OPINION

on a competition for election on the academic position

„Professor“

in professional area

4.5 Mathematics (Differential Equations, Hamiltonian systems),

for the needs of Sofia University „St. Kliment Ohridski“ (SU),

Faculty of Mathematics and Informatics (FMI),

announced in SG issue 56 from 30.06.2023 and on the web-pages of FMI and SU

The opinion is prepared by: **Prof. Stanislav Nikolaev Harizanov PhD,**
Institute of Information and Communication Technologies at BAS,
as a member of the Scientific Jury under the procedure, appointed by
Order № RD 38-519/29.08.2023 of the Rector of the Sofia University.

For participation in the competition I consider the application of the **sole candidate:**

Asc. Prof. DSc Ognyan Borisov Christov, FMI-SU

I. General description of the submitted materials

I received all the necessary documents, required by the procedure, in an electronic format.

1. Information on the Application

The application is in accordance to ADASRB, RAADASRB, and the Rules on the Conditions and Procedure for Acquiring Science Degrees and Holding Academic Positions in Sofia University “St. Kliment Ohridski” (RCPASDHAPSU).

For participation in the competition, the applicant Asc. Prof. DSc Ognyan Borisov Christov has presented a list of 9 items, including 5 articles in international scientific journals with IF, 1 conference proceeding with SJR, 3 textbooks and lecture notes. There have been presented 4 additional documents (in the form of work notifications and certificates by an employer, a project leader, prizes) in support of the applicant achievements. A list of 20 independent citations by publications indexed in Scopus has also been submitted.

Remarks and comments on the submitted materials:

Overall, the materials are well structured. All the publications, considered for the competition are individual, thus there is absolutely no doubt in the level of the candidate’s contributions. All the 5 presented articles with IF are published after his receipt of the scientific degree “Doctor of Science” in 2017 and their accumulative IF score is 13.561. Article D7.3:

- O. Christov, On the integrability of twofold 1 : 2 Hamiltonian resonance, Discrete and Continuous Dynamical Systems - Series B, Vol. 28, No. 8, August 2023, pp. 4442-4456

was published in the current year of 2023. Since the latest Clarivate rankings with the updated values for the 2022 IF scores and the journal quartiles appeared close to the application deadline, I consider it as a lack of information for the candidate at the time of document submission that the scientific journal *Discrete and Continuous Dynamical Systems - Series B* has dropped *fr*om Q2 to Q3 (category „Mathematics, Applied“). Thus, the total sum of points in group D of indicators needs to be reduced to 210. The sum remains above the required critical minimum of 200 points and the above reduction has no practical effect on the application fulfillment of all the necessary criteria with respect to ADASRB, RAADASRB, and RCPASDHAPSU.

All the presented 20 independent citations are within the period 2018-2023 (i.e., again, after the end of the DSc procedure). Citation E11.1 is incorrectly referred to publication D7.1 and it should be referred to publication C4.1, instead. This is a small technical mistake.

2. Short biographical information

DSc. Ognyan Christov was born in Lom on 27.07.1959. He has a Bulgarian nationality. Widower with 2 children. He graduated from the Faculty of Mathematics and Mechanics at Sofia University “St. Kliment Ohridski” in 1984 with a Master's Degree in Mathematics. In 1994 he received a PhD from FMI-SU. The PhD thesis is entitled “On the perturbations of two mechanical systems from the rigid body dynamics” and is under the direction of Prof. Emil Horozov. In 2017 he received a DSc in professional area 4.5 Mathematics (Differential Equations), having defended a Habilitation Thesis entitled “Algebraic, Analytic and Geometric Studies on Finite and Infinite Dimensional Hamiltonian Systems”. He worked as a programmer at CTCA – Ruse (1984-1986) and as an assistant at “Angel Kanchev” University of Ruse (1986-1989) before to be hired as an assistant at FMI-SU in 1991. In 2001 Ognyan received the academic degree „Associate Professor“ and since 2002 he has been working as such at the Department „Differential Equations“ in FMI-SU.

