

OPINION

**of Boriana Rangelova Tzaneva, PhD,
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regarding the materials submitted for participation in a competition
for the academic position of "**Professor**"
at the **University of Plovdiv "Paisii Hilendarski"**,

in: field of higher education 4. Natural Sciences,
professional field 4.2. Chemical Sciences (Physical Chemistry).

In the competition for "professor", announced in the Bulgarian SG No 96 of 11.11.2025, and on the website of the University of Plovdiv "Paisii Hilendarski" for the needs of the Department of Physical Chemistry at the Faculty of Chemistry, Assoc. Prof. Dr. Nina Dimitrova Dimcheva from University of Plovdiv "Paisii Hilendarski" participated as a candidate.

1. Overall presentation of the procedure and the candidate

The candidate Assoc. Prof. Dr. Nina Dimitrova Dimcheva from University of Plovdiv "Paisii Hilendarski" has been admitted to participate in the announced competition.

The materials presented by Assoc. Prof. Dimcheva in electronic form are in full accordance with the Regulations for the Development of the Academic Staff of the University of Plovdiv and include a total of 59 scientific publications, two chapters of a collective monograph, one patent, two laboratory manuals. Among them, 40 scientific works, two laboratory manuals, one patent and two chapters of a collective monograph are accepted for review as they are outside the dissertation and the procedure for acquiring the academic degree of Associate Professor. The materials with which Assoc. Prof. Dimcheva participates in the competition are distributed by groups of indicators as follows:

- In *group A*, a diploma for the acquired educational and scientific degree "Doctor" issued by the Higher Attestation Commission (№27502/22.08.2001) equivalent to **50 points**, is presented.

- In *group B*, six publications are presented, of which one in a journal with a quartile Q1, three in journals with a quartile Q2, one in a journal with a quartile Q3 and one refereed in WoS, which all equal to **110 points** with a required minimum number of 100.

- In *group Γ*, 34 scientific papers are included of which 9 in journals with quartiles Q1, 9 in journals with quartiles Q2, 3 publications in journals with Q3, 5 in Q4, and publications without IF are 8. The total IF is 83,653. Assoc. Prof. Dimcheva has two published chapters in collective

monographs (indicator $\Gamma 8$ - 30 points) and one patent (indicator $\Gamma 9$ - 25 points), which equals to **645 points** for this group of indicators with a required minimum of 200 points.

- In the current competition for *Group D*, Assoc. Prof. Dimcheva has submitted a list of 60 citations in SCOPUS (excluding auto-citations of all authors) of one publication, which is equal to **120 points**. It is worth noting that the total number of citations of publications co-authored by Assoc. Prof. Dimcheva in SCOPUS for the period after her habilitation is 871.

- In *group E*, evidence materials are presented for the management of 2 national scientific projects with attracted funds equivalent to 37.5 points and participation in 5 projects financed by the National Science Foundation and the regional funds of the EU with Bulgarian co-financing. Assoc. Prof. Dimcheva was the supervisor of one and co-supervisor of three other successfully defended doctoral students, equivalent to 125 points. She has two laboratory manuals for students from the University of Plovdiv, with which the total number of points under indicators in group E becomes **248.2 points** with a required minimum number of 150.

The information presented above confirms that Assoc. Prof. Dimcheva significantly exceeds the minimum national requirements for the academic position of "professor" in professional field 4.2.

According to the attached document covering the period 09.2019-12.2025, Assoc. Prof. Dimcheva has conducted 1018 academic hours of lectures in the disciplines "Physical Chemistry", "Electrochemical Methods of Analysis" and "Biocatalysis and Bioelectrochemistry", thereby fulfilling the specific requirements of the University of Plovdiv, namely that the candidate for the position of "professor" must have no less than 150 hours of lectures in the discipline for which the competition is announced. In fact, Assoc. Prof. Dimcheva exceeds these requirements many times over, taking into account that her entire professional career has been spent as a lecturer in the Department of Physical Chemistry of the Faculty of Chemistry at University of Plovdiv.

