

## **ATTITUDE**

**for the competition for academic positions**

**„Professor“**

**in the professional field: 4.1. „Physical Sciences“, scientific specialty: „General Physics“**

**for the needs of Sofia University "St. Kliment Ohridski" (SU),**

**Faculty of Physics, announced in the Newspaper of State, No. 24/17.03.2023 г.**

The opinion was prepared by: Prof. D.Sc. Stoyan Hristov Russev

**Department of Condensed Matter Physics and Microelectronics, Faculty of Physics, Sofia University "St. Kliment Ohridski"**, in his capacity as a member of the scientific jury in a professional field: 4.1. Physical Sciences (General Physics) of the competition according to the Order № ПД-38-173/20.04.2023 г. of the Rector of Sofia University.

Only one candidate submitted documents for participation in the announced competition: Assoc. Prof. D.Sc. Veselin Todorov Donchev, from the Department of Condensed Matter Physics and Microelectronics, Faculty of Physics, Sofia University "St. Kliment Ohridski"

### **I. General characteristics of the materials presented:**

#### **1. Application data**

The candidate submitted all the necessary documents for the competition and they correspond to the requirements of the ŽRASRB, PPZRASRB and the Regulations for the terms and conditions for acquiring scientific degrees and occupying academic positions at SU "St. Kliment Ohridski" (PURPNSZADSU), as well as the Additional requirements for candidates for academic positions in the Faculty of Physics of SU "St. Kliment Ohridski" in the professional field 4.1. Physical sciences.

To participate in the competition, the candidate, Associate Professor Veselin Todorov Donchev, submitted a list of publications from a total of 22 titles, including 16 journal publications with IF and 6 publications in conference proceedings. In addition to the documents required by law and regulations, 17 other additional documents (under Article 122 of the PURPNSZADSU) supporting the candidate's achievements were submitted. These include evidentiary material for the guidance of graduates and doctoral students, lectures given abroad, participation in scientific juries and commissions, participation and management of scientific projects.

I have no remarks or comments on the documents submitted by the candidate for the defense.

## **2. Applicant data**

Veselin Donchev graduated from the 9th French Language High School in Sofia and then continued his education at the Faculty of Physics of the "St. Kliment Ohridski" University, where in 1985 he received a physics diploma. In 1991, he defended his dissertation on "Investigation of the electrical and optical properties of point defects in gallium arsenide" at the same faculty and began working as a physicist in the Department of Solid State Physics and Microelectronics. From 1993 he was an assistant, from 1997 to 2004 he was a senior assistant, and from 2004 he was an associate professor in the Department of Condensed Matter Physics. In the period 2010-2013, he worked as an administrator at the European Commission in Brussels, responsible for research projects in the field of nanoelectronics and microsystems within the framework of the 7th Framework Programme. For two terms, he was the head of the Department of Physics of Condensed Matter and Microelectronics at the Faculty of Physics of SU "St. Kliment Ohridski". In 2022, Assoc. Professor Donchev defends a dissertation for obtaining the scientific degree "Doctor of Sciences" on the topic "Surface Photovoltaic Spectroscopy of Semiconductor Optoelectronic Materials and Nanostructures".

## **3. General characteristics of the scientific works and achievements of the candidate**

The candidate's total publication activity includes 2 book chapters, 86 journal articles, 24 conference proceedings and 3 teaching aids. 85 of these publications are reflected in the Scopus database, with so far a total of 416 citations (excluding self-citations of the author and his co-authors) and an h-index of 9.

In the competition, the candidate participated with 22 of these works (16 publications in journals with IF and 6 publications in conference proceedings) and 113 citations. The presented scientific works meet the minimum national requirements (under Article 2b, Paragraphs 2 and 3 of the RSARB) and the additional requirements of SU "St. Kliment Ohridski" for occupying the academic position of "professor" in the scientific field and professional direction of the competition. They do not repeat those of previous procedures for acquiring a scientific title and academic position. There is no evidence of plagiarism in the scientific works submitted for the competition.

