

OPINION

on the competition for the academic position "ASSOCIATE PROFESSOR" in professional field 5.8. "Exploration, extraction and processing of minerals", scientific specialty "Open and underwater mining of minerals", announced in the State Gazette, issue 36/17.04.2026 for the needs of the Department of "Development of Mineral Resources" of University of Mining and Geology "St. Ivan Rilski"

with candidate **Assistant Professor Eng. Martin Ivanov Pushkarov, PhD,**

prepared by **Assoc. Prof. Tsvetelina Stanimirova Petrova, PhD, Eng.,**

Technical University of Sofia,

member of the scientific jury according to order № РД-13-22/18.05.2026 of the Rector of University of Mining and Geology "St. Ivan Rilski"

- 1. Brief biographical data of the candidate.** The candidate Eng. Martin Ivanov Pushkarov, PhD, has been an Assistant Professor at the University of Mining and Geology "St. Ivan Rilski" since 16.06.2025. Previously, from 01.02.2021 to 07.11.2024, he worked for Technical University of Sofia in the same academic position. In 2020, he defended his doctoral dissertation at Technical University of Sofia. He has participated in 8 research projects, one of which is international and three are national.
- 2. General characteristics of the submitted materials.** In the competition for the academic position "ASSOCIATE PROFESSOR", Asst. Prof. Eng. Martin Pushkarov, PhD, has submitted 29 scientific works. They include a habilitation work - a monograph on indicator "**B**", and 28 publications are included in the group of indicators "**I**", 20 of which are in issues/journals indexed in Scopus and/or Web of Science, and 7 publications - in peer-reviewed issues from the National Reference List. Of the attached indexed publications, one is a book chapter, and three of the scientific works are journal articles, of which one (Sustainability) has an impact factor IF = 3.9, and another (Energies) - with IF = 3.0. The candidate's works are in the following fields: purification of acidic mine waters generated as a result of mining activities, development of methods for their mathematical modeling and engineering management; renewable energy sources - modeling, design, manufacturing and testing of hydraulic machines; modeling, design and testing of hydraulic components and hybrid systems; application of biochar for improving the soil characteristics.

3. Main scientific-applied and applied contributions

- A comprehensive engineering approach for the study and management of mine waters has been developed. A method for integral modeling of two-phase flows in acid mine waters has been developed, as the proposed mathematical models have been experimentally validated and their applicability has been assessed. Recommendations for monitoring, control and treatment of acid mine waters have been proposed to optimize technological solutions and reduce environmental risk.
- A hybrid system stand, including a water turbine with oscillating blades for the utilization of sea wave energy and a " Wells " type air turbine, has been modeled, designed, manufactured, and experimentally tested.
- Axial hydrokinetic turbines for energy production in rivers in low-slope areas have been modeled, designed, built, and tested in laboratory conditions.
- The use of biochar produced from different types of biomass at different temperatures has been studied, and its potential for improving the soil quality has been demonstrated.

4. **Teaching activity.** Assist. Prof. Eng. Martin Pushkarov, PhD, takes his teaching work seriously. The feedback from both students and teachers is excellent. I know the candidate from our joint work at the Technical University of Sofia. As an Assistant Professor at Technical University of Sofia, he developed electronic courses, "Pumps, Compressors, Fans" and "Computer-Aided Design (CAD)", for students at a very high level. He is attentive and patient, and has good organizational and teamwork skills. His professional and personal qualities are prerequisites for his good work as an associate professor.

5. **Scientometric indicators.** For the current competition, the candidate has submitted 8 citations from publications indexed in the international databases with scientific information Scopus and Web of Science. A Scopus search shows that the candidate has 25 independent citations in total and his Hirsch index is $h = 3$. Five of the eight cited publications are in journals that are in the first or second quartile (Q1 or Q2), and have an impact factor IF from 2.6 to 3.5. The attached documents for the announced competition show that the candidate Eng. Martin Pushkarov, PhD, meets the minimum national and university scientometric indicators, as the information is summarized in Table 1.

Table 1.

Group of indicators	Contents	Associate Professor	
		Minimum required points	Points scored
A	Indicator 1	50	50
B	Indicator 3	100	100
Г	Sum of indicators 5 to 11	200	228
Д	Sum of indicators 12 to 15	50	80
Total		400	458

6. **Critical remarks.** I have no critical remarks or questions to the candidate.

Conclusion. After reviewing the materials submitted for the competition for the academic position "ASSOCIATE PROFESSOR", I deem that they fully satisfy the minimum requirements of the Academic Staff Development Act of the Republic of Bulgaria, the Regulations on its implementation and the Rules for the Occupation of Academic Positions at University of Mining and Geology "St. Ivan Rilski". In conclusion, I propose to the members of the esteemed Scientific Jury **to award the academic position "ASSOCIATE PROFESSOR"** in professional field 5.8 "Exploration, extraction and processing of minerals", scientific specialty "Open and underwater mining of minerals" **to Assistant Professor Eng. Martin Ivanov Pushkarov, PhD.**

Date: 13.08.2026

Sofia

Prepared the opinion:

Assoc. Prof. Tsvetelina Petrova, PhD, Eng.