OPINION

By Prof. Tania Koleva Pencheva, PhD

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For the concourse for promotion to the academic position **„Associate Professor"**,
announced in **State Gazette, Vol. 105 from 11.12.2020**
Higher Education Area: **4. Natural Sciences, Mathematics and Informatics**
Professional Field: **4.6. Informatics and Computer Sciences**
Scientific Specialty: **Informatics (Quantitative Methods,
Mathematical Modeling and Intuitionistic Fuzzy Statistics)**

Candidate: **Senior Assist. Prof. Velichka Nikolova Traneva, PhD**

Review of the presented materials

With Ordinance No. RD-35/09.02.2021 of the Rector of the University "Prof. Dr. Asen Zlatarov" – Burgas, I have been appointed as a member of the Scientific Jury of a concourse for the **academic position „Associate Professor"**, where the only candidate is **Senior Assist. Prof. Velichka Nikolova Traneva, PhD.**

As a member of the Scientific Jury, I have obtained:

1. Documents regarding the candidate's participation in the concourse.
2. Copies of the publications, presented for participation in the concourse.

Senior Assist. Prof. Velichka Traneva, has presented all the necessary documents for participation in the concourse, including: *a list and description of the scientific works for participation in the concourse; author's information on the scientific contributions; reference for participation in research projects; reference for participation in scientific forums; reference for the citations of the candidate's publications; reference for the fulfilment of the minimum requirements; reference for teaching activity; reference for participation in the organization of scientific forums; reference for work experience; copies of scientific works.* In the presented form, the documents of Senior Assist. Prof. Velichka Traneva are in full compliance with the requirements stipulated in the Academic Staff Development Act in the Republic of Bulgaria (ASDARB), as well as the Regulations for its applications approved by the Council of Ministers and the University "Prof. Dr. Asen Zlatarov" – Burgas.

Brief biographical notes

In 1995 Velichka Traneva was awarded a Master degree in Mathematics from the Sofia University "St. Kliment Ohridski", with a parallel qualification in Management (1993-1995), and in 2000 she also obtained a Master degree in Finance from the University of National and World Economy – Sofia. Her academic career started as an Assistant in the University "Prof. Dr. Asen Zlatarov" – Burgas (2013-2017). In 2017, she defended her PhD dissertation titled "Three-dimensional Indexed Matrices and Applications in the Transport Task and OLAP-cube", after the training as a self-preparation PhD student in the Institute of Biophysics and Biomedical Engineering at the Bulgarian Academy of Sciences. Since 2017, Velichka Traneva has been a Senior Assistant Professor in Informatics and Computer Science at the Department of Computer and Information Technologies at the Faculty of Natural Sciences of the University "Prof. Dr. Asen Zlatarov" – Burgas. The scientific research activity of Senior Assist. Prof. Velichka Traneva is in the area of quantitative methods, mathematical modeling and intuitionistic fuzzy statistics.

Publication activity, project participation, scientific forums attendance, expert activity

For participation in the concourse for promotion to the academic position "Associate Professor", Senior Assist. Prof. Velichka Traneva has presented **16 scientific works**, as follows: **1 monograph, 3 chapters in a co-authored monograph (presented as one entity in the list of publications), 11 papers** (of which **1 paper in impact-factor journal, 7 papers in impact-ranked journals**, and **3 papers, indexed in Scopus**), **1 textbook** and **2 teaching manuals. Four** of the 16 scientific works presented for participation in the concourse **are written by the author alone,** namely **the monograph, the textbook** and **the teaching manuals.** In **9** of the remaining 12 co-authored publications Senior Assist. Prof. Velichka Traneva is the **first author**. This fact is an irrefutable demonstration of the **personal input of the candidate** in her research

developments. I consider as acceptable all scientific works by Senior Assist. Prof. Velichka Traneva presented for the concourse, since they are strictly relevant to the thematic scope of the concourse and have not been used in previous procedures according to ASDARB.

