

OPINION

- by: PENCHO GENOV MARINOV, Prof. Dr., ICT - BAS
(Institute of Information and Communication Technologies)
Section "Parallel Algorithms"
- on: the competition for academic position "Professor",
Area of Higher Education 4. "Natural Sciences, Mathematics and Informatics"
Professional Field 4.6 "Informatics and Computer Sciences",
Scientific Specialty "Informatics"
the competition is announced in the Newspaper of State, No.84/8.10.2021, p.90, #964 (5878)
- for: needs of Bioinformatics and Mathematical Modeling Department
at the Institute of Biophysics and Biomedical Engineering
Bulgarian Academy of Sciences (IBPhBME-BAS)
- with: the sole candidate Associate Professor, DrSci DICHKO STOYANOV STRATIEV

1. Reason and general description of the submitted materials.

By order No.673/30.11.2021 of the Director of IBPhBME at BAS, on the basis of a decision of the Scientific Council (Protocol No.14/29.11.2021), according to Article 29a of the Act on Development of the Academic Staff in the Republic of Bulgaria (ADASRB), I have been appointed a member of the scientific jury in accordance with the procedure described above. As a member of the Scientific Jury of his first meeting (according to Order No.713/10.12.2021) on 15.12.2021, I was appointed as a member of and received the materials of the procedure.

Description of received materials follows. I adhered to the numbering from the list to the applicant's application. The inventory proposed by the applicant almost coincides with the listed (and unnumbered) documents in item 5.5 of the Regulations for application of the ADASRB in IBPhBME - BAS, which is even more perspicuous.

(1) Application of the candidate to be admitted to the competition. Ends with an inventory of the submitted 19 groups of documents; (2) CV (Autobiography) on the European model in Bulgarian. Briefly about Dicho Stratiev: He was born in 1965; Education and training: chemical engineer - 1990, specializations in Germany and Russia; Scientific career: 2002 defense of a dissertation for PhD, 2006 - Associate Professor /Higher Attestation Commission (HAC)/, 2010 - defended dissertation for "Doctor of Technical Sciences"; Professional career: chemist-technologist, Institute of Petroleum Refining and Petrochemistry - 1990-2000, head of the shop in LUKOIL Neftochim - 2000 - 2002, Deputy. Director of TIN - LUKOIL Neftochim - 2002-2004, Head of Probl. Scientific Research. Laboratory (successor of the TIN) - 2004, Chief Technologist of LUKOIL Neftohim Burgas (LNB) - 2010. Fluent in Russian, English, German. (3) Diploma for the educational and scientific degree "Doctor" (PhD), issued by the Higher Attestation Commission on 13.05.2002, with No.27886. (4) Diploma for the scientific degree "Doctor of Science", issued by the Higher Attestation Commission on 03.01.2011, with No.34726. *The first requirement of item 6.3 of the IBPhBME Regulations has been met - To have obtained the PhD degree or the scientific degree "Doctor of Sciences".* (5) Abstract of the dissertation for the acquisition of PhD. (6) Abstract of the dissertation for obtaining the scientific degree "Doctor of Technical Sciences". The candidate is not an employee of BAS, so he submits the following two documents: (7) Medical certificate Amb. No.4218 / 30.11.2021, "Medic Professional - APIMPPIP" EOOD, Aytos; (8) Certificate of criminal record Reg. No.2996 / 24.11.2021, Aytos District Court; (9) Certificate of internship in the specialty: according to the Information issued by LNB from 26.11.2021 the work experience of the candidate is over 30 years. *The second requirement of item 6.3 of the Rules of IBPhBME has been fulfilled - To have held the academic position of associate professor at BAS or University for at least 2 years or to have at least 7 years scientific experience ... /see also the Certificate from item (19) at the end of this inventory/* (10) Detailed information on the fulfillment of the minimum requirements for holding the academic positions 'Associate Professor' and 'Professor' specified in the IBPhBME-BAS Regulations. Because the candidate is not held the academic position of 'Associate Professor' at the Bulgarian Academy

