

STATEMENT

in the competition for the scientific position of “**Associate Professor**”
in Professional Direction: **4.5 Mathematics**

(**Mathematical modeling and application of mathematics in mechanics and robotics**),
for appointment at **Sofia University "St. Kliment Ohridski" (SU)**,
Faculty of Mathematics and Informatics (FMI),
announced in “**Darzhaven vestnik**” No 21 of 15.03.2022 and on the **FMI and SU websites**

This statement is prepared by: Professor Evgeniy Hristov Krastev PhD, SU (FMI), Professional Direction 4.6. "Informatics and computer sciences" (robotics and programming), in my capacity as a member of the scientific jury for the competition according to Order No. RD 38-234/11.05.2022 of the Rector of Sofia University.

A single candidate, Assistant Professor Dr Alexander Alexiev Stefanov from the SU, has submitted documents for participation in the competition.

I. General description of the presented materials

1. Application data

The documents submitted by the candidate in the competition comply with the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria (ZRASRB), the Regulations for the Implementation of the Law on the Development of the Academic Staff in the Republic of Bulgaria (PPZRASRB) and the Regulations on the Terms and Procedures for Acquiring Scientific Degrees and occupying academic positions at SU "St. Kliment Ohridski" (PURPNSZADSU).

To participate in the contest, the candidate Alexander Aleksiev Stefanov (ORCID ID:0000-0002-6614-3464, Scopus H-index; 4) submitted a list of a total of 16 titles, incl. .9. articles in renowned and specialized foreign scientific journals, 7 publications in collections of reports at scientific conferences. Documents required in connection with the requirements of Art. 107 of PURPNSZADSU.

2. Applicant data

Alexander Stefanov graduated from the Faculty of Physics of SU, where he has been awarded the educational and scientific degree "doctor" in direction 4.1 Physical sciences (Physics of atoms and molecules) for a doctoral dissertation defended in 2016 on the topic "Nonlinear dynamical systems related to infinite-dimensional algebras of Lie". He started work at SU (FMSH) in 2015 at the position of Assistant, and in 2017 he has been elected Assistant Professor. Most of the lectures and exercises taught by him during this period were in Applied Mathematics, Mathematics and Informatics, Mathematics for bachelors from the Faculty of Physics and the Faculty of biology of the SU. He also led exercises in Analytical Mechanics for bachelors at FMI as well as exercises in a Dynamics course for students from M.Sc. Degree program Mechatronics and Robotics at FMI. He participated in the organization of the 5th and 6th Olympiads in Experimental Physics.

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

The candidate himself describes the areas of his scientific interests as Differential Equations, Integrable Systems, Analytical Mechanics, Robotics, Quantum Information.

In connection with the fulfillment of the minimum national requirements under item C.4, the candidate has submitted 2 articles in renowned scientific journals (both with SJR, Q3) and 4 publications in proceedings of scientific conferences (two with SJR and the rest referenced in zbMATH) . The total number of points of A. Stefanov after applying the corrective factor in Professional direction 4.5 for this indicator is 168 points compared to the minimum of 100 points required by PPZRASRB.

Alexander Stefanov has presented 7 articles in renowned scientific journals (1xQ1, 4xQ2, 1xQ3, 1xQ4) and 3 more publications (3xSJR) in proceedings of scientific conferences in connection with indicator D.7 (Scientific publication in publications that are referenced and indexed in world-renowned databases, outside the publications under indicator C). The total number of points for this indicator after applying the corrective factor in Professional direction 4.5 for this indicator is 387 points, while the required minimum is 200 points.

- a) the scientific works satisfy and significantly exceed the minimum national requirements (according to Art. 2b, paras. 2 and 3 of ZRASRB) and, accordingly, the additional requirements of SU for occupying the academic position of "Associate Professor" in the scientific field and professional direction of the competition;
- b) there is no evidence that the scientific works presented by the candidate repeat those from previous procedures for acquiring a scientific title and;
- c) no plagiarism has been proven in the scientific works presented in the competition according to the law.

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

The candidate has the necessary professional experience to deliver lectures and conduct exercises in the field of the announced competition. He has delivered lectures on Applied Mathematics 3 (Faculty of Physics) and Informatics (Faculty of Biology), exercises for bachelors (full-time and part-time) in Analytical Mechanics (FMI), Mathematics (Faculty of Biology), Applied Mathematics 2 (Faculty of Physics) and exercises in the master's program Mechatronics and Robotics (FMI). He conducted exercises in English for foreign students from the Faculty of Physics.

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

The candidate has submitted a Summary of his scientific contributions and a printout of a List with his publications in the SU scientific activity database, named "The Authors". For the period 2011-2021, he has written 12 papers and 12 publications in proceedings of specialized scientific conferences in the subject area of the competition. Most of these publications are in the field of theoretical physics, have IF and/or SJR, and are co-authored by 4 or more authors. Alexander Stefanovi is the lead author in 3 publications in conference proceedings.

A particularly good impression make the results achieved in publications B4-C.1 and B4-C.2 in relation to the subject of this competition, where the candidate has a lead participation. There are

7 Scopus/WoS citations of his scientific works, of which 3 were registered in the last five years. The total number of points for indicator D in the minimum national requirements is 56 points after applying a corrective factor for Professional direction 4.5, while the required minimum for this indicator is 50 points. This implies good level of publication activity and quality of the scientific results achieved by the candidate.

6. Critical notes and recommendations

The Author's reference presents rather briefly the contributions and the achieved results in his publications that have to be considered as equivalent to a Habilitation thesis. I do not see a clear distinction between these contributions and the publications related to indicator D. The publications in the Author's Reference (*14-AC_научни_приноси.pdf*) and the List of Publications for participation in the competition (indicators C and D, *10b-AC_списак_с_участие_структуриран.pdf*) are numbered differently and this makes it difficult to match them in the two texts. In his professional autobiography, Alexander Stefanov failed to indicate data for participation in projects, technical knowledge and skills in the field of digital information technologies, command of foreign languages. A conclusion for the availability of such data can be drawn from the content of the other documents submitted by him for the competition. The candidate could have put more effort into shaping the content of the documents required by the competition and providing tangible evidence for the data cited in them. My recommendations to the candidate are to dedicate more time to the preparation of teaching materials and develop training courses in the field of robotics and mechanics, as well as to take active part in project activity with the application of modern information technologies.

7. Personal impressions of the candidate

I know Alexander Stefanov from the very beginning of his appointment at the Department of Mechatronics, Robotics and Mechanics of FMI (SU). He has led the practical work classes in two of my courses ("Introduction to programming" for M.Sc. degree students in FMI and "Mathematics and Informatics" for bachelors from the Faculty of Biology). I have fulfilled excellently his academic duties in each of these courses. I can confidently say that Alexander Stefano is respected by his colleagues and has all the necessary qualities to conduct scientific research work and at the same time teach FMI students on the subject of this competition.

8. Conclusion for this application

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 scientific-applied contributions contained in them, I confirm that the scientific achievements meet the requirements of ZRASRB, 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 professional direction of the competition. In particular, the candidate meets and exceeds the minimum national requirements in the professional field and no plagiarism has been found in the scientific works submitted for the competition.

Therefore, I give a **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 elections of the Faculty of Mathematics and Informatics at SU "St. Kliment Ohridski" to **elect** Dr. **Alexander Alexiev Stefanov** to occupy the **academic position** of "**Associate professor**" in the Professional direction 4.5. Mathematics (Mathematical Modeling and Application of Mathematics in Mechanics and Robotics).

July 6th, 2022 .

Statement prepared by:

Professor Evgeniy Krastev, PhD