

REPORT

ИНСТИТУТ ЗА КОСМИЧЕСКИ ИЗСЛЕДВАНИЯ И ТЕХНОЛОГИИ - БАН	
Вх. №	786
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in a competition for the academic position of ASSOCIATE PROFESSOR for Field 4. Natural Sciences, Mathematics and Informatics, Professional field 4.4. Earth Sciences in the scientific specialty "Remote Sensing of the Earth" for the needs of Department "Remote Sensing Systems" according to the announcement in SG No. 56 of 23.06.2020 (p. 88, No. 446) with an applicant: Hristo Stoyanov Nikolov, Ph.D., Ch. Assistant at the Institute of Space Research and Technology at the Bulgarian Academy of Sciences

Prepared by: Prof. Dr. Nikolai Dobrinov Dobrev, Geological Institute at BAS

Applicant details

The candidate Hristo Nikolov was born on March 19, 1966 in the city of Sofia. He graduated in 1990 at Higher Mining-Geological Institute (now University of Mining and Geology) with a degree in Production Automation in the Mining Industry. In 1991 he started working at the Central Laboratory of Solar-Earth Impacts at the Bulgarian Academy of Sciences, where he worked successively as a research associate II degree to chief assistant, and in 2018 he successfully defended his doctoral dissertation on "Application of nonlinear methods of theory for image recognition in Earth remote sensing".

Publishing activity

The author's works submitted for review in the current competition for associate professor are 40, which are classified as follows:

1. Scientific publications in publications that are referenced and indexed in world databases with scientific information (Web of Science, Scopus) - 10 issues (group of indicators V). According to the Act on the Development of the Academic Staff in the Republic of Bulgaria, the candidate must submit a monograph or at least 10 publications meeting the above criteria, and the number of points calculated by the criterion must be at least 100. In the present case, the established points are 254.
2. By group of indicators G indicator 7 (scientific publications in publications that are referenced and indexed in world databases with scientific information), the applicant has submitted 6 titles with a total number of points 35.32.
3. By group of indicators G indicator 8 (scientific publications in unrefereed journals with scientific review or edited collective volumes), Dr. Hristo Nikolov presented 24 titles with a total number of points 195.25.
4. Thus, the total number of points in group G becomes 230.57, which exceeds the minimum of 220 points.
5. The number of points that the candidate scores related to citations of his publications is 64 out of 23 established citations, ie. exceeds the limit of 60 points.

As a summary of the entire publishing activity of the candidate I can note that the full list of his works contains 160 titles, of which 6 pcs. articles in international peer-reviewed journals, 10 pcs. in national peer-reviewed journals and 144 pcs. publications in national and international conferences. The main part of the publications is in English, 18 are in Bulgarian and 3 in Russian. He has 7 independent publications, 1 of which is in national peer-reviewed journals and 6 in reports from international and national conferences. He is the first author in 48 publications. The number of noticed citations is 68, of which 23 are related to the competition for associate professor, as already mentioned above.

From the mentioned above information, it is clear that the scientometric indicators of the applicant fully cover the requirements of the Regulations for Implementation of the Act on the Development of the Academic Staff in the Republic of Bulgaria, as well as the additional requirements of BAS.

Contributions

The applicant presented contributionse in three directions:

1. Development and implementation of innovative mathematical methods for thematic processing of multichannel spectral data from various equipment complexes for remote sensing. A module for preliminary and thematic processing of multichannel spectral images is proposed, allowing the use of nonlinear mathematical methods in remote sensing. A total of 14 publications are related to this contribution.
2. Construction of field laboratory complexes for conducting in-situ and remote sensing in synchronous and quasi-synchronous experiments for obtaining data from observations of the Earth. The aim is to complete and implement a mobile field complex for contact and remote measurement of environmental parameters, which will allow improvement and adequate interpretation of multichannel spectral data obtained from aero and satellite observations of the Earth. On this basis, a prototype of an information system has been developed, allowing the gradual integration of data from different sensor systems, thus with its help it is possible to track the current state of large areas of the Earth's surface. 11 publications relate to this contribution.
3. Use of multichannel spectral data from remote sensing in assessing the impact of risk processes on the environment of natural and man-made origin. Here the contribution is mainly related to the use of remote methods in solving specific application problems. The mathematical methods for processing multi-channel spectral data based on the analysis of spectral characteristics of objects of type "mixed class" are specified in order to improve the accuracy in the classification of objects on the earth's surface. They have been used in assessing the ecological condition of areas around non-functioning open pit mining, and in recent years in studying the landslide activity along the coastline north of Varna. The applicant has mastered a well-known interferometric approach for data processing from radar systems with synthesized equipment. One visual contribution of the candidate is the establishment of real values of the landslide in the region of Provadia on the basis of SAR interferometry (G-8-23).

The review shows that the scientific activity of the candidate fully corresponds to the topic of the competition.

Critical notes and recommendations

While reviewing the publications, I noticed that some of them lack maps / situations in the study area on the national scale background, e.g. V-4-10, G-8-10, G-8-23.

Despite the indisputable contributions to the establishment of real values of terrain deformations based on SAR interferometry, a clearer illustration of the obtained results would be useful. This can be expressed in the superimposition of auxiliary information on the interferometric images. For example, in the study of landslide dynamics along the Northern Black Sea coast, it would be useful to set the contours of the coast or other landmarks, thus outlining more clearly the active landslide areas along the studied coastline (G-8-22).

Conclusion

In conclusion, I highly appreciate the achieved scientific results and acquired research experience by Dr. Hristo Nikolov. He has the necessary scientific achievements and qualification for the title of "Associate Professor" and fully meets the minimum national requirements under Art. 2b, para 2 and 3, the requirements of Act on the Development of the Academic Staff in the Republic of Bulgaria under art. 2b, para 5 and the requirements of BAS for the conditions and the order for acquiring scientific degrees for holding academic positions in field 4 - Natural sciences, mathematics and informatics. Therefore, I propose to the jury to propose to the esteemed Scientific Council of Institute of Space Research and Technology -BAS to vote Ch. Assistant Dr. Hristo Nikolov to take the academic position of ASSOCIATE PROFESSOR in a professional field 4.4. Earth Sciences - scientific specialty "Remote Sensing of the Earth".

27 Sept. 2020
Sofia

Prepared by: *nu/*
(Prof. Dr. Nikolai Dobrev)

ВЯРНО С ОРИГИНАЛА