

STATEMENT

by a member of the Scientific Jury: assoc. prof. dr. Genoveva Atanasova
in connection with the competition for the academic position of "Professor" in professional field 4.2.
Chemical Sciences, scientific specialty "Electrochemistry", for the needs of the Electrochemistry and
Corrosion Department, announced in State Gazette No. 44 of 14 May 2026
with the sole candidate being assoc. prof. dr. Jenia Stefanova Georgieva, Institute of Physical Chemistry
"Acad. R. Kaishev", Bulgarian Academy of Sciences (BAS).

1. General assessment of the candidate's research and applied scientific activities

General overview of the procedure

Assoc. Prof. Dr. Jenia Stefanova Georgieva is the sole candidate in the competition for the academic position of "Professor" in professional field 4.2. Chemical Sciences, scientific specialty "Electrochemistry", for the needs of the Institute of Physical Chemistry "Acad. R. Kaishev", BAS, announced in State Gazette No. 44 of 14 May 2026.

Assoc. Prof. Dr. Jenia Stefanova Georgieva has submitted all the required documents in accordance with the "Development of Academic Staff in the Republic of Bulgaria Act" and the "Regulations of the Institute of Physical Chemistry". The submitted documents meet all the requirements and provide sufficient information regarding the candidate's contributions and publications.

Brief biographical information about the candidate

- Education

In 1993, Jenia Georgieva obtained a Master's degree in "Electrochemistry and Corrosion" from the University of Chemical Technology and Metallurgy, Sofia.

In 2008, at the Institute of Physical Chemistry "Acad. R. Kaishev", BAS, Jenia Georgieva defended her doctoral dissertation in the scientific specialty of "Electrochemistry". The title of her dissertation is "Chemical Deposition of Ni-Cu-P and Ni-Sn-P Coatings".

- Professional development

Since 1985, Dr. Jenia Georgieva has been employed at the Institute of Physical Chemistry, where she has held all academic research positions: Chemist, Research Associate (Third, Second and First Degree), Chief Assistant Professor and Associate Professor (since 2011). She also served as Scientific Secretary of the Institute of Physical Chemistry for eight years.

Assoc. Prof. Dr. Jenia Georgieva is a co-author of 55 scientific publications, 51 of which are indexed in Scopus (Q1 – 36; Q2 – 4; Q3 – 5; Q4 – 1; SJR – 4, and one book chapter). The majority of the publications are in Q1 journals. The articles have received more than 1,600 citations in Scopus. Dr. Jenia Georgieva has an h-index of 25 in Scopus, excluding self-citations. The candidate has participated in 38 international scientific forums and has delivered presentations or co-authored contributions at 13 national scientific forums. Dr. Jenia Georgieva has participated in or led 16 international and 8 national research projects. She has supervised one doctoral student.

According to the submitted documentation, assoc. prof. dr. Jenia Georgieva participates in the present competition with the following scientific achievements and activities.

Scientific achievements and indicators

Indicator A, A1. Doctoral dissertation for the award of the educational and scientific degree “Doctor”. Successfully defended dissertation entitled “Chemical Deposition of Ni-Cu-P and Ni-Sn-P Coatings” — Diploma No. 32852/19 January 2009, Higher Attestation Commission, scientific specialty “Electrochemistry, including Chemical Power Sources” (code 01.05.14) — 50 points awarded, with 50 points required.

Indicator B, B4. Habilitation work — scientific publications in journals indexed in internationally recognized scientific databases (Web of Science and Scopus). The habilitation report includes 8 scientific publications: 6 in Q1 journals — 150 points, and 2 in Q2 journals — 40 points, with a total of 190 points, with 100 points required.

Indicator G, G7. Scientific publications in journals indexed in Web of Science and Scopus, outside the habilitation work. The report on the main scientific contributions of the research conducted outside the habilitation work includes 12 scientific publications: 7 in Q1 journals — 175 points; 1 in a Q2 journal — 20 points; 2 in Q3 journals — 30 points; and 2 indexed in SJR — 20 points, with a total of 245 points, with 220 points required.

Indicator D, D11. Citations in scientific journals, monographs, edited volumes and patents indexed in internationally recognised scientific databases (Web of Science and Scopus). A total of 546 citations have been presented, corresponding to 1,092 points, exceeding the required minimum of 120 points.

