

OPINION

on a competition for occupying an academic position

"Associate Professor"

in professional direction 4.5 Mathematics (Ordinary differential equations, Hamiltonian systems and applications) for the needs of Sofia University "St. Kliment Ohridski" (SU),

Faculty of Mathematics and Informatics (FMI),

announced in SG No. 56. from 30.06.2023 and on the websites of FMI and SU

The opinion is prepared by: Prof. Ph.D. Nikola Petkov Ziapkov, Shumen University "Ep. Konstantin Preslavsky".

In my capacity as a member of the scientific jury in **the professional direction 4.5 Mathematics (Ordinary differential equations, Hamiltonian systems and applications)** in competition according to No. RD 38-514/29.08.2023 of the Rector of Sofia University.

There are submitted documents to participate in the announced competition

Chef Assistant Professor Ph.D. Svetlin Georgiev Georgiev, FMI of SU

I. General description of the presented materials

1. Application data

The documents submitted by the candidate in the competition correspond to the requirements of the Law on the development of the academic staff in the Republic of Bulgaria, Regulations for the implementation of the law on the development of the academic staff in the Republic of Bulgaria and the Regulations for the terms and conditions for acquiring scientific degrees and occupying academic positions at SU "St. Kliment Ohridski". To participate in the competition, the candidate Chef Assistant Professor Ph.D. Svetlin Georgiev Georgiev has presented 9 scientific publications, all in foreign publications, of which 8 are monographs and 1 study with IF. The original full editions are attached to the studies and the monograph under indicator B3.

Also featured are 16 number of other documents (in the form of official notes and certificates from the employer, references and testimonials, awards and other relevant evidence) supporting the applicant's achievements.

2. Candidate data

Svetlin Georgiev Georgiev is born in Ruse. He is graduated from the FMI of the University of Veliko Tarnovo in 1997, majoring in "Mathematics and Informatics". He has been a doctoral student at the University of Veliko Tarnovo from 1998 to 2001, where he successfully defended his thesis on "Periodic solutions of non-autonomous systems of the Lotka-Volterra type" for the Educational and Scientific Degree Ph.D. in 2002. He has been an assistant at the University of Veliko Tarnovo in 2001 and 2002, and he has been an assistant and chief assistant at the FMI of Sofia University since 2002.

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

The candidate is presented the monograph Atlantis Press and the author(s) 2016, S.G. Georgiev, Integral Equations on Time Scales (402p.), Atlantis Studies in Dynamical Systems, DOI 10.2991/978-94-6239-228-1 and the article T. Xiang and S. Georgiev. Noncompact-type Krasnoselskii fixed point theorems and their applications. MMAS, Vol. 39, Issue 4, 2016, pp. 833-863 published with quartile Q1 in indicator group B. The number of points is 175 in this group.

The candidate is presented 8 books that are referenced and indexed in world-renowned databases with scientific information (Web of Science and Scopus), outside of the habilitation work - in indicators group Γ . The number of points is 240 in this group.

There are presented 8 citations in scientific publications, indexed in world-famous databases with scientific information (Web of Science and Scopus) in indicator group Δ . Here the number of points is 64.

The total number of candidate's points is 529 with a minimum requirement of 430 by area 4. Natural sciences, mathematics and informatics, 4.5. Mathematics. Ph.D. Svetlin Georgiev is presented complete evidence for all criteria. Therefore, Chief Assis. Prof. Ph.D. S. Georgiev meets the minimum requirements in Law on the development of the academic staff in the Republic of Bulgaria, Regulations for the implementation of the law on the development of the academic staff in the Republic of Bulgaria and the Regulations for the terms and conditions for acquiring scientific degrees and occupying academic positions at SU "St. Kliment Ohridski" for occupying the academic position of "Associate Professor" in direction 4.5. Mathematics.

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

Teaching activity of Svetlin Georgiev is:

Required courses, FMI, SU:

1. "Differential equations and applications", spec. "Informatics"
2. "Equations of mathematical physics", spec. "Applied mathematics"
3. "Partial differential equations", spec. "Mathematics"
4. "Mathematics and informatics", spec. "Biology"
5. "Mathematical analysis of functions of several variables", spec. "Engineering physics"

Elective courses, FMI, SU:

1. "Wave Images"
2. "Integral equations"
3. "Tensor Calculus"
4. "Clifford's Analysis of Differential Equations"
5. "Theory of Semigroups and Applications"
6. "Introduction to Discrete Dynamical Systems and Chaos Theory"
7. "Dynamic Computing on Time Scales"

There are textbooks, monographs or books written and published by foreign publishing houses for a large part of the elective courses.

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

In the article T. Xiang and S. Georgiev. Noncompact-type Krasnoselskii fixed point theorems and their applications. *MMAS*, Vol. 39, Issue 4, 2016, pp. 833-863, published in quartile Q1, the obtained results generalize, cover and complement previously known Krasnoselki-type theorems. Using the resulting fixed point theorems, the existence of solutions to a class of transport equations, the existence of global solutions to first-quadrant Darboux problems, the existence and/or uniqueness of periodic solutions to a class of differential equations, and the existence and/or uniqueness of the solutions of a class of Volterra-type integral equations with perturbations.

Another important achievement of the candidate is the monograph Svetlin Georgiev. *Fractional Dynamic Calculus and Fractional Dynamic Equations on Time Scales*, Springer, 2018. There are some of the essential results are: a study of the Cauchy problem for fractional Riemann-Liouville delta equations. A theorem on the existence and uniqueness of the problem under consideration, as well as a theorem on the continuous dependence of the solutions on the initial conditions, have been proved. In Chapter 6, constant fractional Riemann-Liouville dynamical equations are studied. In Chapter 7, the fractional Caputo derivative is introduced. In Chapter 8, a theorem on the existence and uniqueness of the solutions of the Cauchy problem

for fractional Caputo dynamic equations is proved. Springer lists 12 citations (not including self-citations) of this monograph in IF articles.

6. Critical notes and recommendations

I have no critical remarks towards Ph.D. Georgiev. My recommendation is not to slow down the pace of work in scientific and educational activities.

7. Personal impressions of the candidate

I don't have any because I didn't know him until now.

8. Conclusion on the candidacy

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 Law on the development of the academic staff in the Republic of Bulgaria, 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 satisfies the minimum national requirements in the professional direction 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

In view of the above, **I recommend** the scientific jury to propose to the competent authority for the selection of the **Faculty of Mathematics and Informatics at the SU "St. Kliment Ohridski"** to elect Chef Assistant Professor **Ph.D. Svetlin Georgiev Georgiev**, FMI of SU "St. Kliment Ohridski" to take the academic position of "Associate Professor" in professional direction **4.5 Mathematics (Ordinary differential equations, Hamiltonian systems and applications)**.

Oct 10th 2023

Prepared the opinion:

(Prof. Ph.D. Nikola Ziapkov)