In the *"Reference for the fulfilment of the minimum requirements"*, Senior Assist. Prof. Velichka Traneva's publications are presented as follows: by Indicator B3 – **a monograph**, with which **the candidate covers the minimum requirements by Group of indicators B**. By Indicator G6, Senior Assist. Prof. Velichka Traneva presents the **participation in a co-authored monograph** (3 chapters), while by Indicator G7 – **11 publications,** including **1 paper in impact-factor journal, 7 papers in impact-ranked journals,** and **3 papers, indexed in Scopus**, thus collecting **344 points while the minimum required is 300 points by Group of indicators G**.

Regarding the **Indicator D**, Senior Assist. Prof. Velichka Traneva presents a list of **15 citations** (with excluded self-citations), 14 of which are in Scopus, and 1 is in Zentralblatt. Thus, according to **Indicator D11, the candidate collects 116 points while the minimum required is 100 points**.

Senior Assist. Prof. Velichka Traneva also presents a reference for her participation in **4 scientific projects**, including 2 projects funded by the National Science Fund of Bulgaria, 1 under the National Research Program "Information and Communication Technologies for a Digital Single Market in Science, Education and Security" and 1 under the National Research Program „Young Scientists and Postdoctoral Students". According to this reference, Senior Assist. Prof. Velichka Traneva collects **120 points according to Group of indicators E where the minimum required is 100 points**. The reference *"Participation in projects"* shows the participation of Senior Assist. Prof. Velichka Traneva in 5 internal institutional projects, in 2 of which she has been the **coordinator**.

A reference has been presented for Senior Assist. Prof. Velichka Traneva's participation in **4 scientific forums**: with 2 presentations in *FedCSIS, Sofia, Bulgaria, 2020*, 2 presentations in *INFUS, Izmir, Turkey, 2020*, as well as with 1 presentation in *INFUS, Istanbul, Turkey, 2019*, and another one in *IS, Varna, Bulgaria, 2020*. Papers in full text were presented at these forums, and 5 out of the 6 papers are indexed in Scopus and/or Thomson Reuters and are presented for participation in this concourse as well.

The expert activity of Senior Assist. Prof. Velichka Traneva is complemented by her participation in the organization of international scientific forums and university scientific seminars, the invitation to be a reviewer in the *Soft Computing* journal, as well as her membership in the *Union of Scientists* and the *Union of Mathematicians in Bulgaria*.

Analysis of the fundamental and applied research contributions

In *"Author's information on the scientific contribution"* Senior Assist. Prof. Velichka Traneva has presented her scientific works in the following 3 groups: *quantitative methods, mathematical modeling* and *intuitionistic fuzzy statistics*, while the fundamental and applied research contributions are presented in 3 other groups, namely contributions regarding *intuitionistic fuzzy correlation analysis, mathematical modeling* and *description and application of intuitionistic fuzzy analysis of variance*.

Senior Assist. Prof. Velichka Traneva has formulated **12 contributions of purely scientific nature** and **14 contributions of applied scientific nature** (respectively, 4/5 in the first group in terms of contributions, 6/6 in the second and 2/3 in the third group) based on the **16 scientific works, presented for participation in the concourse**. I express an opinion that in the presented form all **contributions presented as contributions of applied scientific nature are, in fact, illustrative examples,** as their respective scientific value is reflected in the **contribution of purely scientific nature**. In my opinion, the **contributions of purely scientific nature with numbers 6 and 7** are rather of **applied scientific nature**. Based on the opinions expressed above and **without belittling the achieved scientific results,** I would recommend **a more general form for the presentation of the contributions**, and I will illustrate my suggestion with an example: scientific contribution 1 and applied scientific contribution 1 can be presented in a more general classification of *"Scientific and applied scientific contributions"*, as follows: *ICrA extensions on data stored in three-dimensional, interval and multidimensional intuitionistic fuzzy indexed matrices have been defined. The introduced new extensions have been implemented in an oil refinery, in a mobile company, and in a fast food chain.* I do believe that such a presentation would only **reinforce the results achieved by the candidate**. Meanwhile, **purely applied contributions,** such as applied contribution 14, can definitely be singled out.

