2 "Electrical Engineering, Electronics and Automation" in the specialty "Electronization".

Date: 09.09.2019 г.

Member of the jury:

(Prof. Marin Hristov, Ph.D.)