EVALUATION STATEMENT

with regard to a contest for the academic position of Associate Professor in 5.2. 'Electrical Engineering, Electronics and Automation' professional orientation, 'Design of Electronic Equipment' academic discipline, announced in SG, Issue 108 of 22/12/2020

Applicant: Toncho Hristov Papanchev Eng.D

Scientific Jury Member: Prof. Mihail Petkov Iliev, D. Eng. Sc.

1. General Characteristics of the Applicant's Scientific and Applied Research

Toncho Hristov Papanchev Eng.D participates in the contest for the academic position of Associate Professor with 30 scientific publications categorized as follows:

- 11 scientific publications in editions referenced and indexed by internationally acclaimed scientific databases, equivalent to a habilitation thesis as per the Act on Academic Staff Development in the Republic of Bulgaria [B4.1 - B4.11];
- 7 scientific publications in editions referenced and indexed by internationally acclaimed scientific databases [Г7.1 - Г7.7];
- 12 scientific publications in unreferenced journals requiring review of scientific production or in edited volumes [Г8.1 - Г8.12].

3 of the submitted publications within the contest are single-authored. No appendix has been presented for assignment of authorship in the collaborative publications and I have therefore assumed equal authorship for the contributors listed.

As of the date of preparation of the evaluation statement, Toncho Papanchev Eng.D has produced over 40 scientific publications, inclusive of 19 ones indexed within SCOPUS database. The author's citation report includes 12 citation counts, incl. 10 ones in editions referenced and indexed by internationally acclaimed scientific databases. The author's SCOPUS h-index is 5.

2. Evaluation of the Applicant's Pedagogical Competence and Activities

Toncho Hristov Papanchev Eng.D is a graduate of the Technical University – Varna. In 2015 he earned a doctoral degree from the same higher education institution. The applicant was subsequently selected for Assistant and Chief Asst. Professor at the Technical University – Varna where he delivers courses and lectures in various academic subjects in the curricula of Bachelor's and Master's programmes. Toncho Papanchev Eng.D is the co-author of 1 methodological manual and of 20 syllabi for students from different specialties in professional orientation 5.2 'Electrical Engineering, Electronics and Automation' at TU-Varna. All in all, it can be concluded that the teaching work and pedagogical activities of Toncho Hristov Papanchev Eng.D are diverse and meaningful.

3. Key Scientific and Applied Research Contributions

The contributions in the applicant's scientific production are in two main areas: reliability of electronic components and systems and artificial intelligence. The author's contributions have applied research characteristics and could be categorized as follows:

- A mathematical model of power semiconductor device reliability is developed and verified [B 4.7], [B 4.10];
- An approach to acceleration factor estimation, as well as an approach to extracting information and assessing the factors affecting reliability tests are proposed [Г 7.3], [Г 7.5];

- An optimization approach of the electronic system structure diagram which meets reliability requirements is proposed [B 4.6];
- The reliability parameters of electronic converters are assessed, solutions to problems in reliability analysis and estimation are proposed and structural models of complex electronic circuits are developed [B 4.3], [B 4.9], [Г 8.5], [Г 8.8];
- Dependencies are derived for estimating the probability and terms of trouble-free operation of complex technical circuits [B 4.1], [Г 8.9];
- Approaches to assessment, continuing reliability update and non-parametric reliability analysis of electronic devices are proposed [B 4.5], [B 4.8], [Г 7.2], [Г7.4];
- Data analysis approches based on artificial intelligence algorithms are proposed and verified [B 4.11], [Г 7.6], [Г 7.1];
- An algorithm for design of magnetic components in OrCAD environment is developed and verified [Г 8.3];
- Simulation models for process monitoring and analysis in Matlab/Simulink environment are developed [Г 7.7], [Г 8.10].

4. Significance of Contributions to Science and Practice

The contributions of Toncho Hristov Papanchev Eng.D have applied research characteristics, could be applied in practice and classified as follows:

- Enhancing knowledge and systems through formulation of innovative approaches in existing scientific areas;
- Developing modified algorithms, methods and circuits and obtaining supporting facts.

5. Critical Remarks and Recommendations

I have no substantial comments to the materials submitted for participation in this contest. I would recommend that the applicant:

- Narrow down his research area in view of achieving more significant results and their publishing in high impact scientific journals and conferences;
- Seek possibilities for building a team of young researchers to work in the field so as to enable participation in significant local and international scientific projects.

Conclusion

The scientific production submitted for participation in this contest and subject to evaluation is in line with the scientometric requirements outlined in the Act on Academic Staff Development in the Republic of Bulgaria and in the normative documents for taking the academic position of Associate Professor at the Technical University – Varna. Toncho Hristov Papanchev Eng.D has completed the required diverse and meaningful research and teaching work.

In consideration of the above I would reasonably propose that Toncho Hristov Papanchev Eng.D be selected for the academic position of Associate Professor in 5.2. 'Electrical Engineering, Electronics and Automation' professional orientation, 'Design of Electronic Equipment' academic discipline at the Technical University - Varna.

22/03/2021

Prof. Mihail Petkov Iliev, D. Eng. Sc.