

REPORT

**by Prof. D. Sc. Stepan Agop Tersian,
Section Analysis, Geometry and Topology,
Institute of Mathematics and Informatics,
Bulgarian Academy of Sciences,
G. Bonchev Str. 8, 1113 Sofia,
e-mail: sterzian@uni-ruse.bg**

**at the competition for the occupation of the academic position of “Professor” in
in higher education direction 4 Natural sciences, mathematics and informatics, professional
field 4.5. Mathematics, specialty Mathematical Analysis (Special Functions) for the needs of
the Institute of Mathematics and Informatics, Bulgarian Academy of Sciences,
Section “Analysis, geometry and topology”, announced in
SG No. 52 / 02.07.2019**

I present my opinion on the competition for the selection of academic position Professor for the needs of the Institute of Mathematics and Informatics (IMI), Bulgarian Academy of Sciences (BAS), Section “Analysis, Geometry and Topology” in 4. Natural Sciences, Mathematics and computer science, professional field 4.5 Mathematics, scientific specialty Mathematical Analysis (Special Functions). The Academic board of the competition is determined in accordance with the Order 321 / 02.09.2019 of the Director of IMI. According to the Protocol 1 of the Academic board of September 16, 2019, I have been selected as an author of the report on the competition.

The only candidate for the competition is Assoc. prof. D. Sc. Jordanka Dobreva Paneva-Konovska. It was presented with a set of documents, which is in accordance with the Rules for the Development of the Academic Staff in the Republic of Bulgaria (CIPRASRB) of IMI and includes 69 materials and documents, arranged in 20 sections in Appendix 1.1 “List of enclosed documents” for competition for academic position “Professor”, including:

1. Application to the Director of IMI-BAS for admission to the competition.
2. CV in European form.
3. Higher education diploma.
4. Graduate Diploma in PhD Education.
5. Doctorate of Science Degree.
6. Common list of publications.
 - 6.1. List of publications for the period 2009-2019.
7. List of scientific publications submitted for participation in the competition.

8. A self-signed report to the original scientific contributions to the works for participation in the competition.
9. Abstracts of the publications for participation in the competition in Bulgarian and English language.
10. Copies of the works under item 7.
- 10.1. Copies of the works under items 16.1 and 16.2.
11. Common citation list.
12. List of citations for participation in the competition.
15. Certificate of academic position "Associate Professor".

1. General information on the applicant

According to the presented CV, Jordanka Paneva-Konovska graduated from the Higher Pedagogical Institute - Shumen, Faculty of Natural Sciences, 1973. She was a PhD doctoral student at the Complex Analysis Section, IMI-BAS during 1977-1977. She defended her doctoral thesis "Basicity and completeness of enumerated systems of Bessel functions and polynomials" in 1999 and a thesis "Functions of Bessel and Mittag-Leffler and Summaries for D.Sc. in 2018.

Since 2008 she is Associate Professor at the Technical University (TU) - Sofia, Faculty of Applied Mathematics and Informatics (FPMI); since 2014 she was Associate Professor at Section "Analysis, Geometry and Topology", IMI. She has lectured and practiced TU on: Mathematical Analysis first and second part, Complex Analysis, Functional Analysis (Master's Degree Training), Selected Topics in Higher Mathematics (Field Theory and Integral Transformations). These facts show the diverse teaching activities of Assoc. Prof. Paneva-Konovska. A list of 11 participations in organizational committees at scientific forums (Annex 16.5), 30 participation in scientific forums (Annex 16.6), 12 scientific contracts (Annex 16.7) are provided.

2. General description of the materials presented

A List of Scientific Publications (Appendix 07) was presented with 1 monograph [1] and 25 articles, of which 3 in the journals with Impact Factor (IF) (1-Q1, 1-Q3, 1-Q4, sum IF = 3,937) and 10 in the issues with SJR (Sum SJR = 1,646). I accept to review the articles with numbers [2] - [26] and the monograph [1]. According to the "LIST OF REFERENCES" (Appendix 12), a list of 69 citations in international journals has been presented, referred and indexed in Web of Science (WoS), Scopus, Zentralblatt (Zbl) on 13 articles. According to the Rules of the ZRASRB, Am. and ext. DV. issue 15 of 19. 02. 2019, 59 citations, described in Annex 17, carry 342 points for the candidate and the minimum requirements for the academic position of "Professor" in IMI are satisfied. A complete citations list for the period 1994-2018. is given in Annex 11. It has 23 publications in 148 sources, 120 of which are international or abroad

