

## REPORT

on the competition for occupying the academic position Professor in the professional field 4.4. "Earth science", scientific specialty "Remote sensing of the earth and planets" for the needs of the department „Remote sensing and GIS” of Space Research and Technology Institute announced in the State Newspaper 98, from 13.12.2019 г

Member of the academic Jury: Prof. Rositsa Nikolova PhD.

The following report has been prepared on the basis of Order No. 14 / 24.01.2020 issued by the Director of the Space Research and Technology Institute, Bulgarian Academy of Sciences. The report is in compliance with *Development of Academy Staff in the Republic of Bulgaria Act*, the *Rules for the Application of the Development of Academy Staff in the Republic of Bulgaria Act*, the *Rules of BAS* and with the *Rulers set at Space Research and Technology Institute for applying the Development of Academy Staff in the Republic of Bulgaria Act*.

The only applicant for the announced competition is Assoc. Prof. Dr. Georgi Jeleв, member of the research team of department „Remote sensing and GIS” of Space Research and Technology Institute.

Assoc. Prof. Dr. Georgi Jeleв, participates in this competition with 29 scientific papers published in the period 2013-2020, including a book entitled "Study of the volcanic structures in the area of the Eastern Rhodopes through remote sensing and GIS", published in 2013 with ISBN 978-954-322-633-7 and with a volume of 120 pages. The remaining 28 papers have been published after 2015, when the applicant holds the academic position of Assistant Professor. Twelve of the articles are published in International Indexed, Refereed Research Journals and sixteen are published in Peer-reviewed Journals or Conference Proceedings. Assoc. Prof. Dr. Georgi Jeleв is a single author of eighth of the presented scientific works and he is first author of another four publications. According to the data in the attached documents the total number of citations of the publications with participation of the applicant is 104, out of them 61 after the period of his habilitation. During the period, envisaged in the competition Assoc. Prof. Jeleв took participation in 16 scientific conferences, presenting his research results in 16 posters and 7 oral presentations. After 2015 Assoc. Prof. Jeleв has been a head of two scientific projects with a funding volume of 20 000 BGL. He has been also a member of the scientific teams of another 10 research projects among them five international. The applicant developed seven Geo-information products and is a member of the team that has registered a utility model with Reg.No. 3283 U1 / 27.09.2019 "Integrated system for remote monitoring of crops". Assoc. Prof. Jeleв actively participates in the training of young researchers. In 2019 he took a course on "Geoinformation systems in ecology" at New Bulgarian University and is a supervisor of one successful PhD student. Dr. Jhelev is a scientist, respected for his expertise by his colleagues in the country and abroad. He was an invited speaker at scientific and popular science forums, participates in exam commissions, is a member of commissions for competitions for academic positions, is part of organizational committees at six international conferences and is on the editorial boards of conference proceedings. Assoc. Prof. Jhelev also actively participates in the bodies of management of Space Research and Technology Institute, and currently is a member

of the Scientific Committee of the Institute. He is Deputy Director of the Institute and Head of the Laboratory " Field Laboratory for Sub-Satellite Measurements ".

Assoc. Prof. Jelev meets the requirements for occupying the academic position "Professor", published in LDASRB (Chapter 3, Section IV) and in the Regulations for its implementation namely:

- Dr. Jelev has been registered in the Nacional Center for Information and Documentation - NACID (<https://ras.nacid.bg/dissertation-preview/40967>), where his doctoral degree and academic rank (associate professor) are recognized.
- According to the data published in NACID Dr. Jelev gained the academic position Associate Professor in 2015 and will have occupied the academic position Associated Professor for five years - the period required by the normative documents;
- The publications and citations submitted for the competition do not repeat the ones presented for the academic position "Associate Professor";
- There is no evidence of plagiarism in the scientific works, presented by Dr. Jelev for participation in the current competition;
- Dr. Jelev has submitted for participation in the competition detailed information about his scientific activities.

