

O P I N I O N

by **prof. Nikolay Ivanov Yankov, DSc**

on the competition for acquiring the academic position „**professor**”

in professional field: 4. Natural sciences, mathematics and informatics,

professional area: **4.5. Mathematics** (Computational mathematics)

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for Faculty of Mathematics and Informatics, Konstantin Preslavski University of Shumen,

department „Economics and mathematical modeling”,

with only candidate **assoc. prof. Vejdi Ismailov Hasanov**

1. General presentation of the received materials in accordance to art. 60 and 61(1) of RALDASRB

By order No RD-16-90/11.09.2019 from the Shumen University Konstantin Preslavski's Rector, I'm appointed as a member of the scientific jury and at its first meeting I have received all materials for this competition on electronic medium.

In accordance to art. 61, para. 1 of RALDASRB (Rules on the application of the Law for the development of the academic staff in the Republic of Bulgaria), the assessment of the applicant for the academic position "professor" is done by art. 61 and the results from the reference in accordance to art. 60, para. 3 from RALDSRB. In connection with the implementation of art. 61, on the basis of the documents submitted, it was established:

- a copy of diploma No 29284 issued on 18.08.2004 for the educational and scientific doctoral degree „PhD” (satisfying art. 60, para. 1, item 1);
- a copy of diploma No 24459 issued on 30.07.2007 for the academic position of „associate professor”, moreover a register entry in the Bulgarian registry of academic staff in the National centre for information and documentation (NACID) shows that the candidate has been hired as an „associate professor” with Rector's order RD-08-0434/01.07.2007 thus has at least two academic years of experience in an university (satisfying art. 60, para. 1, item 2);
- 3 publications in specialized scientific journals totaling 123 pts. when 100 pts. accounts for a monograph. All these works were published after 2010 and the academic position „associate professor” was acquired by the candidate in 2007. Therefore I can be sure that these scientific articles does not repeat works used for the candidate's doctoral thesis or for acquiring the associate professor position (satisfying art. 60, para. 1, item 3);

- a reference list for meeting the minimal national requirement in accordance art. 2b, para. 2 and 3 of LDASRB as well as a reference for the original scientific contributions that are backed by evidence (satisfying art. 60, para. 3);
- a reference list for the additional additional indicators applicable to the respective area (satisfying art. 61, para. 3);
- a declaration of authorship on the scientific works for this competition (satisfying art. 60, para. 3, item 6).

2. General characteristics of the applicant's scientific activity and contributions

For his participation in this competition assoc. prof. Vejdi Hasanov has listed a total of 15 published works not used for the doctoral thesis. Of them 12 are scientific articles published specialized scientific journals totaling and 3 textbooks. 11 of the articles have been referenced and indexed in world-renowned databases or databases of scientific information. Included in JCR, i.e. having impact-factor (IF) are 6 of which: 2 are in Q1 (quartile 1), 1 in Q2 and Q3, 2 in Q4. The total IF is 5.769, and the average IF is 0.962 which is a rather high figure for the field of mathematics. The articles with SJR (impact-rang) are 4 with total rang 0.912 and average 0.228. One of the articles is published in *Mathematica Balkanica* and is referenced in MathSciNet – the electronic database of AMS's Mathematical Reviews.

I accept the candidate's list of points to the minimal national requirements:

- Group B: 3 scientific articles totaling of 123 pts. (the required minimum is 100 pts.);
- Group G: 351 points from 8 scientific articles (the required minimum is 200 pts.);
- Group D: 327 citations in WOS and Scopus totaling 2616 pts. (the required minimum is 100 pts.);
- Group E: participation in 5 national scientific or educational projects, 3 textbooks – a total of 150 pts. (the required minimum is 100 pts.).

The major scientific contributions in the candidate's works are:

- $X + \sum_{i=1}^m A_i^* X^{-1} A_i = Q$: in [5] a Newton-like X method for calculating the maximal positive definite solution is proposed; in [6] the convergence rate of 3 methods for finding a maximal positive definite solution is found; in [9] new perturbation estimates for the maximal positive definite solution are derived; in [1] two perturbation estimates for the maximal positive definite solution for $i = 1$ are considered.

- $X - \sum_{i=1}^m A_i^* X^{-1} A_i = Q$: in [8] perturbation estimates for the unique positive definite solution are found; in [10] the matrix $X_+^{-1/2}$ has proven to be the extremal solution.
- $X + A^* X^{-1} A - B^* X^{-1} B = I$: in [3] new weaken sufficient conditions for the existence of the a positive definite solution are given; in [11] sufficient and necessary conditions for the existence of Hermitian positive definite solutions as well as for the existence of the smallest Hermitian positive definite solution are derived.

I accept all of the scientific contribution proposed by the candidate.

3. Assessment of candidate's personal contributions

A good impression is the fact that half of the journal articles presented for this competition have no co-authors and the rest are with just one co-author. I consider the contribution of assoc. prof. Hasanov in co-authored articles as equal as the other author. The three textbooks included in the publications list: the electronic textbook „Lectures in numerical methods”, the textbook „Linear optimization”, and the textbook „A guide to numerical methods with Matlab” have no co-authors and are published by the publishing house of the Konstantin Preslavski University of Shumen.

From the supplied curriculum vitae is evident that assoc. prof. Hasanov has participated in 5 national projects and has presented a number of talks in international scientific conferences.

4. Critical notes and recommendations

I must mention that for me the two documents: the reference list for scientific contributions and the abstracts of publications for the competition are almost the same. It would be good if the first document focuses only on the scientific contributions themselves, for example textbooks should not be included. I recommend to assoc. prof. Hasanov to increase his efforts with his doctoral students and in the future to achieve a successful doctoral thesis defence of some of them.

5. Conclusion

All mentioned above, and the fact that candidate satisfies all requirements of LDASRB, RALDASRB and Konstantin Preslavski University's rules, forms the basis for me to propose assoc. prof. Vejdi Ismailov Hasanov to be awarded the academic position „**professor**” in area: **4.5. Mathematics**, scientific speciality „Computational mathematics”.

Shumen, 10.10.2019

Scientific jury member:



/prof. Nikolay Yankov, DSc/