Despite the aforementioned recommendations, **I accept in general the contributions formulated by Senior Assist. Prof. Velichka Traneva as original and as a reflection of her research activities**. I am convinced that the contributions are of importance for the further development of the theoretical aspect in the fields of intuitionistic fuzzy logic, indexed matrices and generalized networks, as well as for the enrichment of the practical applications of the results obtained in these scientific fields.

Teaching activities

As can be seen from the reference for work experience, Senior Assist. Prof. Velichka Traneva has had **over 7 years of teaching experience at the University "Prof. Dr. Asen Zlatarov" – Burgas**. Here, I would like to draw attention to the discrepancy in the information provided, namely, that in her CV Senior Assist. Prof. Velichka Traneva notes that she was appointed as an Assistant in 2012, while in the mentioned above reference the year is 2013, which I consider correct. In both cases, the candidate meets the conditions of Art. 67 (1) of the Regulations for ASDARB application of the University "Prof. Dr. Asen Zlatarov " – Burgas.

Senior Assist. Prof. Velichka Traneva has participated in the **development of syllabuses** in 1 Master degree program – "Methodology of Teaching Informatics with Hospitality", as well as in 2 Bachelor degree programs – "Mathematical Modeling and Optimization" and "Quantitative Methods in Management", and she also leads lecture courses in these programs. According to the *"Information on teaching hours"*, Senior Assist. Prof. Velichka Traneva **has led seminars in 11 disciplines in various Bachelor and Master degree programs.** As mentioned in the description of the scientific works, the candidate has published **1 textbook on "Quantitative Methods and Optimization"**, as well as 2 **teaching manuals** — one in Bulgarian and one in English. According to the reference *"List of graduates"*, Senior Assist. Prof. Velichka Traneva has **2 successfully defended Master degree students**.

I consider as a particularly good approach **the reflection of the main results of Senior Assist. Prof. Velichka Traneva's research activity in the teaching process**. In the syllabus "Quantitative Methods", developed with her participation, an introduction to the theories of intuitionistic fuzzy sets and indexed matrices are set. In the textbook "Quantitative Methods and Optimization" there is a chapter dedicated to the intuitionistic fuzzy logic and its applications in the intercriteria analysis approach.

Personal impressions

I personally know Senior Assist. Prof. Velichka Traneva from the joint participation in 2 research projects, funded by the National Science Fund of Bulgaria, as well as from her presentations at scientific forums. I also attended her defence for the PhD degree, which took place after her training as a self-preparation PhD student in the Institute of Biophysics and Biomedical Engineering at the Bulgarian Academy of Sciences. My personal impressions are that she is a **hard-working, responsible, purposeful and self-demanding scientist**. All of these personal qualities are undeniably demonstrated in the materials presented by Senior Assist. Prof. Velichka Traneva in the present concourse.

Conclusion

In the formation of the final assessment of the candidate Senior Assist. Prof. Velichka Traneva for promotion to the academic position "Associate Professor", the requirements of the ASDARB have to be taken into consideration, as well as the regulations for its application approved by the Council of Ministers and the University "Prof. Dr. Asen Zlatarov" – Burgas. With respect to the presented documents, **Senior Assist. Prof. Velichka Traneva meets, and even surpasses, the requirements set for the academic position „Associate Professor".**

On the basis of the presented concourse documents and the candidate's scientific works, which give visibility of the obtained results, as well as on the basis of the notability of the scientific contributions included thereof, I take the liberty to recommend to the respected members of the Scientific Jury to propose to the Faculty Council of the Faculty of Natural Sciences at the University "Prof. Dr. Asen Zlatarov " – Burgas to vote for the promotion of **Senior Assist. Prof. Velichka Traneva, PhD** to the academic position **„Associate Professor"** in Professional Field **4.6. Informatics and Computer Sciences**, Scientific Specialty **Informatics (Quantitative Methods, Mathematical Modeling and Intuitionistic Fuzzy Statistics).**

5 April 2021
Sofia

Signature: ....

(Prof. Tania Pencheva, PhD)