

OPINION

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On the materials presented by
Assistant Professor Romyana Kirova Yordanova, PhD

for the participation in competition
for acquisition of the academic position „Associate Professor“,
in professional field 4.6 „Informatics and Computer Science“,
Scientific specialty „Informatics“ (Information models in genomics), announced in the State
Gazette Vol. 91 from 02. 11.2021 for the needs of the Institute of Mathematics and
Informatics of the Bulgarian Academy of Sciences

By order № 342 from 23.12.2021 г. of the Director of the Institute of Mathematics and Informatics (IMI) at the Bulgarian Academy of Sciences (BAS), on the basis of a decision of the Scientific Council of IMI (protocol № 20/17.12.2021) I have been assigned as a member of the scientific jury for the competition for acquiring of the academic position “Associate Professor” in the field of Higher Education 4. Natural sciences, mathematics and informatics, professional field 4.6 „Informatics and Computer Science“, Scientific specialty „Informatics“, for the needs of the section “Information modelling” announced in the State Gazette Vol. 91/02.11.2021. I declare that as a member of the scientific jury I have received the documents of Assistant Professor Romyana Yordanova, PhD. She is the only candidate in the competition.

1. List of the materials presented by Assistant Professor Romyana Yordanova, PhD

The candidate has presented the following materials for participation in the competition (in accordance with the numbering in the application to the director of IMI-BAS for admission to the competition):

1. Curriculum Vitae according to the European model.
2. Copy of a master degree diploma.
3. Copy of a diploma for educational and scientific degree “Doctor” (PhD).
4. List of all publications of the candidate.
5. List of publications for participation in the competition.
6. Summary of the original scientific contributions in the publications for participation in the competition.
7. Abstracts of the publications for participation in the competition in Bulgarian and English.
8. Copy of the publications from 5.
9. A list of all citations of the candidate.
10. A list of citations for participation in the competition.
11. Copy of the announcement in the State Gazette.

12. Certificate for experience in the field according to the requirements of Art. 24, Par. 1, Sec. 2 of the Act on Development of the Academic Staff in the Republic of Bulgaria (ADASRB).
13. Verification for fulfillment of the minimal national requirements of Art. 2b, Par. 2 and 3, and the requirements of Art. 2b, Par. 5 of the ADASRB as well as the minimal requirements of IMI-BAS with the corresponding proofs (Application 2.2).
14. Declaration according to a template (Application 3.2).
15. Declaration for agreement for storage and processing of personal data.

2. Biographical data of the candidate

Assistant Professor Romyana Yordanova, PhD was born on January 28, 1969, in Sofia, Bulgaria. She acquired a master degree in Informatics at the Faculty of Mathematics and Informatics of Sofia University “St. Kliment Ohridski” with specialty “Mathematical insurance and a teacher of Informatics”. In 2005 she acquired the educational and scientific degree “Doctor” in biomathematics (PhD) at the Marquette University, WI, US. In 1994 she started working at IMI-BAS where she has held the position “Assistant Professor” since 2013. She has occupied the positions assistant, chief assistant and consultant in various scientific and research centers in USA since 1998. Later, in the period 2016 – 2021 she worked at the University of Hokkaido in Sapporo, Japan.

3. Analysis of the presented publication and citations

The candidate has presented a list of all publications, consisting of 24 titles 18 of which are indexed in Web of Science and/or Scopus. According to the presented materials the candidate takes part in the competition for acquiring of the academic position “Associate Professor” with 11 publications. Of them, 9 scientific publications are in journals with impact factor which can be grouped as follows: 4 publications falling into Q1 quartile; 5 publications falling into Q2 quartile. The remaining 2 publications are in journals with SJR.

Assistant Professor Romyana Yordanova, PhD, has presented a list with 1017 citations in Scopus of 14 publications.

For participation in the competition for acquiring of the academic position “Associate Professor”, Assistant Professor Romyana Yordanova has presented 3 publications with impact factor, falling into Q1 quartile or having SJR, which substitute the habilitation thesis. The thematic area in which they fall is “Information models in genomics”.

