

REVIEW

By Prof. Dr. Petko Dimitrov Proinov

in a competition for the academic position “Professor”

at Plovdiv University “Paisii Hilendarski”

announced in Newspaper of State, no. 94 of 12.11.2021

*in the field of higher education 4. Natural sciences, mathematics and informatics,
in the professional field 4.5. Mathematics (Mathematical Analysis)*

By order № PD-298/10.02.2022 of the Rector of the University of Plovdiv Paisii Hilendarski I was appointed as a member of the Scientific Jury in the area of higher education 4. Natural sciences, mathematics and informatics, in the professional field 4.5. Mathematics (Mathematical analysis).

Assoc. Prof. Dr. Hristo Stefanov Kiskinov from the Department of Mathematical Analysis at the FMI of University of Plovdiv Paisii Hilendarski has submitted documents for participation in the announced competition for the academic position “Professor”.

As a member of the scientific jury I have received all the documents attached to the application of Assoc. Prof. Dr. Hristo Kiskinov to the Rector of PU "P. Hilendarski "for admission to the competition.

The candidate Assoc. Prof. Dr. Hristo Kiskinov fully meets the conditions of Art. 29 of the Law on the Development of the Academic Staff in the Republic of Bulgaria (ZRASRB) for holding the academic position of “Professor”, namely:

1. Since 2012 he has obtained the educational and scientific degree “Doctor”.
2. Since 2014 he has held the academic position of “Professor” at the University of Plovdiv Paisii Hilendarski.
3. He has presented for participation in the competition 24 scientific publications [1]-[24] and 1 university textbook [25]. The scientific papers have been published in specialized scientific journals and do not repeat the ones presented for obtaining the educational and scientific degree "Doctor" and for holding the academic positions “Professor”. 9 of the presented publications [1]-[9] are equivalent to a monograph.
4. The presented documents fully meet the minimum requirements of the Regulations for the implementation of the ZRASRB (PRZRASRB) for the academic position of “Professor” in the professional field of 4.5 Mathematics, which can be seen from the following table:

Group of indicators	Presented documents by Assoc. Prof. Dr. Hristo Kiskinov	Number of points of PRZRASRB	Points of Dr. Kiskinov
A	Dissertation for ONS “Doctor”	50	50
B	Habilitation thesis - scientific publications (9 publications presented)	100	303
Г	Scientific publications (Presented 15 publications)	200	684
Д	Citations	100	528
E	Guide to 1 successfully defended PhD student, participation in 2 national projects, published 1 university textbook	100	110

5. The presented documents Fully satisfies the additional requirements of the Faculty of Mathematics and Informatics at the University of Plovdiv Paisii Hilendarski (FMI of PU) for holding the academic position of “Professor” in the professional field 4.5 Mathematics, which can be seen from the following table:

FMI requirements	Presented documents by Assoc. Prof. Dr. Hristo Kiskinov
At least 20 publications not presented in previous procedures	24 publications have been presented [1-24]
At least 1 textbook	1 textbook is presented [25]
At least 12 publications in scientific journals	17 publications in scientific journals have been presented [1]-[6], [8], [10], [12]-[15], [17], [19], [20], [23], [24]
At least 8 publications in journals with impact factor	11 publications with impact factor are presented: [1], [2], [3], [6], [10], [13], [14], [17], [19], [20], [24]
At least 20 citations	131 citations are presented
At least 1 defended a PhD student at FMI on PU	Supervisor of 1 defended PhD student in FMI at PU

6. In the presented scientific works of the candidate I do not find plagiarism in the sense of ZRASRB.

Next I will look in more detail at the candidate's scientific and pedagogical activities.

Scientific publications. Assoc. Prof. Dr. Hristo Kiskinov is the author of 55 scientific papers, 16 of which have been published in journals with impact factor. The total impact factor of scientific publications is 17.890.

In the competition he presented 24 scientific publications and 1 university textbook. All presented publications are published in renowned scientific journals, each of which is indexed in at least one of the world's databases Web of Science, Scopus, Mathematical Reviews, Zentralblatt Math. Of the presented publications, 11 are in journals with impact factor. Publications with impact factor have been published in the following 10 well-known scientific journals:

- C. R. Acad. Bulg. Sci. (Q4) – 1 paper [1];
- Biotechnology & Biotechnological Equipment (Q4) – 1 paper [2]
- Fixed Point Theory (Q3) – 1 paper [3];
- Filomat (Q2) – 1 paper [6];
- Fractional Calculus and Applied Analysis (Q1) – 1 paper [10].
- Eur. Phys. J. Special Topics (Q2) – 1 paper [13];
- Integral Transforms and Special Functions (Q2) – 1 paper [14];
- Dynamic Systems and Applications (Q4) – 1 paper [17].
- Mathematics (Q1) – 2 papers [19, 20]
- Fractal Fractional (Q1) – 1 paper [24]

Citations. The scientific activity of Assoc. Prof. Dr. Hristo Kiskinov is well known to the specialists in mathematical analysis, differential equations and modeling. For the competition he presented 131 citations, which form 528 points in group E of the minimum national requirements for acquiring the academic position of “Professor”, that is more than

5 times the national requirements. It is worth noting here that over 40 of the cited presentations are from foreign mathematicians.