The ten publications presented for evaluation within the indicator **4, Group (B)** gave a total of **106 points**, with a minimum of 100 points as a requirement. For **Group (Г)** there is one book presented within the indicator 6, two publications in refereed, indexed journals within the indicator 7 and 16 articles in peer-reviewed scientific journals within the indicator 8. The total number of points in **Group (Г)** is **240 points**. In the competition the candidate participates with 27 citations, giving **123 points for Group (Д)** with a minimum of 120 points required. The materials presented for the **Group (E)** indicators collect a total of **234 points** with a minimum of 150 points required. **The total number of points**, for the scientific production presented by the applicant in the current competition is **753**, which exceeds the minimum number of points required for filling the position of "Professor" in accordance with the Rules for Acquisition of Academic Degrees (600 points) and for Occupation of Academic Positions in the Bulgarian Academy of Sciences (640 points).

The main scientific and applied activities of the applicant are related to the development, improvement and transfer of environmental research methods with integrated use of Earth Remote Sensing Technologies, Geographic Information Systems (GIS).

The main contributions can be summarized as follows:

- A methodology for the evaluation and mapping of the status of agricultural crops using multispectral images from SPOT5 / HRG2\_XS and Sentinel-2a and 2b satellites has been developed. This methodology has been proved suitable for continuous monitoring of the crop adopted measures. The process of creation and the methodology itself are described in five publications and presented through five reports in scientific forums. The performed activities have been funded through three scientific projects, a geo-information product has been created and a utility model has been protected.
- The efficiency of crop mapping was evaluated using low- and medium-resolution satellite imaging. Different assessment approaches have been explored and the limits of their effectiveness determined. The research on the topic has been published in six scientific articles and presented in

four papers in scientific forums. The activities are part of two projects and based on the results, two geo-information products were developed.

- Regression models have been compiled to calculate biophysical parameters of crops using multispectral images from Sentinel-2a and 2b satellites and specialized UAVs. The obtained spatial distribution of the values of the studied parameters corresponds to the registered distribution obtained by the field observations. The studies are related to the implementation of one scientific project, and the results are described in four scientific publications and two geo-information products.
- Based on the selection and grouping of methods for exploring geomorphological sites and tectonic processes using satellite images, a methodology for the application of satellite and terrestrial data for ground cover research has been developed. Eight articles have been published on this study and three scientific reports have been presented. The activities have been a subject of three research projects, and the results of them form two geo-information products.
- Transfer of technologies for remote Earth observation during landscape-ecological monitoring on the territory of Bulgaria. Remote methods were applied to solve various scientific and applied problems related to ecological monitoring and geomorphological boundary determination. A classification of the most widely used equipment for remote sensing on the ground is performed and the main applications of remote sensing methods were summarized. Seven scientific papers were published, four reports were presented and a geo-database was created.

*In conclusion*, I can confirm that, the documents submitted by Assoc. Prof. Georgi Jeleв show that he corresponds to all the requirements of the normative documents for taking up the academic position “Professor” at the Space Research and Technology Institute, BAS “. ***The research interests of the applicant are an important part of the scientific activities*** of department „Remote sensing and GIS”, for whose needs the competition was announced. The participation of the candidate in different research teams carrying out projects of national and international importance, as well as his responsibility on the young scientist’s education and training, implies that he will continue to be useful by improving the known and developing of new methods of environmental research using remote sensing technologies. I, therefore, convincingly propose to the honorable members of the Scientific Jury to recommend Assoc, Prof. Dr. Georgi Jeleв to be given the academic position Professor in the professional field 4.4. "Earth Sciences", scientific specialty “Remote sensing of the earth and planets”.

On the basis of the said-above, I would like to recommend to the Scientific Council of Space Research and Technology Institute, BAS to support the election of Assoc. Prof. Georgi Nikolaev Jeleв, PhD at the academic position of a “Professor” in the department „Remote sensing and gis”.

3.04.2020

Member of the academic Jury:

Prof. Rositsa Nikolova

ВЯРНО С ОРИГИНАЛА

