

OPINION

by Prof. D.Sc. Dimitar Andonov Dichev, Technical University of Gabrovo

on the materials submitted for participation in competition for the appointment of an academic position “Associate Professor” in the area of higher education – 5. Technical Sciences, professional field – 5.1 Mechanical Engineering, scientific specialty – Industrial Heat Engineering

1. Information about the competition

The competition for the occupation of the academic position “Associate Professor” at TU-Gabrovo has been announced in the State Gazette, no.58 of 07/23/2019 and on the site of TU-Gabrovo for the needs of the Department of “Power Engineering” at the Faculty of “Mechanical and Precision Engineering”

2. Information about the candidates in the competition

In the announced competition the only candidate is Chief Assistant Prof. Valentin Metodiev Petkov, PhD, full-time lecturer in the Department of Power Engineering at the faculty of Mechanical and Precision Engineering. The candidate has fully complied with the normative and qualitative requirements of the Law on “Development of the Academic Staff in the Republic of Bulgaria” in the part “Conditions and Order for Occupying the Academic Position of Associate Professor”.

Chief Assistant Prof. Valentin Petkov, PhD is a Master of Science in Engineering with a specialization in “Technology of Mechanical Engineering and Machine Tools” and doctor of science with scientific specialty “Industrial Heat Engineering” based on a defended PhD thesis “Intensification of heat exchange in circular tubes with rolled turbolizers and spiral strips”. The topic of the dissertation is in the scope of the scientific specialty of the competition.

Chief Assistant Prof. Valentin Petkov, PhD began his scientific and teaching career in 1987 in HIMEE – Gabrovo on a basic labor contract. He is fluent in English and Russian. Valentin Petkov began his scientific-teaching career in 1987 at the Technical University of Gabrovo on a basic labor contract. He is fluent in English and Russian. In the competition V. Petkov, PhD participates with scientific materials that do not repeat the submitted publications for the acquisition of his doctoral degree and for the occupation of the academic position “Chief Assistant”.

3. An overview of the content and results of the submitted works

The candidate’s submitted scientific papers in regard to the completion can be classified into the following four general groups: monograph research paper, doctoral dissertation, scientific publications – articles published in scientific journals, studies published in academic collections from scientific conferences and textbooks. The analysis of the materials submitted by Chief Assist. Prof. Valentin Petkov, PhD shows that they cover and exceed in quantity the relevant minimal, national requirements within the meaning of the Law on Development of the Academic Staff in the Republic of Bulgaria, the rules for its implementation and the rules of TU- Gabrovo.

The monograph „Performance Evaluation of Ducts with Non-Circular Shapes and Laminar Fully Developed Flow“ is a serious and complete scientific work devoted to the presentation of a new information based on study, analysis and evaluation of energy efficiency of devices with non-circular shape ducts and fully developed laminar flows. This work has been published in English and is a valuable guide for researchers, doctoral students and specialists in constructions of thermodynamic systems. The most important results of each part of the monograph are published in scientific journals.

The dissertation for acquisition of doctoral degree is an in-depth study in the scope of the announced competition for the appointment of the academic position “Associate Professor”. The work has undisputed scientific and applied contributions for which the reviewers have given a positive assessment.

The twenty five submitted publications were printed in the period 2006-2018, twenty two of them are articles published in scientific journals and three research papers are presented at the UNITECH conference. There are 14 articles published in international journals and three of them are published in Impact Factor editions, which is an important evidence of the applicant’s high level scientific works. The candidate Valentin Petkov, Ph.D is the first author in 13 of all publications and in seven of them his name is listed as the second co-author. Therefore, I accept that in all these works, Valentin Petkov, PhD has made a leading contribution, which means that the formulation of the problems studied, the conduct of the relevant experiments, the analysis of the data and the publication of the results are the sole merit of the candidate for this competition. In terms of content, the publications cover a wide range of thematic areas. The latter include: characteristics and evaluation of the efficiency of pipe and duct types in laminar and turbulent flows; intensification of heat exchange in different types of flows through spring inserts; application of vector dimension analysis for determining the pressure drop in spiral strip pipes; efficiency of flat solar collectors, etc. It should be noted here that the thematic areas could be systematized much more precisely by bringing out main, unifying features.

4. General characteristics of the candidate’s activity

4.1. Educational and pedagogical activity

The candidate Valentin Petkov, PhD has a considerable professional experience as a university lecturer at the Technical University of Gabrovo, where he has been working since 1987. This fact alone testifies that his professional maturity well deserves to be appointed to the academic position of “Associate Professor”. In support of the above is his workload as a university lecturer in four major disciplines of Bachelor of Arts students and five Master’s degree courses. All this is proof that the Department of Power Engineering at TU – Gabrovo has highly valued his teaching and pedagogical skills and assigns him a wide range of subjects to be taught at the university.

4.2. Scientific, Applied and Implementation activities

I will be brief, because the evaluation elements of this section are clearly and logically presented in the previous sections of the opinion. As I mentioned above, the candidate participates with 25 scientific publications in the announced competition. I can summarize here that, in general, these publications contain theoretical summaries and solutions to a number of scientific and scientifically applied problems in the scope of the announced competition. This is expected in view of the extensive, practical experience of the candidate gained as a result of his lengthy and thorough research, theoretical, methodical, experimental and applied activity. I can justify the above by pointing out that in the period from 2004 to the present time the candidate has participated in 14 research projects, working as a manager in four of them and the funds raised are just over 49000 BGN. All this gives a good basis for the candidate’s publishing activity, the quality of which is clearly stated by the citation of his scientific works. The reference I made at the time of writing this opinion shows that the candidate’s publications have been noticed by the scientific community at home and abroad. I will only mention here that in the world-famous data bases (Web of science and/or Scopus) I have found 30 citations from the candidate’s publications, included in the materials submitted for participation in the competition.

In the materials presented for the completion the implementation materials are not included. However, most of the scientific papers contain results that can be put into practice. In addition, Chief Assistant Professor Valentin Petkov, PhD took part in the construction of the research

