

REVIEW

by **Dr. Nikolina Petkova Milcheva – Assoc. prof. at MU-Plovdiv**

on the materials submitted for participation in the competition

for the academic position of **Associate Professor**

at Plovdiv University "Paisii Hilendarski"

field of higher education 4. Natural Sciences, Mathematics and Informatics, professional field

4.2. Chemical Sciences (Inorganic Chemical Technology)

In the competition for "Associate Professor", announced in the State Gazette, no. 98 of November 19, 2024 and on the Internet page of Plovdiv University "Paisii Hilendarski" for the needs of the Department of Chemical Technology at the Faculty of Chemistry, Irena Petrova Kostova – Senior Assistant Professor at the same Department, participated as a candidate.

1. General presentation of the procedure and the applicant

By Order No. RD-22-79 of 17.01.2025 of the Rector of Plovdiv University "Paisii Hilendarski" (PU) I have been appointed as a member of the scientific jury of the competition for the academic position of "**Associate Professor**" at PU in the field of higher education 4. Natural Sciences, Mathematics and Informatics, professional field 4.2. Chemical Sciences (Inorganic Chemical Technology), **announced for the needs** of the Department of Chemical Technology at the Faculty of Chemistry.

One candidate has submitted documents for the announced competition: Dr. Irena Petrova Kostova – Chief Asst. Prof. at the Department of Chemical Technology (DCF) at the Faculty of Chemistry (FC) of PU. For brevity, only her name is mentioned in the text below.

The materials submitted by Irena Kostova are in accordance with the Regulations for the Development of the Academic Staff of PU, including everything necessary for the competition. They leave a positive impression and demonstrate considerable activity in a field that corresponds to the competition area.

In the list of scientific activities Irena Kostova has included: **35 scientific papers** published in the period 2012–2024; **37 participations in scientific forums** (15 national and 22 international); **47 citations** (35 of them are in refereed journals); **reviews** of scientific articles and research project.

In Irena Kostova's *Scopus* profile can be found data for 30 publications and 31 independent citations. Her *h*-index excluding self-citations is 3.

25 scientific papers (23 scientific articles, one book and one utility model) are subject to peer review in connection with this competition. These do not overlap with the data from the National Centre for Information and Documentation (NACID) register related to the award of the PhD, and with the abstract, which is based on 6 publications.

Irena Petrova Kostova acquired Master's degree at PU, (specialty "Chemistry and Ecology" in 2011). She obtained her PhD degree in the specialty "Inorganic Materials Technology" in 2016 at PU after defending her thesis "*Synthesis and study of modified zinc borophosphates doped with samarium*" with scientific supervisors Assoc. Prof. Dr. Dancho Tonchev and Assoc. Prof. Dr. Georgi Patronov. She was an assistant professor in the period 2015 – 2017, after which she held the position of senior assistant professor at DCF, FC, PU.

2. General description of the applicant's activities

Irena Kostova is an academic mentor of Chemical Analysis and Quality Control, class of 2023. She fulfills the standard for academic employment at PU. In addition to laboratory exercises of Bachelor's and Master's degree students, she also teaches lecture courses (Bachelor's degree). The average annual lecture time on the provided reference is 390 hours. She has developed new laboratory exercises, as well as new tests and assignments in the implementation of current control and written examinations. She has been a scientific consultant and a scientific supervisor of graduate students.

Table 1 shows the minimum national requirements with the number of points by groups of science-metric indicators for the academic position "Associate Professor" in the professional field 4.2. Chemical sciences and compared with their performance by the candidate.

Table 1. Minimum national requirements with number of points per group of science metrics compared to applicant implementation

Group	Contents	Associate Professor Number of points	Implemented by the applicant Number of points
A	Indicator 1	50	50
B	Sum of indicators 3 and 4	100	102
Г	Sum of indicators 5-10	200	216
Д	Sum of indicator 11	50	54
E	Sum of indicators 12-20	-	-
TOTAL:		400	422

Irena Kostova participated in the procedure for the position of Associate Professor with **23 scientific articles** published in the period 2014 – 2024, **one independent book** based on a defended dissertation, **one useful model** and **27 citations**.

According to the data from NACID, the candidate is the leader of **four national projects**, a member of the working collective of **one international project**, as well as of the working collectives of several other projects funded by the Fund "Scientific Research" at PU. Attached is a document from the PU which lists participation in **eight scientific research projects** and **two National Programmes**.

The candidate's research *contributions* address important problems of state-of-the-art technologies in optics, materials science and energy sectors, offering new solutions and potential applications in various industrial fields. *The useful model* is related to the creation of a modular ambient air monitoring station that has the ability to automatically take readings on several parameters and send them to a database server, after which they can be visualized and analyzed.

The above activities show that her personal contribution is significant.

3. Critical comments and recommendations

I have no critical comments on the materials submitted for review.

CONCLUSION

The documents and materials submitted by Irena Kostova **comply with all the requirements** of the Academic Staff Development Act in the Republic of Bulgaria (ASDA), the Regulations for the Implementation of the ASDA and the relevant Regulations of PU "P. Hilendarski".

The candidate has submitted **a sufficient number of scientific works** published after the materials used in the defence of the PhD thesis. The candidate's works contain original scientific and applied contributions that have received international recognition, a representative part of which have been published in reputable journals, and the works have practical applicability. Her professional qualifications **are unquestionable**.

The results achieved by Irena Kostova in teaching and scientific research activities **fully comply** with the minimum national and supplementary requirements of the FC, adopted in connection with the Regulations of the PU for the application of the Law on Research and Development.

After familiarization with the materials and scientific works presented in the competition, analysis of their significance and scientific, scientific-applied and applied contributions contained in them, **I find it justified to give my positive assessment and to recommend** the Scientific Jury to prepare a report-proposal to the Faculty Council of the Faculty of Chemistry for the election of Irena Kostova to the academic position of "Associate Professor" at PU in the following fields of higher education: 4. Natural Sciences, Mathematics and Informatics, professional field 4.2 Chemical Sciences (Inorganic Chemical Technology).

05.03.2025

Reviewer:.....

Assoc. Prof. Nikolina Milcheva