

REPORT

by Prof. DSc **Ivan Nikolov Landjev**, New Bulgarian University

in the competition for the scientific position of “**professor**” in Institute of Mathematics and Informatics, Bulgarian Academy of Sciences

Scientific Field: **4. Natural Sciences, Mathematics and Informatics**,

Professional Field: **4.6. Informatics and Computer Sciences**

announced in “**Darzhaven vestnik**” No **65/02.08.2024**

Candidates: **Assoc. Prof. Dr. Hristo Nikolov Kostadinov**

This is a procedure for the election of a full professor in the professional field 4.6 Informatics and computer sciences in the Institute of Mathematics and Informatics of the Bulgarian academy of sciences. The procedure is announced in Durzhaven vestnik No 65 from 02.08.2024. There is one candidate – assoc. prof. Hristo Nikolov Kostadinov.

I. Fulfillment of the minimal national requirements and the requirements of the New Bulgarian University

The candidate has defended successfully a PhD thesis at the University for Telecommunications, Tokyo, Japan in the scientific field 01.01.12 Informatics. The degree was certified by the HAC certificate 2080/10.04.2006. With this he covers the requirements in group A. The requirements of groups C and D are covered by research papers where he claims 112 and 254 points, respectively. These are given for 6 papers in group C and 9 papers in group D. All these papers are published in scientific journals with an impact factor, SJR, or else are indexed and/or reviewed in Scopus or Zentralblatt. With this the candidate fulfills the requirements in groups A – D.

In his application the candidate gives evidence for 24 citations of his papers that have not been used in previous procedures. These citations give 144 points which covers the minimal national requirements in group E. The candidate covers and even exceeds the minimal requirements in this group. Many of the citations are in leading journals in the field of coding theory and cryptography like IEEE Transaction on Computers, IEEE Transactions on Communication, Designs, Codes and Cryptography, Advances in Mathematics of Communications.

The candidate fulfills the requirements in group F. In this group he claims a total of 180 points. He is the supervisor of a PhD Thesis (Bisser Tsvetkov) which brings 50 points. The remaining 130 points are obtained from a participation in seven national and three international projects which gives a total of 130 points.

As a whole I accept that the candidate fulfills and in some points even exceeds by wide margin the general and specific requirements fixed in the official documents.

II. Research activities

The scientific research of Assoc. Prof. Hristo Kostadinov is focused on the development of new methods for data protection. He uses powerful results from the modern coding theory and cryptography. In the candidate's summary, Kostadinov points out four directions of research where he has been active in the recent years. The first theme is the construction of codes over integer residue ring that are to be applied for flash memories and code modulation. The candidate constructs several classes of such codes. The second direction is the introduction of watermarks in audio files. This research can be attributed to the area of cryptography. In the third direction the candidate investigates the so-called smart contracts based on distributed registry. The last theme is a subject which has gained a lot of attention in the recent years. It is called Internet of thing and is a rapidly developing area in the field of the information technologies.

The candidate presents a list of 15 papers which are published as follows::

- Mathematics (Q1) - 2
- Internet of Things (Q1) – 1
- Studies in Computational Intelligence (SJR) – 5
- Lecture Notes in Computer Science (SJR) – 1
- Electronic Notes in Discrete Mathematics (SJR) – 1
- Procedia Computer Science– 1
- Proceedings of the Int. Workshop on ACCT - 2
- Proceedings of the Int. Workshop on Optimal Codes – 1
- Proceedings AmiTaNS – 1

In twelve papers the candidate has one co-author, and in three he has which the only author. I accept that the contribution of the candidate in the joint papers is equal to that of the other co-authors.

A side remark: since 2023 the journal Studies in Computational Intelligence has an impact factor. This would give some additional points to the candidate to those presented in the document presenting the fulfillment criteria.

III. Teaching activities

The candidate has not presented evidence for any teaching activities. To this point we can relate the supervision of the PhD thesis of Dr. Bisser Tsvetkov.

IV. Administrative and community activities

In the last few years Hristo Kostadinov has been a chair of department “Mathematical foundations of informatics” at the Institute of Mathematics and Informatics in the Bulgarian Academy of Sciences. He is a member of the Scientific Council of the Institute of Mathematics and a long-term member of the evaluation panel of the Institute.

V. Personal comments

I have known Assoc. Prof. Kostadinov of more than twenty years. My impressions from his scientific research and personal engagement have always been excellent. I would like to stress his continuous efforts as a chair of department “Mathematical Foundations of Informatics”. I have attended many of his talks at scientific conferences at home and abroad. His presentations have been always well-prepared and excellently presented.

VI. Critical remarks

I would refrain from critical remarks and suggestions for future work. At this level the candidates have a very clear idea for their research and publication activities. The standard remark here is to suggest more active work with PhD students but this depends on the presence of students with the corresponding qualities which are not always well-motivated.

VII. Conclusion

Assoc. Prof. Dr. Hristo Nikolov Kostadinov is a specialist in the field of coding theory, cryptography and their applications. The candidate possesses profound knowledge in the area of information technologies. In his scientific research he has obtained important result that are at the level of the best achievements in his scientific field. He has participated in many national and international projects and contributed significantly to their success. In the publications presented in his application I have not discovered plagiarism of any kind.

In my opinion, the candidate fulfills the requirements of the Bulgarian Law for the promotion of the academic staff, as well as the special requirements of the Institute of Mathematics and Informatics. I estimate **positively** the application of Assoc. Prof. Dr. Hristo Nikolov Kostadinovov Atanasov and advise this Scientific Jury to propose the candidate to the Scientific Council of the Institute of Mathematics and Informatics for the academic position of full professor in the Scientific Field: 4. Natural Sciences, Mathematics and Informatics, Professional Field: 4.6. Informatics and Computer Sciences.

Sofia, 15.11.2024

Signature

(Prof. Ivan Landjev)