STATEMENT
By Prof. D.Sc. Stepan Agop Tersian,
Institute of Mathematics and Informatics (IMI),
Bulgarian Academy of Sciences (BAS)
on the competition for an academic position of "Associate Professor"
in the professional direction 4.5 Mathematics,
for the needs of IMI-BAS,
announced in the State newspaper, number 30/ 13.04.2021,
online on the webpage of IMI-BAS

The Statement was prepared by Prof. D. Sc. Stepan Tersian as a member of a scientific jury in the professional direction 4.5 Mathematics, Differential Equations, according to Order № 105 / 15.06.2021 of the Director of IMI-BAS. The only candidate for participation in the competition is Dr. Borislav Tsonev Yordanov, Institute of Mathematics and Informatics, BAS.

I. General description of the materials presented
1. Data about the application

The documents submitted by the candidate comply with the requirements of ZRASRB, PPZRASRB, the Regulations on the terms and conditions for acquiring scientific degrees and for holding academic positions in the Bulgarian Academy of Sciences (PURPNSZAD-BAS) and the Regulations on the terms and conditions for acquiring scientific degrees and for holding academic positions at the Institute of Mathematics and Informatics (IMI) at BAS (PURPNSZAD-IMI-BAS).

For participation in the competition, the candidate Dr. Borislav Yordanov has presented 20 documents and 18 publications in refereed and indexed journals and papers at international conferences. The documents correctly reflect the scientific activity of the candidate.

2. Data about the applicant

According to the attached CV and documents, Dr. Borislav Tsonev Yordanov graduated with a master's degree on differential equations from the Faculty of Mathematics and Informatics at Sofia University in 1991. During 1992-2002 he was a doctoral student at the University of Wisconsin - Milwaukee, WI, USA, headed by Dr. Albert Milani. The topic of the dissertation is "Global solutions of nonlinear wave equations with dumping", recognized in Bulgaria in 2014. From 1994 to 1998 he worked at IMI-BAS, from 2002 to 2004 at the University of California-Riverside, California, USA, after 2013 until now at IMI-BAS and after 2016 until now he works at Hokkaido University, Sapporo, Japan

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

Borislav Yordanov works actively in the field of hyperbolic differential equations such as global existence and existence and asymptotic behavior of solutions, divided into three directions:

1) low-frequency approximations of the solutions of wave equations;

2) asymptotic behavior and smoothness of solutions of wave equations with nonlinear attenuation;

3) .existence of global solutions of wave equations with power nonlinearities.

According to SCOPUS (https://www.scopus.com/authid/detail.uri?authorId=6603028322) Borislav Yordanov has published 21 articles, has 772 citations, H-index 14. There are articles published in renowned journals such as Discrete and Continuous Dynamical Systems- Series A, Journal of Differential Equations, Nonlinear Analysis, Theory, Methods and Applications, Journal of Mathematical Analysis and Applications, SIAM Journal on Mathematical Analysis, Transactions of the American Mathematical Society, Journal of the Mathematical Society of Japan and others.

According to the "List_of_publications_for_the_Yordanov_Competition" all 18 articles in the competition are in international journals with impact factor, referred in Web of Science and SCOPUS, as 12 (twelve) are in quartile Q1, 3 (three) in Q2, 2 (two) in Q3 and 1 in Q4.

All 18 articles are co-authored. Among the co-authors we will mention Phan Tuoc, Grozdena Todorova, Wakasa Kyouhei, Radu Petronela, Ikehata Ryo, Davut Ugurlu, Kirova R., Georgiev, V., Rubino, B., Sampalmieri and R., Zhang Qi S.

The presented articles exceed twice and three times the minimum national metric requirements (under Art. 2b, para. 2 and 3 of ZRASRB) and the additional requirements of IMI-BAS for holding the academic position "Associate Professor" in 4.5 Mathematics.

According the "Information for fulfillment of the minimum requirements by a candidate in a competition for the academic position" Associate Professor " at IMI-BAS" under item B for a minimum of 100 points, the candidate has 200 points, under item D for a minimum of 220 points, the candidate has 660 points, under item D instead of 70 points, 144 points are indicated.

As it was noted, according to SCOPUS, the candidate has 772 citations. By "12.Quotes_for_Yordanov_contest" 198 citations are noted, without self-citations and for many of the articles the latest 15 citations are indicated. The most cited article is:

Yordanov, B.T., Zhang, Q.S.6603028322; 42162424900; Finite time blow up for critical wave equations in high dimensions (2006) Journal of Functional Analysis, 231 (2), pp. 361-374. cited 106 times, for which the 20 most recent citations are given

4. Characteristics and evaluation of the teaching activity of the candidate

According to the presented data, Dr. Yordanov was the supervisor of a master student who successfully defended his thesis. No data are given for guided courses in bachelor's and master's degrees. He participated in the organization and promotion of the ISP program (international program for science students) in Sapporo, Japan.

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

The main contributions of the candidate in the above areas 1), 2) and 3) are the receipt of new, original results in the field of properties of solutions of nonlinear wave equations.

According "8.Scientific_contributions_of_Yordanov" articles refer to the following areas as follows:

1) low-frequency approximations of the solutions of wave equations: 1a-1f;

2) asymptotic behavior and smoothness of the solutions of wave equations with nonlinear attenuation: 2a-2e;

3) non-existence of global solutions of wave equations with power nonlinearities: 3a-3d.

The problems and methods are properly described. In "9.Rezumeta_publications_Yordanov" are given summaries in Bulgarian and English of all 18 articles submitted in the competition.

Among the main results in these areas we will indicate articles as follows:

1) [1d] The balance between the effect of the spatial inhomogeneity of the potential in the dissipative term and the focusing nonlinearity is studied. Accurate results have been established for the critical degrees.
2) [2b] The problem of reducing the energy of a one-dimensional nonlinear wave equation is studied. The result of Mochizuki and Motai was improved and a polynomial rate of decrease in the range of degrees was shown.
3) [3a] It has been shown that the solutions of a critical wave equation in high dimensions cannot be global if the initial data is everywhere nonnegative and somewhere positive. This completes the solution of W. Strauss's hypothesis for a class of semilinear wave equations. This article is Yordanov is most cited .

6. Critical remarks and recommendations

I have no significant critical remarks.

7. Personal impressions about the candidate

I have no personal impressions of Dr. Borislav Yordanov.

8. Conclusion on the application

After consideration with the documents and scientific papers presented in the competition and the analysis of their significance and contributions, I confirm that the scientific achievements meet the requirements of ZRASRB, the Regulations for its implementation, and the rules IMI-BAS and BAS for borrowing. the academic position "Associate Professor" in the scientific field and direction of the competition. The candidate exceeds the minimum national requirements in the professional field. No plagiarism was found in the scientific papers submitted at the competition. My opinion for the application is **Postive**.

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II. GENERAL CONCLUSION

Under above considerations, I recommend the scientific jury to propose to the Scientific Council of the Institute of Mathematics and Informatics at the Bulgarian Academy of Sciences to choose Dr. Borislav Yordanov to take the academic position of "Associate professor" in the professional field 4.5 Mathematics, Differential equations.

Signature:
Prof. D.Sc. Stepan Tersian

July 22, 2021