The scientific fields in which the candidate works are electronic and optical properties of semiconductor materials and nanostructures with applications in optoelectronics. The main experimental research methods are photoelectric and optical methods, combined with computer simulations of the electronic structure and optical reflection and transmission spectra of multilayer structures.

## **4. Characteristics and assessment of the candidate's teaching activity**

The teaching activity of the candidate is related to lectures and leading exercises in bachelor's and master's degrees of study in the Faculty of Physics. He lectures on Mechanics, Molecular Phys-

ics (since 2004) and Optoelectronic Devices (since 2020) for bachelors, Nanostructured Materials and Devices for Information Technologies and Physical Foundations of Optoelectronics in the Master's program "Microelectronics and Information Technologies (from 2004). He was the scientific supervisor of 6 graduate students (2 in bachelor's degree and 4 in master's degree) and the scientific supervisor of 1 doctoral candidate and 1 current doctoral candidate. Prof. Donchev has full classroom and non-auditory employment during his entire teaching career and fully fulfills the additional requirements of the Faculty of physics for educational and teaching activities.

#### **5. Analysis of the scientific and scientific-applied achievements of the candidate contained in the materials for participation in the competition**

I fully accept the self-assessment of the most significant achievements in which the candidate has a leading or significant contribution (document 14.Contributions). Without repeating them in detail, I would summarize them as follows: a) the development of the experimental methodology for surface photovoltage (SPV) spectroscopy; b) new approaches for combined analysis of amplitude and phase SPV spectra; c) pioneering SPV studies of a number of semiconductor nanostructures and bulk layers and structures for optoelectronic applications.

The candidate's scientific and scientific-applied contributions can be defined as development and improvement of an experimental method and enrichment of existing knowledge with the possibility of applying these scientific achievements in practice. From the scientometric indicators discussed above, the wide reflection of the results in the works of other authors is evident. In 17 of the works presented for the competition, the candidate has made a significant contribution (in the sense of item D of the Additional Requirements FzF-2020), and in 8 of them he is the first author. Assoc. Prof. Donchev is the head of the scientific group "Nanostructures and Photovoltaics" in the department "Physics of Condensed Matter and Microelectronics" with whose work many of the results are related. I believe that the personal contribution of Prof. Donchev in the obtained results and his leading participation in obtaining them are indisputable.

The scientific-applied nature of the research is also evidenced by the numerous projects - 1 project with foreign funding, 19 projects under contracts with the Ministry of Education and Science (the head of 4 of them) and 11 projects with the Scientific Research Fund at the SU" St. Kl. Ohridski" (9 of them - head).

#### **6. Critical notes and recommendations**

I have no critical notes and recommendations.

#### **7. Personal impressions**

Assoc. Prof. Donchev and I know each other as colleagues in the Faculty of Physics from two closely related scientific departments, united in 2019 into one department, of which he is still

the head. My impressions are excellent - he is an erudite colleague with a high sense of responsibility in scientific, teaching and administrative work. Able to work, organize and lead work in a team.

### **8. Conclusion on the application**

After having familiarized myself with the materials and scientific works presented in the competition and based on the analysis of their significance and the scientific and scientific-applied contributions contained in them, I confirm that the scientific achievements meet the requirements of ZRASRB, the Regulations for its application and the relevant Regulations of SU "St. Kliment Ohridski" for the candidate to occupy the academic position of "professor" in the scientific field and professional direction of the competition. In particular, the candidate satisfies the minimum national requirements in the professional direction and no plagiarism has been found in the scientific works submitted for the competition.

I give my positive assessment to the application.

### **II. GENERAL CONCLUSION**

Based on the above, I recommend the scientific jury to propose to the competent body for the selection of the Faculty of Physics at SU "St. Kliment Ohridski" to elect Associate Professor Veselin Todorov Donchev to occupy the academic position of "Professor" in professional direction 4.1 Physical Sciences (General Physics).

5.07.2023. г.

Signature: .....

(Prrof. D.Sc. Stoyan Russev)