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

The main research interests of the candidate are within the fields of: Dynamical Systems; Integrability and Non-Integrability of Hamiltonian Systems; Mathematical Physics. He presented a full list of scientific publications, consisting of 40 items, as well as a list of 54 independent citations, generated after his receipt of the DSc. Degree. According to WoS/Scopus, his h-index is 4/5, respectively. The applicant participated in 4 projects, funded by the Bulgarian National Science Fund (BNSF), having coordinated 3 of them. One of the projects, he coordinated MM 523/95 received a second award by the Ministry of Science and Education within the framework of the 5-th BNSF call. Having in mind all the above, together with the submitted application, I concur that

a) the scientific publications are **in accordance** with the National criteria (i.e., 2-nd and 3-rd subparagraphs of Article 2b of ADASRB), respectively with the additional requirements of SU "St. Kliment Ohridski" for receiving the academic position „Professor" in the scientific specialty and professional area of the current procedure;

b) the presented scientific publications **do not coincide** with publications from previous completed procedures by the candidate for receiving a scientific degree or an academic position;

c) **no** plagiarism has been proved/observed in a legal way within the presented scientific publications for the current procedure.

4. Characterization and evaluation of the applicant's teaching activities

Asc. Prof. Ognyan Christov teaches actively. According to the presented official receipt by FMI-SU his averaged auditory engagement for the last 5 years is 312 hours, which surpasses the required minimal teaching workload of 270 academic hours (according to the 2-nd subparagraph of Article 86 of RCPASDHAPSU). He reads BSc lectures on Differential and Integration Computing, Ordinary and Partial Differential Equations. Moreover, he reads the Special Courses on „Hamiltonian Systems", „Dynamical Systems", „Algebraic Groups and Differential Galois Theory", „Matrix Groups". Ognyan has published 3 textbooks/scripts. Under his direction, there is 1 successful PhD defense (jointly with Prof. Emil Horozov) and 12 successful MSc defences.

5. Detailed analysis of the applicant's scientific and applied scientific achievements, contained in the submitted application for the current procedure

The scientific achievements are related to the detailed study on the integrability of Hamiltonian systems and in particular of: Klein-Gordon lattices; the Hamiltonian normal form of 1 : 2 : 2 resonance; a particular case of 1 : 2 : 1 : 2 Hamiltonian normal form, truncated to order 3; a three-dimensional generalized Henon-Heiles system. Novel conditions for integrability and near-integrability were derived. New hypotheses have been formulated and some known results have been generalized.

6. Critical remarks and suggestions

There are no essential critical remarks. In the candidate's receipt regarding the fulfillment of the minimal national criteria with respect to Article 2b of ADASRB, the proof material for the group of indicators E (Appendix 3) could have been sorted with respect to the referenced publications, which would have facilitated the examination of the content.

7. Personal impressions

I have known Asc. Prof. Ognyan Christov since 2003. I have excellent impressions from the candidate both as a lecturer and as a colleague.

8. Conclusion on the application

After I got acquainted with the presented materials and scientific publications for the competition and based on the conducted analysis on their scientific impact and the scientific and applied scientific contributions they contain, I **do confirm** that his scientific achievements are in accordance to the requirements of ADASRB, RAADASRB, and RCPASDHAPSU for receiving the academic position „Professor" in scientific specialty "Differential Equations (Hamiltonian systems)" and professional area 4.5 Mathematics. In particular the candidate **fulfills** the minimal national criteria in professional area 4.5. Mathematics and no plagiarism in the presented publications has been documented.

I give a **positive** evaluation for the application.

II. GENERAL CONCLUSION

Given the above, I wish to **propose** to the Scientific Jury to make a recommendation to the Academic Council of the Faculty of Mathematics and Informatics at the Sofia University "St. Kliment Ohridski", **Asc. Prof. DSc Ognyan Borisov Christov** to be elected for the academic position "Professor" in professional area 4.5 Mathematics, scientific specialty "Differential Equations (Hamiltonian systems)".

27.10. 2023 Member of the scientific jury: .....

(Prof. Stanislav Harizanov, PhD)