

STATEMENT

by competition for the occupation of the academic position of associate professor by professional direction: 4.1. Physical sciences according to the announcement in SG no. 79 of 04.10.2022

with candidate: Nataliya Dimitrova Berberova-Buhova, ch. assistant doctor at IOMT-BAS

Reviewer: Dimitar Zahariev Dimitrov, Prof. PhD in IOMT-BAS

Chief Assistant Dr. Natalia Berberova-Buhova is the only candidate in the competition for the academic position "Docent" announced in the State Gazette, issue 79 of 04.10.2022 for the needs of IOMT - BAS.

1. General characteristics of the presented materials

In the competition for the academic position "Assistant Professor" Dr. Nataliya Berberova-Buhova participated with a total of 27 scientific publications in refereed international publications, including:

- 7 publications published in journals with an impact factor and SJR (referring to indicator B4) are presented for habilitation work
- and 20 publications in journals with an impact factor/impact rank (referring to indicator G).

The habilitation thesis (indicator B4) includes 7 publications, of which 4 in the Q2 category and 3 in the SJR. The publications were published in the period 2013-2021. The publications outside the habilitation thesis are a total of 20 (referring to indicator G), all of which are printed in refereed and indexed in the world-famous databases Web of Science and Scopus), including 2 publications in the Q2 category, 2 publications in the Q3 category and 3 publications in category Q4. In four out of a total of 20 scientific works, the candidate is the first author. There are 62 citations under the competition procedure.

In accordance with the requirements for holding the academic position "Docent", laid down in the Law on the Attainment of the Academic Staff in the Republic of Bulgaria (ZRASRB) and the rules for the conditions and procedures for acquiring scientific degrees and holding academic positions IOMT-BANS, candidate chief assistant. Dr. Natalia Berberova-Buhova presented:

to indicator A - 50 points (from a minimum of 50 points)

to indicator B - 110 points (from a minimum of 100 points)

to group of indicators G - 236 points (from a minimum of 220 points)

G 7. 20 scientific publications in publications referenced in Web of Science and Scopus, outside the habilitation thesis - 236 points

to indicator D - 62 points (from a minimum of 60 points)

Citations in scientific publications, monographs, collections proceedings and patents - 62 points.

The quantitative indicators of the requirements of IOMT-BAS for occupying the academic position "Docent" have been met.

2. General characteristics of the candidate's scientific, scientific-applied and pedagogical activities (scientific areas and problems; prepared doctoral students and graduates).

The candidate's research and scientific-applied activities are related to the study of the optical properties of photopolymer materials as media for polarization holographic recording and their optimization through the addition of nanoparticles of different sizes and concentrations. Research and optimization of the properties of photoanisotropic materials as polarization holographic recording media, as well as the application of dynamic speckle analysis for non-destructive control of fast-changing processes (e.g. storage of polymer thin films, etc.) and numerical methods for image processing.

Until now, Chief Assistant Dr. Nataliya Berberova-Buhova is a co-author in a total of 56 scientific articles, 41 of which were with impact factor and impact rank, 102 citations were noticed, h-factor is 5. Currently, the candidate was head of 5 successfully completed youth research projects funded by the National Research Institute, as well as participating in 17 research projects. Natalia Berberova-Bukhova is a co-author in a request for a utility model on the topic "System for improving polarization parameters of a holographic diffraction optical element, representing a circular polarization beam splitter".

3. Basic scientific and/or scientific-applied contributions with an assessment to what extent they are the candidate's personal work.

The main scientific contributions of Chief Assistant Dr. Nataliya Berberova-Buhova can be summarized in the following areas: improvement of the optical properties of azopolymer materials for polarization holographic recording by adding nanoparticles - investigating the influence of size and concentration; analysis of recorded diffraction grating parameters in reversible polarization holographic recording; study of dynamic speckle analysis and its application for non-destructive control in fast-changing processes and computational image processing methods; modeling the optical response of surface-relief diffraction gratings by varying their parameters and modeling optical constants.

4. Critical notes and recommendations on the works presented.

I have no critical notes.

5. Reasonable and clearly formulated conclusion

The scientific indicators of the chief assistant Dr. Nataliya Berberova-Buhova fully meet the requirements for occupying the academic position "Associate Professor" laid down in the Regulations of ZRAS RB, ZRAS-BAS and IOMT-BAS. I express my full support for the candidacy of Ch. assistant Dr. Nataliya Berberova-Buhova and with conviction I recommend to the honorable Scientific Jury to propose to the National Assembly of IOMT-BAS Ch. Assistant Dr. Nataliya Berberova-Buhova to be elected to the academic position "Associate Professor" in the Professional field: 4.1. Physical sciences.

Date: 01/02/2023

Prepared by: / /