

OPINION

by **Professor Nevena Stoyanova Mileva, Phd, Plovdiv University Paisii Hilendarski**

on the materials submitted for the Competition
for the academic position of **Associate Professor**
at Plovdiv University Paisii Hilendarski

in the field of higher education 5 Technical sciences, professional
field 5.2 Electrical engineering, electronics and automation, (Elec-
tronic Circuits Theory and Electronic circuitry)

In the competition for Associate Professor, announced in the State Gazette, issue 31 of 12th April 2019 and on the website of Plovdiv University Paisii Hilendarski, for the needs of the Electronics, Communication and Computer Technology Department at the Faculty of Physics and Technology, Senior Assistant Professor Sotir Ivanov Sotirov, PhD from Plovdiv University Paisii Hilendarski University has applied.

1. General presentation of the procedure and the candidate

On the grounds of Order No. P33-2887 of 11.06.2019 of the Rector of the Plovdiv University Paisii Hilendarski (PU) I was appointed for a member of the Scientific jury of the competition for the occupation of the academic position of **Associate Professor** in PU in the field of higher education 5. Engineering sciences, professional field 5.2 Electrical engineering, electronics and automation (Theory of Electronic Circuits and Electronic Circuitry), **announced for the needs** of the ECIT Department at the Faculty of Physics and Technology.

For the participation in the announced competition, only one candidate has submitted documents, namely Senior Assistant Professor Sotir Ivanov Sotirov, PhD, Lecturer at the Faculty of Physics and Technology at Plovdiv University Paisii Hilendarski.

The presented set of materials on paper and on electronic media prepared by Senior Assistant Professor Sotir Sotirov, PhD is in compliance with the Rules for the Development of the Academic Staff of PU, and includes the following documents:

- Application form to the Rector for admission to the competition;
- CV (European format);
- Copies of Master's Degree Diploma and PhD Degree Diploma, respectively;
- List of scientific works (including copies of 25 publications and a monograph S. Sotirov, Computer Measurements of Physical Quantities, P., Publisher Koala Press, p. 170, 2019);
- Reference for compliance with the national minimum requirements for scientific field 5 Technical Sciences (including candidate scores per indicators, respectively from 5 to 11 (Group D) and from 12 to 15 (Group E));
- Annotations of the materials for participation in the competition in Bulgarian and English, including self-assessment of contributions;
- Declaration of originality and authenticity of the attached documents;
- Copies of minutes of the Departmental Board, Faculty Board and Academic Board in connection with the competition;
- Copy of SG with the announcement of the competition;
- Certificate of length of service;
- Documents for academic work (for assured teaching workload according to Professional field 5.2 Electrical Engineering, Electronics and Automation);
- Documents for research work (participation in teams of 5 research projects).

The candidate Senior Assistant Professor Sotir Ivanov Sotirov, PhD submitted a total of 25 scientific works, a monograph, and a certificate for participation as a team member in 5 scientific and research projects (respectively: 1 - under the Faculty Projects Competition of PU Paisii Hilendarski; 2 - under the Scientific Research Fund competition; 1 - under OP

"Increasing the Competitiveness of the Bulgarian Economy" competition; 1 - under the FP7 Program competition). I accept for review all submitted scientific works and the monograph, as well as the applicant's participation in 5 scientific and research projects. The distribution of the 25 scientific papers is as follows:

- 4 in Bulgarian and 21 in English;
- 7 in referenced journals (such as IEEE Trans. Of D&EI, Optical Materials, Int. J. of PM & PB, Bulgarian Chemical Communications);
- 1 chapter of a collective monograph;
- 5 in collections of conference reports included in the RB reference list;
- 7 in series of collections with reports from international conferences such as IOP Publishing, Proc. of SPIE and AIP Series;
- 1 in a collection of review articles, edition of the PU Paisii Hilendarski;
- 2 in collections with reports from International Conferences Abroad;
- 2 in referenced collections with reports from International Conferences

Sotir Sotirov was born in 1977. He graduates secondary education at the Polytechnic High School of Mechanical Engineering, and 2003, he graduated Bachelor's degree in the specialty Engineering physics, and in 2006 he graduated with honours Master's Degree in Electronic and Laser Engineering from PU Paisii Hilendarski. During the period 2004-2006 he worked as a physicist in the Radiation Control Department at Regional Inspectorate for Public Health Protection and Control - Plovdiv, and afterwards until 2010 he held the post of Physicist methodologist at the Laboratory for Spectral Analysis at the Central factory laboratory of KCM-AD. In the period 2010-2012 he was appointed as a physicist expert to work with specialized equipment for AFM under the project Biosupport at the PU Paisii Hilendarski. Until 2012 he is an assistant professor, and since 2015 till presently he is a Senior Assistant Professor at the ECIT Department of the same university. In 2015, he was awarded a Doctoral Degree from the PU Paisii Hilendarski, in professional field 4.1 Physical sciences, after having successfully defended his Doctoral thesis entitled "Pulse laser deposition of organic dyes and examination of the resulting thin layers". Of his overall almost 14 years of work experience, 7 years comprise of his pedagogical experience in the department of ECIT, during which he participated in 5 scientific and research projects and presented laboratory exercises and lectures in disciplines such as Analogue circuitry, Digital Circuit Technology, Optoelectronics, and Electrical Engineering and Electronics. He is fluent in

English, has skills in programming microcontrollers and working with specialized software for designing, analysing, and simulating electronic circuits.

The professional biography and my personal impressions from the long-term mutual work with Senior Assistant Professor Sotir Ivanov Sotirov, PhD shows that the gathered experience, qualification and scientific and research potential is enough and convincing for occupation of the academic position of “Associate Professor”.