3. General characteristics of the applicant's scientific, teaching and applications activities.

26 scientific publications (Appendix 7), 2 textbooks and 2 teaching materials (Appendix 16.2) were submitted for participation in the competition. The research activity of Assoc. Dr. Jordanka Paneva-Konovska is in the fields of the special functions, integral transformations, fractional calculus. They can be classified in the following sections:

1. Inequalities, asymptotic formulas and 3D images;
2. Series convergence;
3. Multi-index (3m-index) functions of Mittag-Leffler;
4. Integrals and derivatives of arbitrary order;
5. Integral transformations in mathematics education in universities;
6. Integral transformations.

In Section 1 are the publications [1-6] and [10]. They refer to different types of Bessel type functions (1-4 indexes) and Mittag-Leffler type (1-3 indexes).

In Section 2 are the publications [1-5], [7], [14-21] [23]. The convergence areas of the series of Bessel and Mittag-Leffler functions is investigated. Tauberian and Littlewood type theorems for Bessel type series are considered.

In Section 3 is the publication [11] which discusses the 3m-index functions of Mittag-Leffler. They are an extension of the 2m-index functions and their properties have been studied.

In Section 4 are the publications [11], [24] and [25]. Special cases of fractional derivatives and Riemann-Liouville integrals of Bessel-Maitland functions are considered in [25]. Interesting relations are proved.

In Section 5 is the publication [22]. The Laplace transformation and its use in the learning process are considered. The use of the Maple system for solving classes of integral equations of any order are considered as well.

In Section 6 is the monograph [1]. It considers the asymptotic behavior of the zeros of a class of integer exponential functions given by finite Hankel transforms.

Two textbooks and two teaching materials for the students from TU-Sofia were presented as well. They are very well organized and include applications of the Computer algebra system Maple for the problems solving and computational experiments.

4. Reflection of the candidate's results in the works of other authors.

Numerals - quotes

According to the Scopus information system for Jordanka Paneva-Konovska, IMI-BAS (Author ID: 25923588300) has 25 referred articles with 158 citations in 78 documents. She has H-index 8.

The most cited is the monograph:

J. Paneva-Konovska, From Bessel to Multi-Index Mittag-Leffler Functions: Enumerable Families, Series in Them and Convergence, World Scientific Publishing, 2016, London; ISBN-13: 978-1786340887; ISBN-10: 1786340887

with 28 citations.

According to Web of Science Assoc. Prof. Paneva-Konovska has 24 referred articles, the H-index 7, 111 citations in 60 articles, 46 of which without self citations. The most cited is the article

Paneva-Konovska J .. Convergence of series in three parametric Mittag-Leffler functions. *Mathematica Slovaca*, 64, 1, de Gruyter, 2014, ISSN: 0139 - 9918, DOI: 10.2478 / s12175-013-0188-0, 73-84. ISI IF: 0.409

with 20 citations.

Of the 26 publications submitted, 25 are single authored and 1 is co-authored. I suppose. that in the joint paper, the authors' contribution is equal.

Jordanka Paneva-Konovska satisfies all the indicators for the academic position of “Professor” according to the ZRASRB, ext. DV. 15 of 19.02.2019, as follows:

Group of Indicators	Contents	Minimal points for a.d.Professor	Points
A	Indicator 1	50	50
B	Indicator 2	-	-
C	Indicator 3 or 4	100	104
D	Sum of indicators from 5 to 10	220	314
E	Indicator 11	140	342
F	Sum of indicators from 12 to the end	150	321

5. Critical notes and recommendations

I have no critical comments on the submitted materials and documents for the competition. They are well-arranged and presented.

6. The reviewer's personal impressions of the applicant

I knew Jordanka Paneva-Konovska from presenting and participating in seminars and conference organizing committees. My personal impressions are very good.

Conclusion

From the analysis of the submitted materials in the competition, I present to the Board the following conclusion and suggestion:

The presented materials and articles are original and with lack of plagiarism.

I have a positive opinion on the competition for the academic degree Professor.

The candidate has research and pedagogical activity, which is in the scientific specialty of the announced competition “Mathematical Analysis (Special Functions)”. I strongly recommend to the Academic board to propose to the Scientific Council of IMI-BAS to award to Assoc. prof. Jordanka Paneva-Konovska the academic degree Professor in the professional field 4.5. Mathematics.

Reviewer:

Prof. D.Sc. Stepan Tersian

03. 10. 2019