

## OPINION

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On the materials presented for the competition  
for the occupation of the academic position "Associate Professor"  
in Area of Higher Education - 5. Technical sciences  
Professional field - 5.13. General engineering  
Specialty - Engineering Ecology

In the competition for associate professor, announced in the State Gazette, issue 68 / 31.07.2020 and on the website of TU-Gabrovo for the needs of the Department of Mathematics, Informatics and Natural Sciences at the Faculty of Economics, participates as the only candidate Ch. Assistant Dragomir Stoyanov Vasilev.

This opinion has been prepared in accordance with the requirements of the Law for development of the academic staff in the Republic of Bulgaria, the Regulations for application of the Law and the Regulations for acquiring scientific degrees and holding academic positions at the Technical University of Gabrovo. Ch. Assistant Professor Vassilev has submitted all required documents according to Art. 57 of the Regulations for acquiring scientific degrees and holding academic positions at the Technical University - Gabrovo.

### **1. An overview of the content and the results of the presented works**

To participate in the competition, the candidate submits a list of 31 scientific publications, of which five are independent and 26 are co-authored. All publications are in editions registered in the ISSN numbering system. 23 of the presented publications in materials from international scientific forums in Bulgaria or abroad and eight are in scientific journals published in Bulgaria. The total number of citations by Bulgarian and foreign authors is 10, of which 7 in scientific journals, referenced and indexed in world-famous databases of scientific information (Scopus / Web of Science). The Hirsch index of the candidate is 3. To the documents for the competition the candidate also presents a monograph, a textbook, 4 textbooks for practical exercises and one document for implementation. These indicators fully meet the requirements for holding the academic position of "Associate Professor" written both in the national minimum requirements and in the Regulations for acquiring scientific degrees and holding academic positions in TU, Gabrovo, covering the indicators of groups A, B, G, D. Also the candidate Ch. Assistant Professor Dragomir Stoyanov Vassilev has a serious teaching experience as a senior assistant during which he gives lectures, exercises, guides students, prepares curricula and more.

### **2. General characteristics of the candidate's activity**

#### **2.1. Educational and pedagogical activity (work with students and doctoral students)**

Dr. Vassilev began his teaching career at the Technical University - Gabrovo in 2004 and consistently in a short time reached the position of assistant professor. During this period he gave lectures on the subject "Chemistry" and laboratory and seminar exercises in 16 disciplines related to chemistry, environmental protection, chemical technology, management of natural resources and more. During this period, Ch. Asst. of Environment and Sustainable Development”, group leader of students majoring in “Business Activities” and “Public Administration”. He is the co-author of one textbook and three manuals. This solid pedagogical experience is a good basis for creating independent lecture courses and future guidance of doctoral students.

## **2.2. Scientific and scientific-applied activity**

The scientific and scientific-applied activity of the candidate coincides with the educational and pedagogical one and is focused on general engineering, as it is related to chemistry, environmental protection, chemical technologies and process management.

In the field of chemistry, his research is focused on the creation of biologically active substances through engineering solutions for the synthesis, modification and application of organic compounds in modern chemical and environmentally friendly technologies related to the introduction of green technologies. It seeks to limit the application of conventional methods in chemical technology and to replace them with those aimed at limiting pollutants in the three areas (water basins, soils, air) with harmful or non-degradable waste from chemical production.

In engineering ecology and environmental protection, the main developments are those related to the prevention or reduction of pollution. It has been found that one of the most reliable ways to destroy harmful compounds is based on their catalytic oxidation with the participation of complete oxidation catalysts. To solve the problem, the candidate uses environmental catalysts, which are higher oxides of transition metals - Co, Cr, Ni.

Moreover, the scientific publications of the candidate for "Associate Professor" are co-authored with specialists from different fields of knowledge, which is a result of his desire for research to find its practical application. The large number of participations of eng. Vassilev in scientific forums for popularization of his scientific work is also impressive. Dragomir Vassilev has participated in 29 international scientific conferences at home and abroad, was a member of the working groups of 18 research projects, and was the leader of two funded by TU-Gabrovo, which shows that he is sought after and a valuable partner by his colleagues. Participates in ORCID scientific networks <http://orcid.org/0000-0003-0579-894X> and Web of Science ResearcherID J-8837-2013.

## **3. Contributions (scientific, scientific-applied, applied). Significance of contributions to science and practice**

On the basis of the conducted scientific and scientific-applied activities Dr. Vassilev receives significant results, which formed several scientific and scientific-applied contributions, as follows:

1. Catalytic systems for complete oxidation based on nickel and cobalt oxides have been obtained and a facility for monitoring the parameters of a flow-circulation reactor has been established.
2. The optimal reaction parameters for conducting ultrasonic synthesis of aliphatic and sucrose esters of higher unsaturated fatty acids are optimized.
3. The conditions of ultrasonic synthesis of sucropalmitate are optimized, the optimal parameters of esterification are determined, the influence of the type of catalyst on the yield and duration of the process is determined and the applicability of the product as a biodegradable plasticizer in plastics processing is studied.
4. The reaction conditions of transesterification are optimized, which leads to a significant reduction of the reaction time and the reaction temperature.

## **4. Conclusion:**

**Given the above, I propose Ch. Assistant Professor Eng. Dragomir Stoyanov Vassilev, PhD to take up the academic position of "Associate Professor" in the Area of higher education**

**5. Technical sciences, professional field 5.13. General Engineering, specialty - Engineering Ecology.**

27/10/2020

Jury member: /signature/  
Prof. Angel Ivanov Angelov, PhD