of Sciences, the references are for the two academic positions. (11) List of publications for the acquisition of: PhD, the scientific degree "Doctor of Science"; for holding the academic position of 'Associate Professor', as well as for participation in the competition for the academic position of 'Professor'. (12) Abstracts of publications, in English and Bulgarian – 34 sheets for 41 articles, with which he participated in the competition. (13) Habilitation Extended Reference for Scientific Contributions – 13 pages. (14) In a separate folder are presented in PDF format all 41 works participating in the competition, as well as Supporting information for Paper No.5, one patent – RU 2 721 118 C1, published 15.05.2020 Bull. No.14; a monography - 400 pages from 2017, prepared on the basis of 49 scientific articles with the participation of the candidate – there is also a document certifying the participation of over 50% of Dicho Stratiev. (15) Eight /8/ USB-s media with copies of the attached documents to the competition and the Regulations for the implementation of ADASRB in IBPhBME-BAS. (16) List of noticed citations of the candidate's publications. /1074 citations, 115 pages/; (17) List of all publications up to the time of the "Professor" academic competition (until 08.12.2021). /250 pieces, 31 sheets/; (18) List of defended dissertations for the acquisition of PhD, which were supervised from Assoc. Prof Dicho Stoyanov Stratiev. In addition to the names of the doctoral students and the topics of the dissertations, for most there is additional information about the jury and reviewers. (19) Certificate for the scientific title "Senior Research Associate second degree" (Associate Professor), issued by the Higher Attestation Commission on 11.08.2006, with No.23861.

2. Evaluation of publications and citations.

Publications:

The candidate participates in the procedure with a total of 41 publications, according to the lists given in item (11) of the materials. The work of the reviewer is facilitated: the quartiles (Q1, Q2, Q3, Q4) of the articles with IF (WoS) are indicated; SJR of the articles visible in SCOPUS. They are grouped as required by NACID and the Regulations.

In the IBFBMI regulations, the requirement for a professor explicitly requires at least 15 of the articles in the groups of indicators (B4) and (D7) are with IF (WoS). And if the candidate has not held the academic position of "Associate Professor" Evidence must be provided that it meets the requirements for both positions. This is not exactly the case with us, but the candidate has taken this step as well.

Regarding the publications from the list for "associate professor": a total of 71; 33 - Q4; 21 - SJR, 16 - without SJR.

For publications from the "Professor" list: a total of 41; 18 - Q1; 5 - Q2; 9 - Q3; 5 - Q4; 4 - SJR.

texts Here we will note that the last two requirements of item 6.3 of the Regulations of IBFBMI-BAS are met: Publications have not been used in previous procedures and the specific requirements of the Regulations have been met.

The next section 4 of the review below will see the dotted dimension for both publications and citations.

Citations:

A list of 1074 citations is presented, in the group of materials from item (16). Not visible in Scopus, WoS of the others, which makes it difficult to calculate the points on indicator D11.

Without taking advantage of the Note marked with ^s in the Regulations, the number of citations is sufficient to cover requirements for both academic positions.

3. Evaluation of contributions.

The document from the inventory 13. Habilitation extended reference for scientific contributions was prepared by Dicho Stratiev almost according to the requirements, and therefore I will adhere to its structure.

- (1) Introduction, which briefly describes the essence of the researched scientific problems and their place among the research of other researchers in this field;

The contributions from the developments presented in the competition are in the field of chemistry and oil technology and the application of mathematical techniques such as

intercriteria analysis, artificial neural networks, correlation and regression (linear and non-linear) analyzes and generalized networks. They cover the results of research on modeling the properties of oil and its derivatives, study and improve the operation of highly cost-effective pseudo-boiling hydrocracking processes layer of oil vacuum residues using H-Oil technology, catalytic cracking of vacuum gas oil and modeling the production of gasoline and diesel fuels.

