

# STATEMENT REPORT

By Professor PhD Nikolai Manev,

The Institute of Mathematics and Informatics - BAS

On the announced competition for a position of Associate Professor in the

Professional field: 4.6. *Informatics and Computer Sciences*,

Scientific specialty: *Informatics (Human-computer interaction)*

## 1. General description of the procedure and submitted documents

The competition for a position “Associate Professor” subject of this statement report is announced in the State Gazette (Darzhaven vestnik) no. 52 / 02.07.2019.. The open position is at department „Mathematical Foundations of Informatics“ of the Institute of Mathematic and Informatics – BAS (IMI).

There is only one applicant, namely

**Assistent Professor Ph.D. Todorka Gerasimova Alexandrova**

## 2. Candidate’s Biographical data.

Todorka Alexandrova received Ms Degree on algebra in 2003 at SU „St. Kliment Ohridski“. The Ph.D. degree was conferred on her by University of Electro-Communications, Tokyo, Japan in 2008 after defending the thesis titled „ A Study on  $(t,n)$  Threshold Secret Sharing Schemes Based on the Generalized Vector Space Construction “. The thesis is in the area of cryptography.

In the period 2008 –2018 Todorka Alexandrova did research and teaching at different universities in Tokyo at the positions Research Assistant, Assistant Professor, and

Associate Professor. She was appointed to the position Associate Professor at the prestigious Waseda University (Faculty of Science and Engineering), Tokyo, in 2013.

The aforesaid confirms that Todorka Alexandrova corresponds exactly to the requirements of article 24(1) of ЗРАСРБ and article 53(1) of Правилника за приложението му.

### **3. Description and estimation of the research, papers and contributions in them**

Todorka Alexandrova has presented a list of **22** papers which are written after his Ph.D thesis. **Three** of them have **impact factor**, **5** are with **SJR**, **12** appear in **Scopus**, and **2** in **ACM Digital Library**. All papers are joint work with other researchers that is typical for her research area. The numerical indicators (points) corresponding to the presented papers **exceed the legislative requirements**.

Scientific interests of Todorka Alexandrova are in more than one research area. Her works can be classified into three groups:

1. **Secrete sharing schemes' applications**. This group contains papers with numbers 10, 21, and 22 from the list of publications.
2. **Using crowdsourcing for knowledge search and exchange**. This group consists of papers 5, 6, 16, 18, 19, and 20.
3. **Navigating human behavior by enhancing the real world with information technologies**. Papers with numbers 1, 2, 3, 4, 7, 8, 9, 11, 12, 13, 14, 15, and 17.

The papers in the first group are on a cryptographic problem – the initial research topic of Alexandrova. At Waseda University she started to deal with two new research

problems (group 2 and 3) which belong to the scientific area “human-computer interaction” (specialty of the competition). The quality of her papers unambiguously demonstrates that Todorka Alexandrova has entered upon the new problems very fast and successfully.

The resumes of the papers and list of scientific contributions of the candidate included in her application describe truthfully the content of the papers and represent correctly the candidate’s scientific contributions. The style of the papers is very good.

#### **4. Characterization of the scientific-organizational and educational activity of candidates**

Todorka Alexandrova has been presented an information for participation in one international and one national projects that is sufficiently to exceed the legislative requirements.

The candidate has given lectures on Introduction to Computer Science, Information Security, Linear Algebra, Discrete Mathematics, Introduction to Probability and Statistics, Introduction to Automata, Codes and Ciphers, Mathematical Foundations of Computer Sciences.

#### **5. Assessment of the personal contribution of the candidate in joint works**

In my opinion the personal contribution of Todorka Alexandrova is at least equipollent.

#### **6. Impact of the candidate’s results on work of other scientists**

Todorka Alexandrova has presented a list of **20 (of total 161) appeared in SCOPUS and/or Web of Science** papers of other authors citing her results. This brings 120 points that exceeds the legislative requirement of 70 points.

My conclusion is that **Todorka Alexandrova is well known to the researchers working in her research areas.**

### **CONCLUSION**

On the grounds of varied scientific and scientific-organizational works of Todorka Gerasimova Alexandrova I can declare without any hesitation that she meets the legislative requirements (Закон за развитие на академичния състав в Република България (ЗРАСРБ), Правилника за прилагане на ЗРАСРБ, Правилника на БАН за прилагане на ЗРАСРБ), and the requirement of IMI for the rank and position of “Associate Professor”. **I give my positive estimation and with conviction recommend to the Assessing Committee to propose to the Scientific Council of IMI to confer on Assist. Prof. PhD Todorka Gerasimova Alexandrova the rank and position “Associate Professor” in professional field: 4.6. Informatics and Computer Sciences; scientific specialty: Informatics (Human-computer interaction)**

25.10. 2019 г.

**Signature:**