The presented publications for participation in the competition for the acquiring of the academic position “Associate Professor” are published after the acquiring of PhD degree.

4. Evaluation of the candidates’ contributions

The contributions of the candidate are the field of information, statistical and biological modelling and more specifically in the processing, integration and analysis of multilayer biological “omics” data; optimization of the samples for reaching of power of the used methods; programs for visualization of data and results etc.

The main scientific and scientific and applied contributions pointed out by the candidate are:

1) Development and application of methods for analysis of biological systems and associations between “omics” data. They include methods for analysis of genome data for finding specific polymorphisms; methods for building of high resolution nets of associations between polymorphisms, RNA expressions and genome data; methods for finding of interactions between genes and environment. These results are presented in the three publications from group “B” - B1, B2, B3 and the publications Г5 and Г6.

2) Development and application of methods for analysis of microarray genome data. Here, analysis of dynamical microarray data is included, using statistical methods, graphical models, generalized logical networks as well as ontological database for phenotype-centered genome associations – [Г3, Г4, Г7, Г8].

3) Analysis of microbiological genome data for modelling of antimicrobial resistance. Standard methods for machine learning are used as well as Bayesian spatial model for taking into account spatial correlation between data and for evaluation of the relative risk of various bacteria and bacteriophages potentially connected to antimicrobial resistance [Г1].

I accept the so-formulated contributions in the Extended Habilitation Reference by Assistant Professor Rumyana Yordanova, PhD.

5. Reference for scientometric requirements

In Table 1 are given the minimum required number of points for each set of indicators at IMI-BAS as well as the corresponding number of points for each set of indicators of the candidate Assistant Professor Rumyana Yordanova, PhD.

Table 1. Reference for the fulfillment of the minimal requirements

<i>Indicator Group</i>	<i>Minimal score required for “Associate Prof.”</i>	<i>Scores of the candidate: Rumyana Yordanova</i>
<i>A</i>	50	50
<i>B</i>	-	-
<i>B</i>	100	150
<i>Г</i>	220	290
<i>Д</i>	70	84
<i>E</i>	20	30
<i>Total:</i>	460	604

The requirements of the Act on Development of the Academic Staff in the Republic of Bulgaria, Regulations on the Implementation of the Development of the Academic Staff in the Republic of Bulgaria and the Regulations for the application of the Act on Development of the Academic Staff in the Republic of Bulgaria in IMI-BAS with respect to professional field 4.6 „Informatics and Computer Science“ are satisfied.

6. Critical remarks, recommendations and personal impressions of the candidate

I have no critical remarks to the candidate with respect to the materials presented by her for participation in the competition.

I know Assistant Professor Romyana Yordanova, PhD, and I have excellent impressions about her professional competence. I have seen her excellent presentation at the seminars of the “Information Modelling” department, as well as at international conferences organized by the department.

7. Conclusion

Taking into account all the above, I believe that the candidate has the necessary scientific and applied contributions and fulfills the requirements of the Act on Development of the Academic Staff in the Republic of Bulgaria, the Regulations on the Implementation of the Development of the Academic Staff in the Republic of Bulgaria, the Regulations on the terms and conditions for obtaining scientific degrees and for holding academic positions at the Bulgarian Academy of Sciences and the Regulations for the application of the Act on the Development of the Academic Staff in the Republic of Bulgaria in IMI-BAS.

Therefore, I give a positive evaluation to the materials presented by Assistant Professor Romyana Yordanova in the competition for the academic position “Associate Professor” at IMI-BAS and I recommend to the respectful members of the Scientific Jury and, subsequently, to the respectful members of the Scientific Council of the Institute of Mathematics and Informatics – BAS, to vote for awarding **Assistant Professor Romyana Yordanova, PhD**, the academic position “**Associate Professor**” in professional field 4.6 “**Informatics and Computer Science**”.

14 February 2022
Sofia

Signature:
(Assoc. Prof. Velin Andonov, PhD)