

R E P O R T

by Prof. Stefka Hristova Bouyuklieva
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about the competition for acquiring the academic position of
“Associate Professor”
at the Institute of Mathematics and Informatics,
Bulgarian Academy of Sciences,

Research area: 4. Natural Sciences, Mathematics and Informatics,

Professional field: 4.5 Mathematics

Scientific specialty: Algebra and Number Theory (Commutative Group Rings and Abelian Groups).

In the competition for the academic position of "Associate Professor", announced in the State Gazette, issue 89 / 16.10.2020 and on the website of IMI for the needs of section "Algebra and Logic" at the Institute of Mathematics and Informatics at Bulgarian Academy of Sciences, as a candidate participates Chief Assistant DSci Petar Vassilev Danchev.

1. General description of the presented documents.

The presented documents are:

1. Application by Chief Assistant Petar Danchev for participation in the competition, 27.10.2020.
2. Curriculum vitae in the common European format. The candidate was careless with the document - the CV is incomplete. In 2019, Petar Danchev defended his dissertation for Doctor of Science, and then he presented a professional CV, which records his entire professional career..
3. Certificate from Plovdiv University, which states that Peter Danchev has a diploma of higher education since October 1996 and a qualification "Mathematician with a specialization in Mathematical Structures", corresponding to the Master's degree.
4. Copy of diploma for acquired scientific degree "Doctor" from the Institute of Mathematics and Informatics at BAS, 2018.
5. Complete list of the journals in which the scientific papers of the candidate have been published.
6. List of scientific papers for participation in the competition.
7. Copies of the papers for participation in the competition.
8. Signed author's reference for the scientific contributions of the works.

9. List of citations.
10. Information on the fulfillment of the minimum requirements for the academic position "Associate Professor" at IMI-BAS.
11. Transcript-extract from the protocol of the Scientific board of IMI-BAS for initiating the procedure.
12. Copy of the State Gazette with the announcement for the competition.
13. Certificate of work experience from IMI - BAS.
14. Two declarations.

No copy of the Doctor of Science degree has been presented. Although not compulsory, a diploma for this degree gives a great advantage to Petar Danchev. There are only a few Doctors of science in Bulgaria who have applied for an associate professorship position.

2. General characteristics of the candidate's scientific activity.

Petar Danchev participates in the competition with 23 publications, of which 17 main and 6 additional. The main publications are from the period 1997-2012, and the additional ones were published in 2019 and 2020. All papers are in English and have been published in foreign journals. These articles have not been used in the procedures for obtaining the educational and scientific degree "Doctor" and the scientific degree "Doctor of Science", for which the applicant has applied a declaration.

Almost all attached papers are independent, only publication [17] has a co-author, namely B. Goldsmith. However, this does not mean that the candidate does not work well in a team, as in the full list of publications, which contains 372 titles, there are also papers with different co-authors. Four of the papers have an impact factor and four are with SJR. The publications are systematized depending on the publications and the respective number of points they carry in relation to the requirements for academic positions and scientific degrees, as this systematization is presented in a table in a separate document, as in some indicators (for publications and citations) requests are exceeded. minimum. I also made a reference in the known databases with scientific information. The metric for the publication activity of Peter Danchev in Scopus is as follows: 154 documents, 532 citations in 227 documents (including auto citations), h-index 12.

I would like to mention the fact that Petar Danchev's papers have been published in 185 different editions, most of which are journals of mathematical societies, universities, academies and unions of cities and countries on almost all continents. In this regard, I have

the following question to the candidate: Usually mathematicians publish in a not very wide range of narrowly specialized publications and in special cases in a journal or a book outside this circle, while in Danchev the range of journals is very wide. Why did he choose this option and does it not make it difficult for specialists in groups and rings to access his papers?

Petar Danchev did not present a reference for lectures and / or exercises led by him. The CV does not contain information on where and in what position the candidate worked before 2018.

According to the presented table, Petar Danchev has participated in two research projects - one of the National Science Fund of the Ministry of Education and Science, and one at Shumen University.

3. Analysis of the scientific achievements according to the materials submitted for participation in the competition.

I evaluate the contributions from the candidate's research as theoretical. His scientific activity is in the field of algebraic structures, more precisely different types of rings and groups.

There are two main directions in the presented research paper. The first one is about commutative group rings (papers [1], [2], [4], [6], [8], [9], [12]-[16], [18]-[23]). The papers are too many and I could not consider each of them separately, so I will present only the main results. Commutative group algebras of summable Abelian periodic groups and their some characterizations are considered. Most of the papers are devoted to the detailed description of some special normed/normalized units in the unit group of commutative/abelian group rings. Their characterizations are given up to an isomorphism. The obtained results totally generalize certain well-established results in this area. Papers [18] --[23] deal with the complete characterization of different types of commutative group rings.

The second direction refers to abelian groups (papers [3], [5], [7], [10], [11], [17]). In addition to methods from group theory, methods from set theory have been used in the research in this area. Some applications of the obtained results in the theory of modules have been found. A valuable contribution is the so-called "Danchev's Lemma", which summarizes the statements from publication [5] and proves that some of the limitations on the group in Irwin's classical result concerning the countable extensions of some projective classes of abelian groups are unnecessary.

Petar Danchev presented a reference for 114 citations, additionally attaching a link to MathSciNet, according to which Danchev's works were cited 627 times by 71 authors.

4. Conclusion

The above gives me a reason to believe that Peter Danchev is a highly qualified specialist who has proven his ability to conduct research at a high level. According to the presented documents, the candidate Peter Danchev fulfills all the requirements of the law and the Regulations to it and the Regulations for the specific requirements for acquiring academic degrees and occupying academic positions at BAS and IMI-BAS. I strongly recommend to the Honorable Scientific Jury to vote on a proposal to the Scientific Council of IMI - BAS to select Petar Vassilev Danchev for the academic position "Associate Professor" in the field of higher education 4. Natural Sciences, Mathematics and Informatics, professional field 4.5 Mathematics, scientific specialty "Algebra and Number Theory" (Commutative Group Rings and Abelian Groups).

15.02.2021

Member of the scientific jury:

/Prof. Stefka Bouyuklieva/