2. General characteristics of the candidate’s work

2.1. Assessment of educational and pedagogical activity and preparation of the applicant

The candidate has 8 years of teaching experience at Plovdiv University Paisii Hilendarski, leading classes in various disciplines in the scientific field of the competition.

Sotirov, PhD works with all colleagues in the various professional fields at the Faculty, and also participates in scientific teams with other research organizations. Sotirov, PhD is a very good teacher and in the annual surveys among students, he is one of the preferred teachers with the highest marks for communication, competence, and team work.

2.2. Evaluation of the applicant's scientific and applied scientific activity

The main scientific interests Sotir Sotirov, PhD are in the field of:

- Specialized measurements (morphology, topology and chemical composition), characterization and analysis of: polyelectrolyte multilayer structures of natural polymers (with atomic force microscopy and infrared spectroscopy) [1-4, 6-8, 10, 22, 23]; metal oxide layers (MO_x, M: titanium, magnesium) and diamond-like carbon (DLC) [19]; hybrid nanocomposite coatings of Mg-paclitaxel [21]; hybrid inorganic-organic nanocomposite coatings through a new modification of pulsed laser deposition technology (LAAD) [20].

- Investigates the effect of gamma irradiation on the electret stability of polymer films of polypropylene and polyethylene terephthalate [9].

- Development of advanced computer devices: for accurate measurement of the piezoelectric coefficient d₃₃ in thin layers several μm thick [11,12]; a wireless microprocessor system for measuring the voltage-current and power characteristics of PV [13,14]; a microprocessor

based surface sensing system based on the EFS-22D sensor [15,18]; a wireless temperature measurement system [17]; a wireless microprocessor system for measuring temperature in the range 0°C to + 1023.75°C [24]; of an on-board vehicle diagnostics system [25].

- Methodological research and implementation of mobile technologies in education [16].

The book "Computer Measurements of Physical Quantities", presented as a monograph by Sotir Sotirov, discusses the basic theoretical and practical aspects in the development of computerized measurement systems.

2.3. Contributions and quotations

The contributions presented by Senior Assistant Professor Sotir Sotirov, PhD is of dominant scientific and applied character. They are expressed in

- use of modern high-tech and specialized measuring equipment and methods for proving new properties and dependencies for technological and structural optimization of nano- and nanocomposite coatings.

- formulation and justification of new problems and hypotheses.

- demonstration by new means of significant new aspects of existing scientific fields

- creation of new constructions and measurement methods for obtaining confirmatory facts - design and development of microprocessor measuring systems with increased accuracy, speedy operation and wireless communication of various physical quantities with real practical application in the educational process and for updating and development of scientific infrastructure of University.

- methodological contribution related to the implementation of modern mobile technologies in the university education process.

Senior Assistant Professor Sotir Sotirov, PhD has worked on 5 research projects, of which 1 is international, 3 national and 1 university project.

A list of 8 quotations of all the candidate's works were presented (1 citation of a work [6], 3 citations of a work [19]), 7 of which were in referenced editions and 1 in a journal published abroad. One of the quotations is from Bulgarian, and the rest are from foreign authors. All quotes are in publications after 2016, including.

2.4. Implementation work

The candidate has a registered patent, Certificate issued by the Patent Office no. 2647/06.07.2017 for "Battery Voltage and Internal Resistance Measurement Instrument"

Knowing the candidate, I am convinced that the contributions of Sotirov PhD are his own author's work and the developments outlined in the materials are convincing evidence of the quality of his research work.

3. Critical comments and recommendations

My recommendation to Sotir Sotirov, PhD is to pay more attention to the commercialization of the results of his research work. The realization of the final results of the research will lead to the strengthening of the relations with business and putting into practice the achieved good results.

CONCLUSION

The documents and materials presented by Senior Assistant Professor Sotir Ivanov Sotirov, PhD meet all the requirements of the Development of the Academic Staff Act in the Republic of Bulgaria (DASARB), the Regulations for the implementation of the DASARB and the corresponding Rules of PU Paisii Hilendarski. The presented scientific production meets the minimum scientific requirements for all groups of indicators for academic position **Associate Professor.**

The candidate has submitted a **sufficient** number of scientific papers published after the materials used in the defended Doctoral Degree. The candidate's works have original scientific and applied and methodological contributions that have received international recognition as a representative part of them have been published in journals and scientific publications published by international academic publishers. Its research developments are of practical use, some of which are directly oriented to the academic work and the academic community at home and abroad. The scientific and teaching qualification of Senior Assistant Professor Sotir Ivanov Sotirov, PhD **is undoubted.**

The results achieved by Senior Assistant Professor Sotir Ivanov Sotirov, PhD in educational and research activities, **fully** comply with the specific requirements of the Faculty of Physics and Technology, adopted in connection with the Rules of PU for the implementation of DASARB.

After having acquainted with the materials and scientific works presented in the competition, an analysis of their importance and the scientific, and applied contributions contained therein, **I find it justifiable to give my positive opinion and to recommend to the Scientific Jury to prepare a Report of proposal to the Faculty Board of the Faculty of Physics and Technology for the selection of Senior Assistant Professor Sotir Ivanov Sotirov, PhD at the academic position of Associate Professor at PU Paisii Hilendarski, in by professional field 5.2 Electrical Engineering, Electronics and Automation, (Electronic Circuit Theory and Electronic Circuitry).**

05.09.2019

City of Plovdiv

The opinion was prepared by:

(Prof. Nevena Mileva, PhD)