

OPINION

by Prof. Dimcho Kostov Stankov, PhD

Concerning: Materials submitted for participation in a competition for the academic position "Professor" at Bishop Konstantin Preslavsky University of Shumen
in Higher Education Area: 4. Natural sciences, mathematics and informatics
Professional Field: 4.5 Mathematics (Computational Mathematics)

1. General presentation

Only one candidate, Assoc. Prof. Vejdi Ismailov Hasanov, PhD from the Department of Economics and Mathematical Modeling at the Faculty of Mathematics and Informatics of the Bishop Konstantin Preslavsky University of Shumen (Shumen University), has submitted documents for participation in the announced competition. The documents presented by him are in accordance with the Rules for the development of the academic staff of Shumen University.

In order to participate in the competition, the applicant offered two textbooks (one electronic), one manual and 12 scientific papers published in scientific journals, which were not presented at the acquisition of the academic position of associate professor and were not included in his dissertation. Assoc. Prof. Vejdi Hasanov has a total of over 35 scientific papers, three textbooks (one electronic), two editions of one study guide and one dissertation for the degree of Doctor.

II. Educational and pedagogical activity

Assoc. Prof. V. Hasanov graduated with a major in Mathematics, a Master's Degree the University of Shumen in 1997. He began his teaching career at Shumen University in 1997. He has led exercises in Numerical Methods, Mathematical Optimization, Programming and Numerical Methods, Informatics (word processing) for non-specialists. Since 2004 he is a doctor of mathematics, and since 2007 he is an associate professor. Assoc. Prof. V. Hasanov lectures in Numerical Methods, Mathematical Optimization, Mathematical Economics, Programming and Numerical Methods and Elective Courses (Matrix Analysis, Computational Linear Algebra, etc.). He is the author of many school programs for the specialities:

Mathematics, Mathematics and Informatics, Informatics, Economics, Physics and Astronomy. Students in these and other specialities use the teaching aids of V.Hasanov.

In the period 2006-2019 he was the scientific supervisor of 10 successfully defended graduates for the Bachelor's and Master's Degrees. Assoc. Prof. V. Hasanov supervises two PhD students in Computational Mathematics:

1. Aynur Ali - finished her programme with the right to a defense. She is at the stage of preparing her dissertation, with 4 publications in journals with impact factor and rank.
2. Desislava Borisova - fourth year, with 2 publications in Impact rank journals.

Assoc. Prof.V. Hasanov has served for two terms as Deputy Dean of FMI, Head of Department and currently is the Dean of the Faculty.

III. Research activity.

The scientific interests of Assoc. Prof. V. Hasanov are related to:

1. Solution and perturbation analysis of linear and nonlinear matrix equations
2. Models of optimal control.
3. Computational linear algebra.
4. Optimization models and algorithms for solving them.

The main scientific results are in the following directions:

1. Perturbation estimates of the largest positive definite solutions of the matrix equations:

$$X + A^* X^{-1} A = Q$$

$$X - A^* X^{-1} A = Q$$

$$X - \sum_{i=1}^m A_i^* X^{-1} A_i = Q.$$

2. Investigation of the convergence rate of some iterative methods to find the maximum solution of the matrix equation:

$$X + \sum_{i=1}^m A_i^* X^{-1} A_i = Q.$$

3. Sufficient and necessary conditions for the existence of positively definite solutions and the minimal positive definite solution of the matrix equation:

$$X + A^* X^{-1} A - B^* X^{-1} B = I.$$

4. Newton's method for computing the maximal positive definite solution of the matrix equation:

$$X + \sum_{i=1}^m A_i^* X^{-1} A_i = Q.$$

The results obtained by Assoc. Prof. V. Hasanov are of high scientific value. Six of the competition articles have been published in Impact factor journals and two of them in journals with Impact factor over 1.5. The 12 scientific papers presented have been cited 21 times and the citation of all his publications is 327.

Associate Professor V. Hasanov has participated in a number scientific, research and educational projects.

1. At university level: head of projects in 2008, 2009, 2017, 2018.
2. At national level:

Project BG05M2OP001-1.001-0004-C01 "Universities for Science, Informatics and Technologies in the e-society UNITE", period 2018 – 2023, position – member of the Organizing Committee until 1.09.2019.

Project BG051PO001-3.3.06-0003 "Development and steady growth of PhD students, post-doctorals and young scientists in the sphere of natural, technical and mathematical sciences", period 2012 – 2015, position – FMI coordinator.

Project BG051PO001-4.3.04-0020 "Modernizing the Distant Education Centre at Shumen University through introducing modern electronic educational forms", period 2012 – 2014, position – expert (training the participants from FMI, modules author).

National Scientific Programme Information and Communication Technologies for unified digital market in science, education and security (ICT in SES), period 2018 – 2021, position – researcher.

Erasmus and Erasmus + mobilities:

Istanbul Aydın University 2013 and 2015.

Namik Kemal University, Tekirdag, Turkey 2014.

IV. Personal impressions and recommendations.

I know Assoc. Prof. V. Hasanov as an established professional in his field. He is seriously engaged in both teaching and research, as well as administrative work. I have no criticisms of the scientific production submitted for the competition.

CONCLUSION

The submitted documents and materials fully comply with the requirements of the Law for the Development of the Academic Staff in the Republic of Bulgaria (LDASRB), the Rules for the implementation of the LDASRB and the Regulations for the Development of the Academic Staff of Shumen University. The minimum required points from the scientometric indicators for the academic position "Professor" are repeatedly exceeded. Based on the results of the research and teaching activity, I give my positive assessment and recommend to the Scientific Jury to select Assoc. Prof. PhD Vejdi Hasanov in the academic position of "Professor" of the Bishop Konstantin Preslavsky University of Shumen in Higher Education Area: 4. Natural sciences, mathematics and informatics. Professional field: 4.5 Mathematics (Computational Mathematics).

Shumen
29.10.2019

Drafted the opinion:



(Prof. D. Stankov)