

REVIEW

**on the Competition for the academic position “Professor”
in Professional Direction 4.6 “Informatics and Computer Sciences”,
announced in the State Gazette, Vol. 49 from 21 June 2019,
for the needs of the Institute of Information and Communication
Technologies – BAS, “Mathematical Methods for Sensor Data
Processing” Department, with a single applicant
Assoc. Prof. Petia Doicheva Koprinkova-Hristova**

Assoc. Prof. Petia Doicheva Koprinkova-Hristova is born on 12 December 1966 in Sliven, Bulgaria. In 1989, she graduates the Technical University of Sofia with a Master degree in Biotechnology, and in 2001 is awarded the educational and scientific degree “Doctor of Philosophy”. She worked in the Scientific Laboratory of Instrumentation and Biological Experiment Automation at BAS (1989 – 1994), Institute of Control and Systems Research at BAS (1994 – 2010), Institute of Systems Engineering and Robotics at BAS (2010 – 2011) and since 2012 – Institute of Information and Communication Technologies at BAS. In 2003, she acquired the academic position of Associate Professor.

Assoc. Prof. Koprinkova-Hristova has worked for several months on projects in Germany and Romania.

According to the *Reference for accomplishment of the minimal national requirements on Article 2b, item 2 and 3 and the requirements of the Institute of Information and Communication Technologies at BAS on Article 2b, item 5 for Professional Direction 4.6 Informatics and Computer Sciences*, the applicants for the academic position Professor must have scientific publications in editions that are referred and indexed in global databases.

For participation in the Competition, with respect to Indicator 4 from Group V of this “References”, Assoc. Prof. Koprinkova-Hristova has presented 15 publications, of which 2 in journals with Impact Factor, 7 – in journals with SJR-rank, and 6 in indexed journals without Impact Factor. These amount to 302 points, which is three times the minimal requirements (100 points) from Group V, according to the requirements of the Institute of Information and Communication Technologies at BAS. According to Indicator 7 from Group G of the “References”, she has presented 31 publications of which 4 in journals with Impact Factor, 16 – in journals with SJR-rank, and 11 in indexed journals without Impact Factor. These amount to 606 points, which is more than twice the minimal requirement (260 points) for Group G. According to Indicator 11 (Group D) the applicant has provided data for 132 citations (792 points), which is more than 5.5 times the minimal requirement (140 points) for this group. Regarding the indicators from Group E, she has more than three times (422) the minimally required (150) points. Or, altogether, Assoc. Prof. Koprinkova-Hristova has more than 2100 points, which is exactly three times the minimal number of points.

I will note that of the six papers with impact factor, three are from the Q1 category, and one in each of the rest three categories, as it can be seen from the applied table:

No	Journal	Yes	IF	Quartile
1	Journal of Neural Engineering	2014	3,295	Q1
2	Frontiers in Computational Neuroscience	2019	2,323	Q1
3	Int. Journal of Neural Systems	2010	4,237	Q1
4	Int. Journal of Adaptive Control and Signal Processing	2013	1,656	Q2
5	Applied Artificial Intelligence	2008	0,795	Q3
6	Biotechnology and Biotechnological Equipment	2012	0,622	Q4

I accept the contributions of Assoc. Prof. Koprinkova-Hristova as claimed in her application documents, from the „*Reference for the original scientific and applied contributions*“. In my opinion, these correctly reflect the contents of the publications which she has presented for participation in the competition, and for this reason I will not be commenting them in details. I will only note that they can be categorized in the following groups:

1. Heuristic dynamic programming using neural networks, including the so called „Adaptive Critic Approach“, that has found various applications, among which an application to autonomous mobile robot control,
2. Model has been developed of the human vision system, and the impact has been studied of the changes of its parameters,
3. Research on neural networks and neuro-fuzzy approaches,
4. Research on the theory of fuzzy sets and its applications,
5. Research on genetic algorithms and their applications,
6. Modelling of biotechnological processes.

This said, the requirements of the „*Regulation*“ of the Institute of Information and Communication Technologies at BAS have been satisfied.

I will note that I find the most interesting to be the results from the third and the fourth groups. In my opinion, the results from this group can be further extended by using the apparatus of intuitionistic fuzzy sets that would provide the evaluations with additional precision.

The last part of the applicant’s “Reference” makes a very good impression. There are given other results of the applicant as well, that can serve as the basis of a future dissertation for awarding the scientific degree “Doctor of Sciences”.

With respect to the indicators from Group E, it has been noted that Assoc. Prof. Koprinkova-Hristova has participated in two national educational projects, 21 national and 1 international scientific and applied projects, and has been the project coordinator of 5 of these (either of the whole project, or of the local Bulgarian team). There have been given the bibliographic details of the textbook „*Kinetics and Bioprocess Control*“, for which the applicant has been one of the coauthors.

In my opinion, it would be worth considering to collect a part of the publications in a monograph.

Assoc. Prof. Koprinkova-Hristova is the authors of a total number of 136 publications, of which:

- In journals with Impact Factor - 18
- With SJR-rank - 35
- Indexed in Scopus/WoS - 24.

She has a total number of more than 160 citations in Scopus/WoS. She has been a member of the international programme committees of multiple international conferences (more than 50 for the last 5 years), and a member of the organizing committees of a total number of 12 international conferences, for three of which she has been the Program Co-chair and the General Chair for one of them. She has been editor of 8 proceedings of conferences and has lectured in English for 4 years the lecture course on „Process Control and Industrial Automation“ in the Plovdiv Branch of the Technical University of Sofia.

The scientific metrics of the applicants completely satisfy the requirements of the Academic Staff Development Act, and the Regulation for its application.

I know Assoc. Prof. Koprinkova-Hristova from a number of conferences where both of us have participated, including ones where both of us have been in the organizing teams, e.g. three IEEE conferences that took place in Bulgaria. I hold in very high regard her scientific publications, for several of which I have been a reviewer.

In the light of the foregoing, I give a positive assessment of the materials presented for participation in the competition and I can recommend the respected members of the Scientific Jury, and then the members of the Scientific Council of the Institute of Information and Communication Technologies at BAS, to vote for the awarding to **Assoc. Prof. Doicheva Koprinkova-Hristova** of the academic position “**Professor**” in Professional direction 4.6 “**Informatics and Computer Sciences**”.

04 October 2019

Reviewer: ..

**NOT FOR
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