

OPINION

about Assistant Professor Dr. Peter Mladenov Vassilev
in the concourse for academic position "Associate Professor"
in the professional field 4.6 "Informatics and Computer Science"
specialty "Informatics"

Reviewer: Prof. Stefka Stoyanova Fidanova

By Order No 235 of 21.05.2021 of the Director of the Institute of Biophysics and Biomedical Engineering at the BAS, Prof. Tania Pencheva on the grounds of Art. 25 of the Act on Development of the Academic Staff in the Republic of Bulgaria and the decision of the Scientific Council of IBPhBME-BAS (Protocol No. 7 of 20.05.2021), I was appointed a member of the scientific jury under the procedure for the academic position of "Associate Professor" in the professional field 4.6 "Informatics and Computer Science", scientific specialty "Informatics", announced for the needs of section "Bioinformatics and Mathematical Modelling" in the State Gazette no. 30/13.04.2021. As a member of the Scientific Jury I have received all the documents attached to the application to the Director of IBPhBME-BAS of the only candidate for the competition, Assistant Professor Dr. Peter Vassilev.

According to the Act on Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its implementation and the specific requirements introduced in the Regulations of IBPhBME-BAS, the applicants must meet the following requirements:

1. Have acquired a doctorate degree in education and science;
2. Have held the academic position of "Associate Professor" at the same or another higher education institution or scientific organization for at least two academic years;
3. Have submitted published monographs or equivalent publications in specialized scientific editions which do not repeat the ones submitted for the acquisition of the educational and scientific degree "Doctor", the scientific degree "Doctor of Sciences" and for the occupation of the academic position "Assistant Professor";
4. Have presented other original scientific works, publications, inventions and other scientific and applied scientific works which are evaluated in aggregate;
5. Meet the national minimum requirements;
6. Not to have plagiarism proven by statutory order in scientific works.

Dr. Peter Mladenov Vassilev has received educational and scientific degree "Doctor" (diploma No 000261 issued it 10.06.2013 from Bulgarian Academy of Sciences)

Peter Vassilev has a total 51 publications and 126 citations in Scopus and $h=6$.

For Group B requirements, Peter Vassilev has submitted 9 publications, 1 with IF in Q1, 1 with IF in Q2 and 1 with IF in Q3, 5 of them with an impact rank and 2 in the global indexing and referral system, without an impact factor or impact rank, the total number points is 102 for required 100.

For Group G indicators, a total of 21 publications are presented: 1 with IF in Q1, 2 with IF in Q2 and 3 with IF in Q4, 9 of them with an impact rank and 6 in the global indexing and referral system, without an impact factor or impact rank. The total number of points is 227 with required 220.

Dr. Peter Vassilev submitted 12 citations by other authors. All are with impact factor or impact rank. The total number of points is 72 with required 60 under indicator D.

Assistant Peter Vassilev fulfills and, by some indicators, significantly exceeds the national requirements, as well as the specific requirements of BAS and IBPhBME for the academic position of "Associate Professor".

The main area of research in which the candidate has conducted his research is the use of methods that handle incomplete information and can be used in practice to support decision-making in conditions of uncertainty.

The main scientific contributions of the candidate can be divided into two groups:

Scientific:

- 1) Extending the theory of index matrices by introducing two types of level operators - the first of which is applicable over EIFIM and IFIM, and the second only over EIFIM.
- 2) Expanding the theory of IFS by introducing a new ordering over IFS, new distances and new operators.
- 3) Categorization of a large part of the existing extensions of the fuzzy sets and establishing their connection with the IFS by means of evidence for equivalence, inclusion, incorrectness of the extensions, etc.
- 4) Expansion of the theory of ICrA by introducing a new algorithm for calculating the estimates of similarity between the criteria.

Scientific and applied:

- 1) Formal description of the algorithms needed to develop a software product to support clinicians' decisions to wean off ventilator-dependent critically ill patients. The system objectively analyzes the condition of patients for timely transition from full to partial ventilators support and subsequent adequate downward titration of the supporting pressure.
- 2) Finding non-linear relationships between criteria in order to reduce the dimensionality of the space of features in practical tasks from different fields - medicine, economics, computer-aided drug design, oil industry, etc.

I have known the candidate since he was a doctoral student. I have excellent impressions of his work. The materials presented by the candidate are complete and detailed. They contain the necessary information required by law. The contributions are presented concisely and summarized, with emphasis on the significant author's contribution.

CONCLUSION

According to the presented documents, the candidate Peter Mladenov Vassilev fulfills all the requirements of the law and the Regulations to it and the Regulations for the specific requirements for acquiring academic degrees and occupying academic positions at BAS and IBPhBME-BAS. I give a positive conclusion for the selection of Peter Vassilev in the competition for the academic position of "Associate Professor" in the professional field 4.6 "Informatics and Computer Science", scientific specialty "Informatics".

I propose that the Scientific Jury unanimously vote on a proposal to the Scientific Council of the IBPhBME at the Bulgarian Academy of Sciences to select Peter Vassilev for the academic position "Associate Professor" in the professional field 4.6 "Informatics and Computer Science", scientific specialty "Informatics".

30.06.2021