I have known Assoc. Prof. Dimcheva for more than 10 years, during which I have received invaluable advice from her both for the development of lecture courses and laboratory exercises in regards to my teaching activities, as well as for my scientific work in connection with electrochemical research methods and functionalization of electrodes with biomaterials. My personal opinion is that Assoc. Prof. Dimcheva is one of the most eroded Bulgarian specialists in the field of electrochemical biosensors, with deep theoretical and practical knowledge of creating and testing biosensor materials, and the hundreds of citations of publications with her co-authorship show that her work is also appreciated by the international scientific community.

2. Overall characteristics of the candidate's activities

Assoc. Prof. Dimcheva has over 31 years of teaching experience in the Department of Physical Chemistry of the Faculty of Chemistry at the University of Plovdiv, of which 19 years as an associate professor. During this period, she has lead lectures and exercises in the discipline of “Physical Chemistry” for various specialties, "Electrochemical Methods of Analysis", "Biocatalysis and Bioelectrochemistry" and "English for Chemists", and also for the latter three she has developed the curricula. She is a co-author of two textbooks on physical chemistry for the Bachelor's and Master's degree programs, in which she has developed 4 and 9 laboratory exercises, respectively. Her teaching activities also extend to being a scientific supervisor of 5 PhD students, 4 of whom successfully defended their thesis, and 17 diploma students, participating in state exams and committees for doctoral programs.

The scientific work of Assoc. Prof. Dimcheva is in the scope of a current scientific field such as the creation of new composite nanomaterials and bioactive layers, as well as their characterization with a focus on of their suitability as electrocatalysts. The main contributions of Assoc. Prof. Dimcheva are in the development of methodologies for smooth and porous surfaces modification and enzymes immobilization, specifically amplifying the electrochemical signal in the presence of biologically important or bioactive compounds. The electrode materials obtained in these studies and extensively characterized are promising for the creation of electrochemical biosensors and biofuel cells. Moreover, the application of electrochemical methods for studying the corrosion resistance of coatings, as well as the development of electrochemical methods for enzyme activity estimation and for quantitative analysis of L-ascorbic acid (published patent) could also be considered Assoc. Prof. Dimcheva's contributions.

In particular, Assoc. Prof. Dimcheva's publications, distinguished as equivalent to habilitation work, are dedicated to the functionalization of conductive materials such as graphite and glassy carbon by metal nanoparticles in order to improve electron transfer and the attachment of various bioreceptor molecules and electrocatalysts. The electrodes thus obtained have been extensively studied for applications as amperometric biosensors.

Therefore, the results achieved by Assoc. Prof. Dimcheva are of scientific and applied scientific contributions, offering new methods for obtaining bioactive layers and new methods for electrochemical analysis, as well as making a significant contribution to enriching knowledge in the field of bioelectrocatalysis. The personal contribution of the candidate to the scientific works in the competition is well defined in the submitted documents and is indisputable.

3. Critical comments and recommendations

All of the papers of Assoc. Prof. Dimcheva are written in an exceptionally good scientific style, contain elements of critical analysis and innovation, and the presented documents as evidentiary materials are fully in accordance with the requirements of the competition. For these reasons, I have no critical remarks or recommendations for the materials submitted in the competition.

CONCLUSION

Based on my excellent personal impressions and the scientific papers presented in the competition, their significance, the scientific and applied scientific contributions contained in them, as well as the fulfilment of all requirements of the Act on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its implementation and the Regulations on the terms and conditions for occupying academic positions at University of Plovdiv "Paisii Hilendarski" I give a convinced positive assessment and propose Assoc. Prof. Dr. Nina Dimitrova Dimcheva to occupy the academic position of "Professor" in the field of higher education 4. Natural Sciences, professional field 4.2. Chemical Sciences (Physical Chemistry).

March 6, 2026
Sofia

Scientific jury member:
/Prof. Boriana Tzaneva/