STATEMENT

Competition for an academic position
"associate professor"
in Subject classification 4.5. Mathematics (Mathematical modelling and application of
mathematics in mechanics and robotics)
for the needs of Sofia University "St. Kliment Ohridski" (SU),
Faculty of Mathematics and Informatics (FMI),
announced in SG no. 21 of 15.03.2022 and on the FMI and SU websites

Author: **Assoc. Prof. Dr. Georgi Petrov Boyadzhiev**, with affiliation Institute of Mathematics and Informatics, Bulgarian Academy of Sciences, given as a member of the scientific jury for the competition for academic position "Assoc. Prof", Subject classification 4.5. Mathematics (Mathematical modelling and application of mathematics in mechanics and robotics), announced in State Gazette, no. 21 of 15.03.2022 , according to Order No. RD 38-234/11.05.2022. of the Rector of Sofia University.

Only one candidate submitted documents for participation in the announced competition: Senior Assistant Prof. Dr. **Alexander Alexiev Stefanov**, with affiliation Sofia University "St. Kliment Ohridski"

I. General description of the presented materials

1. Application details

The documents submitted by the candidate for the competition correspond to the legal requirements in Bulgaria and the Regulations for the terms and conditions for acquiring scientific degrees and occupying academic positions at SU "St. Kliment Ohridski".

Applying for the competition, the candidate Senior Assistant Professor Alexander Alexiev Stefanov presented a full list of a total of 16 titles, including 16 publications in Bulgarian and foreign scientific publications and scientific forums. One other document (in the form of official notes and certificates from an employer) supporting the applicant's achievements is also presented.

Notes and comments on the documents: **The presented documents are well structured and arranged. They give a good idea of the candidate's scientific and pedagogical abilitie**s.

2. Applicant data

Alexander Alexiev Stefanov was born on February 9, 1987. He received his higher education at the Faculty of Physics of the University of St. Kliment Ohridski". In 2016, he completed his doctoral dissertation at the same faculty. Since 2015, he has been working in the IMI of the BAS - first as a "mathematician", and then as an "assistant" on a part-time basis. At the same time, he started working at FMI. Alexander Alexiev Stefanov is married and fathering one child.

3. General characteristics of the candidate's scientific works and achievements

Alexander Alexiev Stefanov main subject is in the field of solvability of nonlinear partial differential equations (PDEs) of the type of nonlinear Schrödinger equations, modified Korteweg-de Fiese equation, etc. A basic method for constructing the entire hierarchy of integrable operators of the aforementioned types is finding the lax pairs, applying the Mikhailov dressing method, studying Katz-Moody algebras, etc.

Apart from the abstract science, Alexander Alexiev Stefanov has been working hard in recent years also in the application of science in life. One such example is the candidate's involvement in modelling two-degree-of-freedom walking robots, particularly 3D printed ones. Another example is his contribution to laser technology research, in particular the generation of Gauss-Bessel radiation by anaschilating optical vortices.

The candidate has presented a total of 12 scientific publications, and 12 papers in conference proceedings. Of these, there are 2 works in journals with Q1, 5 with Q2, 3 in Q3 and one in Q4. In journals with SJR but no quartile, the candidate has published a total of 8 articles.

Two of the publications, according to indicator B4, are in journals with Q2, two with SJR and two - referred and indexed without IF or SJR. This brings a total of 186 points to the minimum required by law of 100.

Concerning indicator G7, there are 7 published articles, and 3 in conference proceedings. Of these, 1 work is in journals with Q1, 4 with Q2, one is in Q3 and one - in Q4. In journals with SJR but no quartile, the candidate has published a total of 3 articles. This brings a total of 387 points to the minimum required by law of 200.

As for the indicator D, there are 7 citations and they carry 56 points at the minimum required by law.

Therefore, the scientific works presented by Alexander Stefanov fully meet the minimum national requirements (according to Art. 2b, paras. 2 and 3 of ZRASRB) and, accordingly, the additional requirements of SU "St. Kliment Ohridski" to occupy the academic position of "associate professor" in Subject classification 4.5. Mathematics (Mathematical modeling and application of mathematics in mechanics and robotics);.

The scientific works presented by the candidate do not repeat those from previous procedures for acquiring a scientific title and academic position.

After a careful review of the scientific publications provided to the candidate and a thorough reference to the literature, no evidence of plagiarism was found in the scientific works submitted for the competition.

4. Characteristics and assessment of the candidate's teaching activity

The candidate teaches conscientiously and comprehensibly to the quality of the students.

5. Content analysis of the candidate's scientific and scientific-applied achievements contained in the materials for participation in the competition

The candidate's scientific and applied contributions mainly consist in enriching existing knowledge, such as finding new hierarchies of integrable equations; and also in the application of scientific advances in optics and robotics.

For the habilitation thesis, the candidate has presented two papers with IF and four publications in conference proceedings, two of which are in journals with SJR.

The candidate's contribution to the collective publications is equal to his other co-authors.

6. Critical notes and recommendations

I have no critical comments on the reviewed works regarding: staging; analyzes and summaries; methodological level; accuracy and completeness of results; literary awareness.

7. Personal opinion to the candidate

I have known Alexander Stefanov for more than seven years, since he started working in the DUMF section of IMI. I am very impressed by his inquisitiveness, broad scientific knowledge, open attitude to new scientific directions and hard work. The candidate has in-depth knowledge in the field of his scientific interests and approaches scientific problems in depth, with a critical and analytical attitude both to established scientific practices and to all hypotheses presented to a given problem.

8. Application conclusion

After having familiarized myself with the materials and scientific works presented in the competition and based on the analysis of their significance and the scientific and-applied contributions contained in them, I confirm that the scientific achievements meet the requirements of legal regulations, the Regulations for its application and the relevant Regulations of SU "St. Kliment Ohridski" for the candidate to occupy the academic position of "associate professor" in the scientific field and of the competition. In particular, the candidate satisfies the minimum national requirements in the professional field and no plagiarism has been found in the scientific works submitted for the competition.

I give my positive assessment to the application.

II. GENERAL CONCLUSION

Based on the above, I recommend the scientific jury to propose to the competent authority for the selection of the Faculty of Mathematics and Informatics at SU "St. Kliment Ohridski" **to elect** senior assistant professor Dr. Alexander Aleksiev Stefanov to take the academic position of "associate professor" in Subject classification 4.5. Mathematics (Mathematical modeling and application of mathematics in mechanics and robotics)

30.06.2022   Author: ....

(assoc. prof. Georgi Boyadzhiev)