STATEMENT

On a competition for the academic position "Full Professor"

In direction 4.5 Mathematics (sci. area of Operations Research)

Faculty of Mathematics and Informatics (FMI), Sofia University St. Kl. Ohridski (SU)

announced in State Newspaper number 21/13.03.2020

The present statement was prepared by Prof. D.Sci. Ognyan Kounchev, in his capacity of a member of the scientific jury of the competition, in accordance with Order № 38-265 / 10.07.2020, by the Rector of Sofia University. The only applicant who submitted documents is Assoc. Professor Nadia Peycheva Zlateva, FMI-SU.

1. Details of application

The documents submitted by the competition by the applicant comply with the requirements of ZRASRB, PPZRASRB and the Regulations on the terms and conditions for acquiring scientific degrees and holding academic positions at Sofia University "St. Kliment Ohridski" (PURPNSZADSU).

To participate in the competition, the candidate has submitted a list of a total of 8 titles, of which 6 have been published and 2 have been accepted in scientific journals. All are referenced in the Web of Science and have impact factor IF, and also in Scopus (with impact rank SJR), and in the Mathematical Reviews database (MathSciNet), and have not been used in the author's previous procedures for the degree of Ph.D., the title of associate professor and scientific degree of D.Sci. The papers are available on the website: https://fmi.uni-sofia.bg/bg/node/6058

Evidence for participation in one national and two international (with EC) research projects is presented as follows:

Nonlinear analysis: variation methods and optimization (2018-2021), contract with NSF of Bulgaria, leading organization IMI-BAS;

Subdifferential Calculus, Marie Curie fellowship, contract HPMF-CT-2001-01345, V FP of EC (2001-2003), http://cordis.europa.eu/project/rcn/62173_en EC contract with the University of Montpellier II;

Evolution equations for deterministic and stochastic systems (2002-2006), Project ID: HPRN-CT-2002-00281, Funded under: FP5-HUMAN POTENTIAL (https://cordis.europa.eu/project/rcn/64797_en.html); a letter is provided by the project coordinator at the University of Brest about NZ participation.

2. Details about the applicant

The following are more significant positions in the candidate's career in descending order: Assoc. Prof. NZ has worked since 2005 and until now at FMI-SU, as an associate professor in the Department of Probability, Operations Research and Statistics (PORS), lecturer in linear optimization, nonlinear optimization and operations research; Head of the PORS Department from March 2008 to March 2012, and as acting from October 2017 to October 2018; Deputy Dean of FMI for Research and Design and Doctoral Studies (2011-2017); Chief Assistant and Assistant at the PORS Department (2000-2006); as a mathematician, research associate III degree and research associate I degree at the Institute of Mathematics and Informatics, BAS (1997-2006).

NZ received the degree of Doctor of Science in the field of 4.5 Mathematics (Operations Research) in 2018 from Sofia University.

The following are the degrees and specializations in descending order:

2004-2005: Université de Bretagne Occidentale, Brest, France, in the framework of the Evolutionary Equations research network under the 6th EU Framework Program,

2002–2003: Université Montpellier II, Montpellier, France, specialization with Marie Curie Scholarship.

1999: Educational and scientific degree "Doctor" (Ph.D.) in scientific specialty 01.01.11 Operations Research by the Higher Attestation Commission (June 28, 1999) after a regular doctorate at the FMI at Sofia University.

1993: Master of Mathematics from Sofia University "St. Kliment Ohridski.

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

For participation in the competition Assoc. Prof. Zlateva has presented 8 articles in peer-reviewed scientific journals, of which 6 have been published and 2 have been accepted for publication. All articles are in journals referenced by Web of Science (with impact factor IF), Scopus (with impact rank SJR) and MathSciNet and have not been used in the author's previous procedures for ONS doctor, for the title of associate professor and for the degree Doctor of Science. The articles from the list are available in full text at https://fmi.uni-sofia.bg/bg/node/6058

The research activity of the candidate and specifically the subject of the presented scientific papers are in the field of the competition. There is no legally proven plagiarism in the submitted scientific publications.