- (2) Scientific contributions are in two main areas:
 - (1) Application of intercriteria analysis for modeling the properties of oil and its derivatives.
 - (2) Application of generalized networks, artificial neural networks and the nonlinear least squares method for modeling processes and properties in oil chemistry and technology
- (3) Practical contributions are also divided into two types:
 - (1) The findings as a result of the conducted research with the help of intercriteria analysis and modeling methods, using generalized networks, artificial neural networks and the method of least squares regularities have found expression in their application in oil refining practice in significant improvement the efficiency of the studied processes. This improved efficiency is expressed in financial units amounts to over 70 million USD for a period of 9 years
 - (2) The application of intercriteria analysis for selection of suitable types of oil for refining in the refinery of LUKOIL Neftochim Burgas has led to the realization of economic effect amounting to 62 million USD for a period of 5 years.
- (4) Plans for future research and development in the field of analysis and modeling, and their application in chemistry and petroleum technology include
 - (1) A second monograph with a title is in the process of finalization "The Synergy between Ebullated Bed Vacuum Residue Hydrocracking and Fluid Catalytic Cracking Processes in Modern Refining - Commercial Experience";
 - (2) A summary of the research on the chemistry of oil, carried out with the help of intercriteria analysis and mathematical modeling under the title: "The role of petroleum characterization in modern refining - an application of inter criteria analysis", which should be formed as a third monograph;
 - (3) The research related to the development and defense of several dissertations continues, of which the candidate for professor is a co-supervisor.
- (5) There is no Bibliography in which the articles are clearly distinguished, with which the candidate participates in the competition, from the other articles of the candidate and from the articles of other authors. This has been successfully compensated, with mostly articles cited from the attached list of publications participating in the competition /see item (11) of the list of received materials/.

4. Fulfillment of scientometrics requirements.

Group Indicators	Content of the Group	Requirements of IBPhBME for		Score of the candidate for	
		Assoc.Professor	Professor	Assoc.Prof.	Professor
A	Indicator 1 (thesis)	50	50	50	50
B	Indicator 3 or 4	100	100	184	100
G	Indicators from 5 to 10	220	220	518	810
D	Indicator 11	60	120	410	2148
E	Indicators from 12 to 20	-	100	-	325
Total	for all groups	430	590	1162	3433

The candidate has filled in "Information on the implementation of the minimum requirements of IBPhBME-BAS" for the academic position "Professor", for the field "4.6 Informatics and Computer Science". The reference table is in the form required by NACID for "Register of Scientific Activity" and "Register of Academic Staff", and the points are consistent with *Regulations on the terms and conditions for obtaining scientific degrees and for borrowing to academic positions at BAS*, also with *Regulations for application of ADASRB in IBPhBME-BAS*.

I will only note that the points with the minimum requirements of NACID are different and the overfulfillment in the attached here Table will be even bigger.

5. Critical remarks, compliments and recommendations.

When asked for a reference to "Dicho Stratiev" Scopus and WoS give many more articles and citations. This shows that Dicho Stratiev's works are visible to the scientific guild.

It is not clear how the number of citations for indicator 'D11' in the Tables in the references from item (10) was chosen – for both academic positions.

I have no critical remarks, which would call into question the candidate's contributions and which would influence my positive assessment at the end of my review.

6. Personal impressions about the candidate.

I do not know the candidate personally, but in addition to the research of Acad. Krassimir Atanassov, I processed data provided by Dicho Stratiev and from there I have the best impressions of his work. *We have no conflict of interest in the sense of the rules and on the occasion of my participation in this Scientific Jury.*

When searching through SCOPUS the author's name is visible: 146 publications, 557 citations, h-index 11.

For reference in Web of Science: 107 publications, 692 citations.

7. Conclusion.

Considering that: the candidate has sufficient scientific and scientific-applied contributions; the achievements have been announced among the scientific community in sufficient and high-quality publications, scientific symposia - and all requirements, conditions and criteria of: *Act on Development of the Academic Staff in the Republic of Bulgaria (ADASRB)*, *Regulations on the Implementation of the Development of Academic Staff in the Republic of Bulgaria Act*, *Regulations on the terms and conditions for obtaining scientific degrees and for occupying academic positions at BAS*, also *Regulations for application of ADASRB in IBPhBME – BAS*, have been met,

I have reason for the following conclusion:

I give a positive assessment of the materials with which the candidate participates in the competition for Professor.

I recommend to the members of this Scientific Jury, and then to Scientific Council at IBPhBME-BAS to choose ASSOCIATE PROFESSOR DICHO STOYANOV STRATIEV to take the academic position PROFESSOR, in the field of higher education 4. "Natural Sciences, Mathematics and Informatics", professional field 4.6. "Informatics and Computer Science", specialty "Informatics", in section "Bioinformatics and Mathematical Modeling" at the Institute of Biophysics and Biomedical Engineering (IBPhBME – BAS)

February 15, 2022
Sofia

Reviewer:
/Prof. Pencho Genov Marinov/