

OPINION

by **Prof. Dr. Diana Todorova Rabadjieva**

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on the materials submitted for participation in the competition

for the academic position of "Associate Professor"

at the **Paisii Hilendarski University of Plovdiv**

in: field of higher education **4. Natural Sciences, Mathematics and Informatics.,**

professional field

4.2. Chemical Sciences (General and Inorganic Chemistry)

In the competition for "Associate professor", announced in the State Gazette, issue 96 of 11.11.2025, and on the website of the Paisii Hilendarski University of Plovdiv for the needs of the department: General and inorganic chemistry with methodology of teaching chemistry at the Faculty of Chemistry, the candidate is Senior Assistant Professor Dr. Kirila Trifonova Stoyanova from the Paisii Hilendarski University of Plovdiv

1. General presentation of the procedure and the candidate

By order No. PD-22-55 of 09.01.2026 of the Rector of Paisii Hilendarski University of Plovdiv (PU), I have been appointed as a member of the scientific jury in a 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 (General and inorganic chemistry), announced for the needs of the Department of General and inorganic chemistry with methodology of chemistry education at the Faculty of Chemistry.

A single candidate has submitted documents for participation in the announced competition:

Senior Assistant Professor Dr. Kirila Trifonova Stoyanova from Paisii Hilendarski University of Plovdiv

The set of materials presented by Senior Assistant Professor Dr. Kirila Stoyanova is in accordance with the Regulations for the Development of the Academic Staff of the University of Plovdiv and includes all documents foreseen in the regulations (Article 66, paragraph 2).

Sr. Asst. Prof. Dr. Kirila Stoyanova received her Master's degree (2009) and the scientific and educational degree "Doctor" (2014) at the Paisii Hilendarski University of Plovdiv. In 2015, she was elected as a Chief Assistant Professor at the same university.

To the documents for the competition, Sr. Asst. Prof. Dr. Stoyanova has attached a list of a total of 30 scientific papers, of which 3 are included in the PhD Thesis and are not the subject of this competition. Dr. Stoyanova participates in the competition with 21 scientific publications, divided into two groups - "B" - 8 issues and "G" - 13 issues. All publications are referred in the scientific databases Scopus and Web of Sciences and select the required number of credits (116 in group "B" and 214 in group "G"), by which they exceed the national minimum requirements for the competition. against the 50 required credits. A reference for the candidate's teaching and learning activity with 5346 hours of classroom lessons with students who satisfy the additional faculty

requirements in connection with participation in the competition is also presented. Additionally, two Laboratory Manuals in General and Inorganic Chemistry, in whose author teams Dr. Stoyanova participated, are presented, as well as references for participation in projects and scientific forums, which are outside the reference for the minimum national requirements, but also complement the candidate's activity.

2. General characteristics of the candidate's activities

Sr. Asst. Dr. Stoyanova has extensive teaching experience. She is a lecturer in the discipline "General and Inorganic Chemistry" I and II parts. She is the head of seminars and/or laboratory exercises in the disciplines "Fundamentals of Chemistry", "Inorganic Chemistry", "General and Inorganic Chemistry", "Stoichiometric Calculations" and "Chemistry of Coordination Compounds". She participated in the development and application of lecture material, seminar exercises, tests and tasks for the assessment of semester exams and ongoing control for lectures, seminar and laboratory exercises.

The scientific research of the Sr. Assoc. Prof. Dr. Kirila Stoyanova are related to the study of the equilibrium in the formation of ion-associative complexes between anionic chelates of various metals and bulky organic cations (tetrazolium salts), as well as their extraction in organic solvents for the purpose of spectrophotometric determination of the concentration of metals in alloys, biological, medical and pharmaceutical materials. All studies are characterized by the application of a strict methodological approach for quantitative characterization of the processes, by applying several independent methods, where possible.

Group "B" summarizes publications on complexes of **Mo, Zn and Ge**. The main scientific contributions are related to:

- Investigation of specific combinations that have not been studied in detail so far, such as the complex of Zn(II) with PAR and tetrazolium violet (TV), as well as various associates of Mo(VI) with 3,5-dinitrocatechol (3,5-DNC) and various tetrazolium cations (TTC, TV, INT, MTT, BTC). For germanium, systems with 4-nitrocatechol (4-NC) and cations such as INT and TV are studied;
- Optimization of the conditions for complexation and extraction to achieve maximum sensitivity and selectivity;
- Quantitative characterization of equilibria by calculating a number of physicochemical constants: association constant (β), distribution constant (KD) and extraction constant (Kex);
- Proof of stoichiometry, proposal for reaction schemes and structural formulas of the newly obtained complexes.

The developed methods allow the determination of low concentrations (traces) of metals, and the limit of detection (LOD) and quantification (LOQ) values have been calculated for each system. The influence of a number of ions on the analytical result has also been studied.

Group "G" includes publications related to complexes of **Co, Ga, Ge, W and Fe**. The conducted studies are similar to those in group "B" and cover synthesis, optimization of complexation and extraction conditions, spectrophotometric characterization and determination of basic

physicochemical parameters. In addition, the application of the developed spectroscopic methods in the analysis of real objects (determination of cobalt in Vitamin B12; analysis of iron in pharmaceutical tablets and industrial oxides and determination of tungsten and gallium in steels, alloys and model mixtures) has been studied, which has proven their practical applicability, accuracy and reliability.

3. Critical remarks and recommendations

I have no critical remarks about the candidate's scientific works and teaching activities.

My recommendation to Dr. Stoynova is to focus on publications in higher-ranking journals.

CONCLUSION

The documents and materials presented by Sr Asst. Prof. Dr. Kirila Stoynova meet all the requirements of the the Law on the Development of the Academic Staff in the Republic of Bulgaria (LDASRB) and the Regulations on the Terms and Procedure for Acquiring Scientific Degrees and for Holding Academic Positions (RTPASDHAP) at the Paisii Hilendarski University of Plovdiv.

Sr Asst. Prof. Dr. Kirila Stoynova fully satisfies the formal requirements in the part of academic activity for holding the academic position of “Associate professor”

The candidate in the competition has presented a sufficient number of scientific works published after the materials used in the PhD Thesis. All of them are referred by the scientific databases Scopus or Web of Science. Dr. Stoynova’s contribution is clearly visible – she is the first author in all publications of indicator “B” and the first or second author in 10 of the 13 publications of group “G”. The minimum national requirements for holding the academic position of “Associate professor” are exceeded. The scientific research of Sr Asst. Assoc. Prof. Dr. Kirila Stoynova upgrade the knowledge in the field of coordination compounds, offer accessible methods for chemical analysis that do not require expensive equipment and are applicable to complex objects such as alloys, dosage forms and biological materials. The citations show that the work of Assoc. Prof. Dr. Kirila Stoynova finds its international resonance.

After getting acquainted with the materials and scientific works presented in the competition, analyzing their significance and the scientific and scientific-applied contributions contained in them, I find it reasonable to give my positive assessment and recommend to the Scientific Jury to prepare a report-proposal to the Faculty Council of the Faculty of Chemistry for the election of Sr Assoc. Prof. Dr. Kirila Stoynova to the academic position of ‘Associate professor’ at Paisii Hilendarski University of Plovdiv in the professional field 4.2. Chemical Sciences (General and Inorganic Chemistry).

05.03.2026

Sofia

/Prof. Dr. D. Rabadjieva/