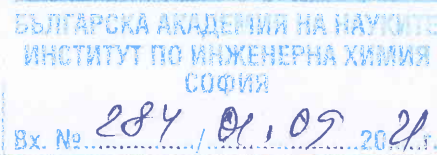


REPORT



For Competition : Academic position (AP) "Associated Professor" in a professional field (PF) „4.2. Chemical Sciences ", specialty " Processes and apparatus in chemical and biochemical technology "

announced: in Government newspaper, no. 37 of May 7, 2021, by the Institute of Chemical Engineering at the Bulgarian Academy of Sciences (ICHe-BAS), for the needs of the Laboratory "Transfer Processes in Multiphase Media"

with candidate: Dimitar Nikolaev Kolev, doctor, engineer

1. Brief biographical data and characteristics of the applicant's scientific interests.

The candidate, Dr. Eng. Dimitar Nikolaev Kolev, was born on January 20, 1966. He graduated in 1988 in VMEI "V.I. Lenin" - Sofia (now TU-Sofia), specialty "Heat and mass transfer equipment", as a mechanical engineer. In 2001 he began his PhD in self-study at IChE-BAS, code 02.10.09 and successfully defended it in 2005, with a dissertation on "Increasing the opportunities for systems with contact economizers." Meanwhile, the candidate has worked for 4 years in IChE-BAS as a technologist, as well as in various companies related to his specialty, as a manager ("ECOSYSTEM - Dimitar Kolev", "Ecosystem Project" Ltd., "Ecosystem Project - 2003" Ltd.) and Executive / Technical Director (Trade and Technology Company AD), where he still works. Dr. Kolev successfully combines his practical work in industrial companies with teaching - he was a part-time assistant at the University of Mining and Geology "St. Ivan Rilski" Sofia, three semesters, where he gave lectures and seminars in various disciplines (2006/2007 summer semester, 2010/2011 winter and 2011/2012 winter). The candidate is a member of the Union of Chemists and the Union of Inventors in Bulgaria and winner of two awards (2005 and 2011). He has implemented 6 successful implementations in the industry - installations with contact economizers (first and second generation), installation for recovery of waste heat to a drying installation in a tile factory, participated in the design and construction of a pellet production plant and a plant for processing of car tires.

The scientific interests of Dr. Dimitar Kolev can be summarized with the following key expressions: energy conversion systems and installations; design and construction of facilities in the field of energy efficiency, technologies for flue gas cleaning and waste heat recovery, creation and research of the characteristics of new and available packings for heat and mass exchangers.

2. General characteristics of the research and scientific-applied activity of the candidate (including participation in national and European projects/contracts, expert activity, management of doctoral students, scientific-organizational activity, etc.).

The candidate has mainly scientific and applied activity as a specialist in practice, as can be seen from the attached CV. For this competition he presented 6 implementations, 10 patents, as well as 2 separately implemented patents "Drying plant for obtaining powdered materials" (2000) and "Method and installation for pyrolysis of car tires" (2015). He has participated in two projects with BNSF - "Thermodynamic characteristics of the conversion processes in the combustion chamber of the gas turbine" (No. HTE, 2-3 / 2005) and "New technologies for cleaning flue gases from small and medium boilers from sulfur dioxide upon simultaneous receipt of valuable products" (No. DO02-361/30.12.2008). No data for scientific and organizational activity are presented. The candidate has held three semesters of teaching at the University of Mining and Geology "St. Ivan Rilski" - Sofia, as a part-time assistant. His expert activity is reflected mainly through his participation in the implementations, patents, design and construction of energy efficient and environmentally friendly installations.

Quantitatively, the overall research, scientific-educational and applied activity of the candidate at the moment and according to the documents submitted by him, is expressed by the following indicators: 21 scientific publications (of which 3 are for the PhD), i.e. 18 for this competition; 14 patents (4 are for PhD), or 10 for the competition; 16 full text reports, of which 7 are for PhD, i.e. 9 for the competition; and 23 reports, of which 17 remain for the competition. 65 citations on the publications for the competition are presented, mainly in journals with IF/SJR. Candidate's personal Hirsch factor according to SCOPUS is 7.

3. Evaluation of the presented materials (number and characteristics of the presented works - scientific publications, monographs, research)

The candidate has submitted for this competition the full set of required documents and evidence certifying: a) the coverage of the minimum requirements for the academic position (AP) "Associate Professor" in PF 4.2 "Chemical Sciences", according to the Regulations for the acquisition degrees and holding academic positions at BAS / 3.09.2019, and b) covering the additional requirements of IChE-BAS for holding AP "Associate Professor", according to the Methodology for career growth of scientists in IChE-BAS, Appendix 1.

