

OPINION

by Assoc. Prof. Dr. Milena Todorova Georgieva
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on the materials submitted for participation in the competition for the occupation of the academic position of associate professor in the professional field 4.1 Physical Sciences (Electrical, magnetic and optical properties of condensed matter).

In the competition for associate professor announced in the State Gazette, issue. 93 of 26.11.2019 and on the Faculty of Physics website, for the needs of the FCMM department of Sofia University “St. Kl. Ohridski”, the only candidate participating is Assist. Prof. Dr. Kiril Mladenov Kirilov.

Dr. Kiril Kirilov has completed a master's program at Sofia University “St. Kliment Ohridski”, Faculty of Physics, in engineering Physics in 2001. In 2008 he defended his PhD thesis on "Characterization of semiconductor bulk and nanostructured materials with surface photovoltaic spectroscopy" at the Faculty of Physics, Sofia University "Kl. Ohridski".

From 2006 to 2012 he holds a position as a physicist in the laboratory of "Electronic and phononic properties of solid materials and structures" at the Department of Solid State Physics and Microelectronics, Faculty of Physics, Sofia University. From 2012 until now he has been working as an assistant professor at the Faculty of Physics of Sofia University. His work experience at Sofia University “St. Kl. Ohridski” is 17 years in overall.

The candidate Dr. Kiril Kirilov participates in the competition for associate professor with 16 publications (out of 29 in total) in refereed international journals with impact factor. These 16 publications fully cover the requirements of the ZRASRB and none of them was used in his PhD thesis work.

A total of 89 citations were noted, which is evidence of a good response in the international scientific community. Dr. Kiril Kirilov has managed 1 inter-university scientific project and has participated in 22 more scientific projects. He has participated in 21 scientific conferences, mostly with poster presentations. He was a supervisor of 3 bachelor's and 1 master's degree thesis.

Applicant's teaching activities are considerable and include practical training in “Beginner computer knowledge”, “Basic programming” and “Modern experimental methods”, lectures and practice in “Experimental physics”, lectures and practice in “Practical physics”,

laboratory practice in “General physics”, laboratory practice in "Physical Electronics 2-Solid Electronics", " Special workshop in FTT and ME ", lectures and practice in "Experimental Methods in FTT".

Dr. Kiril Kirilov's scientific research work is related to the investigation and characterization of optoelectronics materials. Several different types of materials were investigated: carbon nanomaterials, diluted nitrides, nitride layers and nanostructures, as well as nanoparticles and quantum dots.

In the study of these materials, he uses optical techniques to measure spectral characteristics such as photoluminescence, cathodeluminescence, Raman spectroscopy and optical transmission. The study of their electrical properties is related to the measurement of specific impedance and current-voltage characteristics. The results of these studies have been published in well-known scientific journals with impact factor.

Dr. Kiril Kirilov is involved in the development of some new models and methods for characterization of materials and data analysis of the results obtained. He is actively involved in the development of a new vector model for the analysis of the behavior of the amplitude and phase spectra of the surface photovoltage, applicable to different materials as well as to complex nanostructures.

He also participates in the design of an experimental unit for measuring the density of granular materials and consequently this method has been used in the educational field. He is also involved in the development of two new research methods, related to changes in the reflection of materials induced by electron beam and ellipsometry detection, which changes the optical characteristics of the materials.

It is clear from the review of the materials provided in this competition for associate professor that Assistant Professor Kiril Kirilov has sufficient teaching experience, has developed several different courses and laboratory practices, and has many years of research in the field of optoelectronics, which can be evidenced by his scientific publications- 29 in total.

In view of the above, I propose that Dr. Kiril Kirilov can be selected as an "Associate Professor" in the professional field 4.1 Physical Sciences (Electrical, magnetic and optical properties of condensed matter).

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Signature:

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