The formal indicators for the candidacy for "professor" are satisfied as follows:

Indicator A: ONS "Doctor" - 50 points; Indicator B4: 135 points; Indicator G7: 273 points; Indicator E: 240 points; Indicator E12: 75 points; Indicator E14: 10 points; Indicator E15: 125 points.

From the above it can be concluded that Assoc. Prof. Nadia Zlateva significantly exceeds the minimum national requirements (under Art. 2b, section 2 and 3 of ZRASRB), as well as the additional requirements of Sofia University to hold the academic position "Full professor" in a professional field. 4.5 Mathematics (the scientific field of Operations Research).

Formal statistics show that Assoc. Prof. Zlateva has 29 articles in peer-reviewed scientific journals, with over 270 citations and h-index 7 (in World of Science and Scopus).

4. Evaluation of educational and pedagogical activity of the applicant

Since her appointment in 2000, Assoc. Prof. Zlateva has had a full class workload, having lectured on Linear Optimization and Nonlinear Optimization, which are mandatory for a number of specialties at FMI. These lectures are maintained in a modern online environment: lecture notes are constantly updated in the electronic environment **moodle** of the FMI.

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

The articles submitted for the competition are grouped in the following three areas:

1. Use of perturbation spaces to minimize integral functionals [b2, b3];

2. Surjectivity of images in Frechet spaces [b5, b6];

3. New proofs of known results in the field of Variation Analysis [b1, b4, b7, b8].

In direction 1, the main problem solved in the articles [b2, b3] is the study of the problem of minimizing an infinite-dimensional integral functional with convex and general subintegral function. The big challenge is to find a suitable interference of the integrant, which preserves the appearance of the task, and for this purpose a new variational principle has been developed. In direction 2, surjectivity for multivalued images in Frechet spaces is proved in [b5], and the proof is simplified in [b6]. In direction 3, a simplified proof of Moreau-Rockafellar's theorem in [b1] is provided; new proof of the maximum monotonicity of the convex subdifferential in [b4]; new proof of H. Frankowska's result for metric regularity of an multivalued map; a new method for proving the Cor-rea-Jofré-Thibault theorem in [b8].

The significance of the obtained results is also proved by the fact that they have been published in renowned journals, such as Trans. Of AMS, Proc. of AMS, JOTA, J. of convex Analysis. The equal participation of NZ in these publications is not in doubt.

6. Critical remarks and recommendations

I have no critical remarks or recommendations on the materials of the competition.

7. Personal impressions of the candidate

I have known the candidate Nadia Zlateva since the time she started working at IMI-BAS, about year 2001. I have always been impressed by how she combines professionalism in mathematics with successful teaching, as well as her ability to communicate easily with colleagues.

8. Conclusion on the application

After getting acquainted in detail with the materials and scientific papers presented in the competition, based on the analysis set out above, I confirm that the scientific achievements meet the requirements of ZRASRB, the Rules for its application and the relevant Rules of Sofia University "St. Kliment Ohridski" for the candidate for the academic position "Full Professor" in the scientific field and professional direction of the competition. The candidate satisfies the minimum national requirements in the professional field and has no plagiarism in the scientific papers submitted at the competition.

I give my **positive** evaluation of the candidacy.

In particular, the candidate satisfies the minimum national requirements in the professional field and no plagiarism has been established in the scientific papers submitted at the competition.

OVERALL CONCLUSION

Based on the above, **I recommend** the scientific jury to propose to the competent body for the selection of the Faculty of Mathematics and Informatics at Sofia University "St. Kliment Ohridski" **to elect** Nadia Peycheva Zlateva to take the academic position of "Full Professor" in the professional field 4.5 Mathematics (Operation Research).

7.9.2020, Sofia   Prof. D. Sci. Ognyan Kounchev