Scientific contributions. The scientific activity of Assoc. Prof. Dr. Hristo Kiskinov is well known to the specialists in mathematical analysis, differential equations and modeling. For the competition he presented 131 citations, which form 528 points in group E of the minimum national requirements for acquiring the academic position of “Professor”, that is more than 5 times the national requirements. It is worth noting here that over 40 of the cited presentations are from foreign mathematicians:

- A new model of the Monod type for bioreactor is presented, which combines and develops the positive results of some previous models, considered by many previous authors. Cauchy's problem is formulated and it is proved that it has only a globally absolutely continuous solution under non-negative initial conditions [1].

- A generalization of the classic Monod model of a bioreactor has been obtained, taking into account the effects of delayed and instantaneous mortality in bacterial populations. The existence of a single globally absolutely continuous solution of the Cauchy problem for the proposed model has been proven [2].

- A new fixed point theorem of nonlinear operators in uniform spaces (Hausdorff, sequentially complete) is obtained, whose uniform structure is generated by a saturated family of pseudometrics [3]

- Explicit sufficient conditions for the existence and uniqueness of the initial problem for a neutral linear fractional differential system with distributed delays in the cases of fractional derivatives of Riemann-Liouville and Caputo, with rationally incommensurable differentiation series have been found [6]

- Autonomous linear systems with distributed delays and fractional derivatives of a distributed order with respect to a given non-negative density function, based on single fractional derivatives of the Caputo type, have been studied. For the initial task of this type of systems, results for the existence, uniqueness and a priori error estimate evaluation for the solution have been proved [10]

- An in-depth comparative analysis has been made between the possible types of initial conditions for fractional differential systems with distributed delays and rationally incommensurable differentiation series [13].

- For a fractional linear system with distributed delay and derivatives in the Caputo sense with rationally incommensurable differentiation series, the problem of the existence and uniqueness of the initial problem for locally bounded and Lebesgue-measurable initial functions has been studied [17].

- Sufficient conditions are obtained for the existence and uniqueness of the solution of the Cauchy problem for an inhomogeneous neutral linear fractional differential system with distributed delays and derivatives of the Caputo type, in the case of initial functions with first-order interrupts [24].

PhD students. Assoc. Prof. Dr. Hristo Kiskinov was the research supervisor of a successfully defended doctoral student:

- Dr. Magdalena Assenova Veselinova (FMI at PU "P. Hilendarski") successfully defended her dissertation for ONS "Octor" on 02/17/2017.

Textbooks. Assoc. Prof. Dr. Hristo Kiskinov is the author or co-author of 3 textbooks. He presented in the competition the following university textbook [25]: Hristo Kiskinov, Introduction to Discrete Mathematics, Plovdiv University Press, 2022. This textbook is written with enviable mastery and is a wonderful introduction to discrete mathematics. The textbook contains mainly those sections of discrete mathematics that are most closely related to the mathematical theory of computer science. The textbook is written in clear,

understandable and accessible language. Lectures on it can be held at different levels according to the specialty of the students.

Conclusion. The scientific and educational work of Assoc. Prof. Dr. Hristo Kiskinov is at an extremely high level. Based on the above, I believe that Assoc. Prof. Dr. Hristo Kiskinov fully meets all the requirements of ZRASRB, the Regulations for the implementation of the ZRASRB and the additional requirements of the FMI of University of Plovdiv Paisii Hilendarski to hold the academic position of “Professor”.

My opinion on holding an academic position “Professor” by Assoc. Prof. Hristo Kiskinov is strictly POSITIVE.

I propose that the Scientific Jury unanimously propose to the esteemed Faculty Council of FMI at Paisii Hilendarski University of Plovdiv to elect Assoc. Prof. Dr. Hristo Stefanov Kiskinov for the academic position of “Professor” in the higher education 4. *Natural Sciences, Mathematics and Informatics*, professional field: 4.5. *Mathematics (Mathematical Analysis)*.

March 31, 2022

Signature:

/ Prof. Dr. Petko Proinov /