I have checked the sources indicated by the candidate for each of the indicators in item a) and item b), and I accept and agree with the points calculated by the candidate, with small corrections. The candidate has submitted for this competition - 18 articles in journals with IF/SJR, 65 citations, 9 full-text papers and 17 conference presentations, 10 patents, 5 implementations, 2 participations in BNSF projects, 3 semesters of teaching activity for students. According to the following two tables, the presented assets fully satisfy and exceed the minimum number of points for covering the minimum and additional criteria for borrowing AP "Associate Professor" in this competition, namely:

	A. PhD degree	B. DSci degree	B. Monography/ publications in Web of science/Scopus	Г. Publications Besides Monography/ publications in B	Д. Citations (Web of Science/Scopus)	E. Others (PhD students, projects, textbooks)
Covered	50	---	124	290	102	-
Required (minimum)	50	---	100	220	60	-

	T.1 Publications outside PhD to be ≥ 15	T.2 All publications ≥ 20 , from which 15 in referred journals. At least 5 of them with $IF \geq 0.5$ or $SJR \geq 0.25$	T.3 Citations \geq 20	T.4 Personal rating $\geq 46 \pm 10\%$	T. 5 Hirsch factor
Covered	18	21 (15), 5	63	50.465	7
Required in IChE- BAS	15	20 (15), 5	20	46	4

4. Main scientific and scientific-applied contributions.

The presented publications and patents summarize the scientific and scientific-applied contributions of the applicant in several areas: 1) design, construction and research of energy efficient installations and methodologies for utilization of waste heat and purification of gases from harmful emissions (SO_2); 2) studies of the characteristics of new and existing high-efficiency packings, as well as of vertical redistributive packing for low densities of irrigation; 3) research to increase the efficiency of gas turbines; 4) development of methods and installations for waste processing (municipal waste, car tires), as well as for the creation of a new product for waste incineration (wood briquettes).

The main contributions from the presented materials could be summarized in my opinion as follows: enrichment of existing knowledge and theories (for scientific) and application of scientific achievements in practice (for applied), in the above publications and patents submitted by the applicant.

I evaluate and agree with the scientific and scientific-applied contributions described by the candidate from his research, as presented. The emphasis is on the applied contributions expressed through the applicant's patents, in particular those related to increasing the efficiency of combustion plants and recovery of waste heat, methods and installations for waste incineration, for new fuel materials from waste, as well as devices for creating an uniform distribution (vertical packing with intersecting capillary channels).

I believe that the personal contribution of the candidate is clearly visible - in the 18 publications submitted for the competition, the candidate in 6 is in first place, in 5 - in second, in 2 in third, in 3 in fourth and in 2

in fifth place. In the case of patents - in 7 of the presented ones he is in the first place, as in 2 of them he is the sole author, in 1 he is in the second place, and in 2 in the third place. It should be noted that there are three replicas of Patent II.6 in Australia, the United States and Canada. The materials and documents submitted in this competition show that the candidate has sufficient qualifications, skills and experience in various fields, both nationally and internationally.

5. Reflection of the candidate's scientific publications in the Bulgarian and foreign literature.

The citations of the publications to the competition presented by the candidate overexceed the required minimum (see Indicator D and item 3 of the tables).

6. Critical remarks and recommendations.

From the scientific publications submitted for the competition, for publications I.1 and I.2 the journals do not have SJR for the indicated years in which they were published (1993 and 2001), and accordingly should not be counted in item 7, indicator D when calculating the minimum requirements. Publication I.4 has to be scored with 10 points, not 15, as in 2002 the journal did not yet have an impact factor. Similarly, due to the lack of IF / SJR for the respective years for the journals, publications I.8 and I.11 should be scored with 10 points and not with 20 and 15, as considered in item 7, indicator D. Of the presented citations, for publication I.5 - citation No.14 is in a book, not referenced in Scopus / Web of science, for publication I.11 - citation No.5 is in a journal, which is also not referenced in Scopus / Web of science. Patent citations (word file) - for II.6, II.13 - the links are a reference to the patents themselves and not to others which cite them (I guess, a technical error). Notwithstanding the above, this does not significantly change the points for covering the minimum requirements, as can be seen from the tables above, and is rather of a recommendatory and clarifying nature.

7. Personal impressions of the reviewer about the candidate.

I know Dr. Kolev from the time when he was a PhD student at IChE-BAS, as well as from meetings at conferences and other scientific events.

CONCLUSION

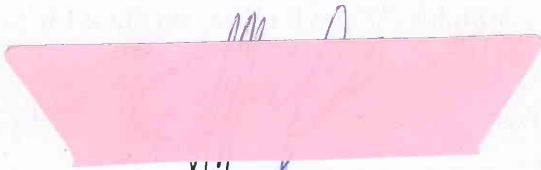
Based on the above, I believe that the candidate in this competition for AP "Associate Professor" at IChE-BAS, Dr. Dimitar Nikolaev Kolev, fully satisfies and meets the minimum requirements for the academic position (AP) "Associate Professor" in PF 4.2 " Chemical Sciences ", according to the Regulations on the terms and conditions for acquiring scientific degrees and holding academic positions at BAS / 3.09.2019, as well as the additional requirements of IChE-BAS for holding AP " Associate Professor ".

I propose to the esteemed jury and to the National Assembly of IEES to vote positively on the following proposal for decision: "Dr. Eng. Dimitar Nikolaev Kolev to be elected to the academic position of "Associate Professor" at the Institute of Chemical Engineering - BAS, under PF 4.2 "Chemical Sciences", "Processes and apparatus in the chemical and biochemical technology", for the needs of the Laboratory "Transfer processes in multiphase media".

Date

Prepared the report:

03.09.2021


/Assoc. Prof. Dr. Tatyana Petrova, IChE-BAS/