

STATEMENT

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By Associate Prof. Dr. Deyan Dimov,

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According to the competition for the occupation of the academic position "Associate Professor", announced by IOMT-BAN, in the State Gazette number 35 of 10.05.2022, under professional direction 4.2. "Chemical Sciences", scientific specialty "Physical chemistry".

In the announced competition, only one candidate, Dr. Bilyana Chavdarova Georgieva, is presented. The candidate's documents and application meet the requirements of the Law on the Development of the Academic Staff and the Rules for its Application, as well as the rules of the IOMT.

The participant in the competition, Dr. Bilyana Chavdarova Georgieva, currently works as chief assistant professor at IOMT. Since joining in 2010, she has been involved in the deposition of thin metal oxide layers and their characterization and application as sensors. Gradually, her work was directed to the study of nanomaterials through Transmission Electron Microscopy, which she is still engaged in up to the present time. The knowledge and experience she acquired over the years are reflected in 53 articles, of which 42 are in publications with impact factor and impact rank, 6 of the articles are related to the acquisition of the scientific and educational degree "doctor". To date, all these publications, according to Scopus, have been cited 140 times, and hers H-factor is 6.

The scientific articles with which she participated in the current competition for the academic position of "associate professor" are a total of 19, all of which are in publications with an impact factor and an impact rank. Five of these scientific publications are equivalent to habilitation work. Participated in the competition with 46 citation items. The number of participations in conferences is 73. Coordinator from side of IOMT in two projects and a participant in total six. All this activity convinces me that Bilyana Georgieva has developed herself as a scientist who can not only summarize, analyze and interpret the obtained results, but also possesses qualities for organizing the entire scientific process.

The fields in which the candidate has worked are mainly two:

1. Preparation and characterization of humidity sensors based on polyimides and SnO₂
 - In SnO₂ films, the presence of both electronic and ionic conductivity was demonstrated for the first time by impedance spectroscopy, which is associated with both chemical and physical adsorption of water molecules on the surface of the sensor film.

2. Through transmission electron microscopy and electron diffraction, the morphology, the structure and phase composition are shown of:

- dense and mesoporous Nb-, Ta- and V-oxide thin films obtained by the sol-gel and spin coating deposition methods. The formation of mesopores was demonstrated when an organic template was added to the starting sol. The amorphous structure of thin oxide films has been demonstrated.
- phase composition of an MFI-type zeolite synthesized by the hydrothermal method, used as a film in an optical splitter, including an optical fiber and a Ta₂O₅ waveguide, has been proven.
- silver nanoparticles, first obtained by "green" synthesis in aqueous extracts from the waste products of the flowers of Rosa Damascena, Achillea millefolium and Lavandula angustifolia, used in the essential oil industry.

The materials presented by Dr. Bilyana Chavdarova Georgieva and the considered contributions and scientometric indicators fully meet the requirements of the Development of Academic Staff in the Republic of Bulgaria Act (DASRBA) and the Regulations on the conditions and order for acquiring scientific degrees and for holding academic positions in IOMT-BAS for occupying the academic position "Associate Professor". Based on the above, I am convinced that I can propose to the members of the Scientific Jury to recommend to the Scientific Council of IOMT-BAS to choose Dr. Bilyana Chavdarova Georgieva to occupy the academic position of "Associate Professor".

22/08/2022

Signature:
/ Assoc. Prof. Dr. Deyan Dimov/