

ATTITUDE OF REVIEWER

With respect to the competition, published in „State Gazette”, issue 35/10.05.2022 for occupying the academic position “Associate Professor” in professional field 4.1 “Physical Sciences”, scientific research specialty “Electrical, magnetic and optical properties of condensed matter”

Candidate: Assistant Professor Katerina Emilova Lazarova

Member of the Scientific Jury: Prof. Yuri Kalvachev, Institute of Catalysis, Bulgarian Academy of Sciences

The only candidate in the competition is Dr. Katerina Emilova Lazarova, who works as an Assistant Professor for Institute of Optical Materials and Technologies – Bulgarian Academy of Sciences.

Katerina Lazarova obtained a bachelor's degree in Physics and Mathematics in 2004 and a master's degree in Physics in 2006 at the Faculty of Physics of Sofia University "St. Kliment Ohridski". In the same year, she joined as a teacher of physics and astronomy, as well as a teacher of mathematics in the 23rd secondary school "F. Joliot Curie" in Sofia, where she stayed until 2012. From 2013, she started as a physicist - specialist at IOMT-BAS, where she works to this day. She successfully defended the educational and scientific degree "doctor" in July 2016. The topic of her dissertation is: "Porous one-dimensional photonic crystals of metal oxides and nano-sized zeolites for sensor applications" supervised by Prof. Tsvetanka Babeva. She then won a competition for an assistant professor at the Institute of Optical Materials and Technologies. She carried out a research visit to the University of Caen, France in the group of Dr. Svetlana Mintova from the Laboratory of Catalysis and Spectrochemistry headed by Jean-Pierre Guilson, who is an authoritative name in the field of catalysis.

The scientific research of assistant professor Dr. Katerina Lazarova are primarily in the field of developing new materials for optics and their application as optical sensors for moisture or volatile organic compounds.

Katerina Lazarova participates in the competition with 20 publications, 6 of them in the form of habilitation work. The articles, which are an equivalent substitute for the habilitation thesis, are in the field of research on the optical and sensory properties of thin films of moisture-sensitive polymers. The remaining 14 articles are in journals such as Journal of Materials Research and Technology; Nanomaterials; Materials; Manufacturing Review – 4 of them are in the group of the first quartile - Q1, which indicates a high scientific level. These works have found a recognition in the scientific literature - they have 41 citations in renowned international publications by the time of submission of the documents. The presented studies are original and correspond to the topic of the announced competition.

The provided information about the research work of the Assistant Professor Dr. Katerina Lazarova is competently prepared and fully reflects the candidate's contributions.

According to the Regulations for the implementation of the Law for the Development of the Academic Staff in the Republic of Bulgaria, they are divided into two groups of indicators - group "B" - habilitation work (indicator 4) and group "D" - Scientific publications, outside of habilitation work (indicator 7). The contributions of Dr. Katerina Lazarova is researching the optical properties of various materials, namely:

- Characterization of optical and sensor properties of nanocomposites of metal oxides and zeolites;
- Study of the optical characteristics of thin films of zirconium oxide doped with rare earth elements;
- Development of photonic crystals from metal oxides and composites.

A list of participation in an impressive number of 61 international and national conferences and congresses in the field of physics, optics, crystallography and polymers is presented, of which 38 oral presentations were given. Dr. Lazarova has participated in more than 10 research projects - with national and international funding. Among them, I would like to highlight a project under the Program for Supporting Young Scientists at BAS (2016-2017), a project under the National Scientific Program "Young Scientists and Postdocs" (2018-2021), as well as an INFRAMAT contract under the National Roadmap for Scientific Infrastructure, where she is the head or coordinator from the IOMT side.

I know the candidate personally and my impressions of her as a scientist and specialist are excellent.

Evidential materials have been submitted to meet the conditions of Article 24, paragraph 1, points 1 and 2 - a diploma for the educational and scientific degree "doctor" and a certificate from IOMT-BAS for holding the position of "assistant professor" for more than 2 years. The careful inspection of the scientific publications provided to me convinces me that item 5 of the same legal norm (art. 24, para. 1) is also fulfilled - absence of plagiarism in the candidate's scientific works.

I firmly believe that Assistant Professor Katerina Emilova Lazarova, meets and exceeds the requirements of Art. 24, paragraph 1, items 3 and 4 of the Law for the Development of the Academic Staff in the Republic of Bulgaria. Based on the above, I propose Dr. Katerina Emilova Lazarova, assistant professor, to be elected as an associate professor at the Institute of Optical Materials and Technologies - BAS.

September 05th, 2022

Sofia