

STATEMENT

Concerning a contest for academic position “associated professor” in professional field 5.2 „Electrical engineering, electronics and automation“, educational discipline „Electrical measurements“, department „TIE“, EF, TU - Varna,

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candidate: assistant professor PhD eng. Hristo Zhivomirov Karaivanov, department „TIE“, EF, TU - Varna

Member of the scientific commission: assoc. prof. PhD Valchan Todorov Gueorgiev, EF, TU-Sofia.

1. General characteristics of the scientific research and development work of the candidate

The scientific and research activities of Hristo Zhivomirov PhD (the candidate signs his scientific publications with his surname instead of family name) start in the field of audio technology and acoustics and then develops in digital signal processing – spectral analysis and synthesis and their application for measurement and estimation of different signal parameters. The candidate uses Matlab as a software medium for mathematical computation, he also has author’s page at Mathworks website and he can be qualified as an extremely skilled programmer in this programming environment.

2. Assessment of the candidate’s pedagogical background and activity

Hristo Zhivomirov PhD is an assistant professor in the TU – Varna from 2012. During that time the candidate has taken part in the authors’ collectives of five educational aids. He has taught laboratory exercises and lectures. The intensive publishing activity, as well as the abundant in the monography linguistic, historical explanations and philosophical generalizations lead to the impression that the candidate is a lecturer by vocation.

3. Main scientific and development contributions

The scientific and research activity of Zhivomirov PhD is published in one monography and 28 publications in addition to those, concerning the PhD thesis of the candidate. From the above noted 28 publications, 7 are referred in Scopus or Web of Science. Two of the publications of the candidate concerning his PhD thesis are also referred in these scientific databases. One of the publications is in a journal with impact factor and seven are in editions with SJR indicator. There are twelve citations noted by the candidate.

Hristo Zhivomirov has participated in 10 scientific and research projects.

In his monography, the author presents a new approach for three dimensional representation of the results from spectral analysis, placing the frequency, phase and amplitude along the three axes of a Cartesian coordinate system.

A methodology and an algorithm for measurement of the frequency of a random signal is proposed in which standard discretization of the signal is used and its frequency is obtained by means of frequency estimator, based on two step procedure for rough and fine search of the frequency index. Results from the execution of the algorithm, obtained by means of computer simulations, are presented in the author's publications. A method and algorithm for generation of test signals type "color noise" is proposed.

4. Practical and scientific importance of the contributions

The importance of the scientific research of the candidate is confirmed by the fact that they are published in scientific data bases with IF and SJR factors and the registered citations of his publications.

The candidate shares his development of a code, concerning the above mentioned research problems on his author's page at www.mathworks.com. A lot of his materials are intensively commented and highly evaluated from other users of Matlab.

All the quantitative indicators for taking the academic position "associated professor" according to the „Regulations and terms and conditions for occupation of academic positions" of TU – Varna are fulfilled.

5. Critical notes and recommendations

In the monography a lot of talk refers measurements, but the approaches can rather be attributed to modeling or evaluating the studied quantities.

CONCLUSION

The materials presented by the candidate fulfill requirements for the contest for academic position "associated professor". Based on the review of the presented scientific papers, their significance and their scientific, research and development contributions I find it justified to propose Hristo Zhivomirov Karaivanov to obtain the academic position „associated professor" in professional field 5.2 „Electrical engineering, electronics and automation“, educational discipline „Electrical measurements“.

Date: 28.10.2019

Member of the Jury:

Assoc. prof. Valchan Georgiev PhD