# ATTITUDE

**for the competition for academic positions „Professor" in the professional field: 4.1. „Physical Sciences", scientific specialty "Electrical, magnetic and optical properties of condensed matter (multiferroic properties of bulk samples and nanomaterials)" for the needs of the University of Forestry, announced in the Newspaper of State No. 102/08.12.2023**

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 for the competition announced by LTU for the occupation of the academic position "professor", field of higher education 4. Natural sciences, mathematics and informatics, professional field 4.1 Physical sciences, scientific specialty "Electrical, magnetic and optical properties of condensed matter (multiferroic properties of bulk samples and nanomaterials)", according to Order No. ЗЛС-50/01.02.2024 of the Rector of University Of Forestry.

Only one candidate submitted documents for participation in the announced competition: Assoc. Prof. Dr. Iliana Naumova Apostolova from the Department of "Mathematics, Physics and Informatics", Faculty of Forest Industry, Forestry University.

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

**1. Application data**

The candidate has submitted all the necessary documents for the competition, and they correspond to the requirements of the ŽRASRB, PPZRASRB and the Regulations for the Development of the Academic Staff at the Forestry University.

To participate in the competition, the candidate, Associate Professor Dr. Iliana Naumova Apostolova, submitted a list of publications of a total of 58 titles, 2 university textbooks and 1 university manual. All presented 58 publications in scientific journals are referenced and indexed in worldwide databases with scientific information (Web of Science and Scopus) - 47 issues + 11 participating in the extended habilitation reference. Documents supporting the candidate's achievements are also presented - participation in conferences, scientific and educational projects, program councils, scientific juries.

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

## 2. Applicant data

Iliana Apostolova graduated from the M.A. "Acad. Ivan Tsenov" - city of Vratsa with professional qualification operator-programmer and then continued her education at the Faculty of Physics of SU "St. Kliment Ohridski", department "Physics of solid state and microelectronics" as a bachelor and then a Master in solid state physics with a diploma thesis on "Investigation of absorption and magnetic properties of intermetallic compounds (Dy, Tb)Fe11Ti". In addition, she completed part-time training in the methodology of teaching physics at SU "Kliment Ohridski", Faculty of Physics, department "Methodology of teaching physics" and until 1995 was a teacher of physics and informatics at 54 Secondary School "Saint Ivan Rilski".

From 1995 until now, she works at the University Of Forestry, Faculty of Forest Industry, as an assistant, chief assistant (since 2008) in the Department of "Mathematics and Physics" and associate professor (since 2015) in the Department of "Mathematics, physics and informatics'.

In 2012, she defended her dissertation on the topic "Static and dynamic properties of magnetic and multiferroic nanoparticles" as a doctoral student of independent training in Professional direction 4.1. Physical Sciences at SU "Kliment Ohridski", Faculty of Physics, Department of Solid State Physics and Microelectronics.

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

The candidate's total publication activity includes 114 publications in scientific journals, of which 92 are in refereed and indexed journals from the global database Web of Science and Scopus. According to the latest reference in Scopus (from February 9, 2024), they were cited 498 times, (excluding the self-citations of the author and his co-authors) and the author's h-index is 11. The candidate has 9 participations in conferences in Bulgaria and abroad, author and co-author of a total of 5 books. textbooks, manuals for laboratory exercises and aids for the students at the University Of Forestry.

The candidate participated in the competition with 61 of these works. They include 58 pcs. publications in journals with IF (48 basic and 11 in the advanced habilitation reference), 2 university textbooks and one university manual. The presented scientific works meet the minimum national requirements (according to Article 2b, Paragraphs 2 and 3 of the ZRASRB) 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 papers submitted for the competition.

The scientific areas in which the candidate works are theoretical research of static and dynamic properties of magnetically ordered, ferro/antiferroelectric multifunctional materials - volume

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

The candidate's teaching activity is related to lectures and leading exercises in bachelor's and master's degrees of study at the University Of Forestry, Faculty of Forest Industry. She leads lectures and laboratory exercises on "Physics with the basics of biophysics" in the master's degrees of study, on "Physics with Biophysics" and "Protection from noise and vibrations" for bachelors, as well as the development of laboratory practicums for them. She participated in the competition with two textbooks and one aid for LTU students, which are based on the lectures that the candidate reads at LTU. In the submitted documents, there is no information about graduates and doctoral students of the candidate.

**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 11. Statement of contributions.pdf). Without repeating them in detail, I would summarize them as a systematic theoretical study and analysis and numerical modeling of

a) Different mechanisms for the appearance of spin-induced polarization in bulk samples

b) Doping and low dimensional systems.

c) Very interesting and important from a practical point of view are the works [11, 18, 24, 28, 36, 42 of doc. 10. List of publications..] in the field of self-consistent magnetic hyper-thermia.

d) Study of the phonon spectra of multipheroid and magnetic bulk and low-dimensional systems.

The candidate's scientific and scientific-applied contributions can be defined as the development and enrichment of existing knowledge with the possibility of applying these scientific achievements in practice. From the examined scientometric indicators (~500 citations) above, the wide reflection of the results in the works of other authors is evident. In 24 of the publications presented for the competition in refereed and indexed scientific journals, the candidate is the first author, in 1 of the articles she has one co-author and in 46 - with two co-authors. I believe that this speaks of the candidate's personal contribution to the obtained results and his significant participation in obtaining them.

The candidate's participation in 9 scientific projects, the subject of which is closely related to the candidate's scientific interests, speaks for the scientific and applied nature of the research.

**6. Critical notes and recommendations**

I have no critical notes or recommendations.

## 7. Personal impressions

I have very good impressions of the pre-defense and defense of Apostolova's PhD dissertation as a self-study doctoral student in the "Solid State Physics and Microelectronics" department.

## 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 for the development of the academic staff at the Forestry University for the candidate's occupation of the academic position "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 Forestry University to elect Assoc. Prof. Dr. Iliana Naumova Apostolova to occupy the academic position "professor" in professional field 4.1 Physical sciences (scientific specialty "Electrical, magnetic and optical properties of condensed matter).

5.04.2024. г.

Signature:: .....

(Prof. D.Sc. Stoyan Russev)