Indicator E

- 13. Supervision of a doctoral student who successfully defended their dissertation — Nina Nikolaeva Dimitrova, 2023 — 50 points.
- 14. Participation in a national scientific or educational project — $4 \times 10 = 40$ points.
- 15. Participation in an international scientific or educational project — $5 \times 20 = 100$ points.
- 16. Leadership of a national scientific or educational project — $1 \times 20 = 20$ points.
- 17. Leadership of a Bulgarian team in an international scientific or educational project — $2 \times 50 = 100$ points.
- 18. Funding secured through projects led by the candidate — 7 points.

Total: 317 points, with a total of 150 points required.

According to the submitted application documents, assoc. prof. dr. Jenia Georgieva meets all the required indicators. The candidate has accumulated 1,894 points, exceeding the minimum requirement of 640 points.

2. Main scientific and applied scientific contributions

The research of assoc. prof. dr. Jenia Georgieva focuses on the development of nanostructured electrocatalysts and photoelectrocatalysts for fuel cells, electrolyzers and photoelectrochemical systems. The scientific contributions of the publications submitted for the competition are organized into the following main thematic areas:

1. Electrocatalytic oxidation of methanol (MOR)

Structure–activity relationships have been established for Pt-based catalysts used in the electrochemical and photoelectrochemical oxidation of methanol, clarifying the role of composition, morphology and metal–support interactions in determining their activity and stability. Nanostructured bimetallic Pt(Cu) and Pt(Ni) electrocatalysts on various supports have been developed by combining chemical and photochemical deposition with galvanic replacement. The role of metal–support interactions and the synergistic effect of metal nanoparticles and semiconductor oxides have been elucidated, including the involvement of photogenerated charge carriers. Approaches have been proposed for the development of highly efficient

electrocatalysts with reduced noble metal content through the controlled formation of metal and metal-oxide nanostructures.

2. Electrocatalytic reactions involving oxygen (ORR and OER)

A strategy has been developed for obtaining nanostructured electrocatalysts with reduced noble metal content through controlled formation of the active phase, bimetallic interactions and optimization of the metal-support interface. Methods for synthesising Pt-based systems have been improved through the use of oxide supports and photochemical approaches, clarifying the role of TiO_2 and WO_3 in controlling dispersion, electronic properties, stability and catalytic activity. Pt-Cu/C, Pt-Co/C and $\text{IrO}_2/\text{TiO}_2$ systems have been developed for ORR and OER with reduced noble metal content. These developments constitute an independent research area focused on controlling the structural and electronic factors governing electrocatalytic materials.

3. Electro- and photoelectrocatalytic processes on oxide supports and composite materials

A synergistic mechanism between photo- and electrocatalytic processes during the oxidation of organic compounds on TiO_2 - and WO_3 -based systems has been established, and the role of photogenerated charge carriers in enhancing activity has been elucidated. TiO_2 nanostructures with co-doping by boron and nitrogen have been developed, exhibiting a modified electronic structure and improved photoelectrochemical activity. A mechanism for the preparation of Pt(Cu)/ TiO_2 composite catalysts has been proposed, incorporating the role of Ti(III)/Ti(IV) redox transitions in the formation and stabilization of the active phase. The decisive importance of metal-oxide interactions for structural, electronic and catalytic properties has also been established. Based on these relationships, a concept has been developed for controlling electro- and photoelectrocatalytic properties through the combination of metal nanoparticles, semiconductor oxides and controlled photochemical processes.

In summary, the main scientific contributions are related to the development of new approaches for the synthesis and structural control of nanocatalysts, the elucidation of fundamental relationships between structure, electronic properties and catalytic activity, and the establishment of a scientific basis for producing highly efficient electro- and photoelectrocatalytic materials with reduced noble metal content.

3. Impact of the candidate's scientific publications on Bulgarian and international scientific literature

The scientific publications of assoc. prof. dr. Jenia Georgieva have received more than 1,600 citations in total, demonstrating recognition by the scientific community of the quality of the candidate's research conducted in connection with the competition. The h-index of 25 achieved by assoc. prof. dr. Jenia Georgieva also confirms the quality of her scientific research.

4. Critical remarks and recommendations regarding the candidate's scientific work

I have no critical remarks.

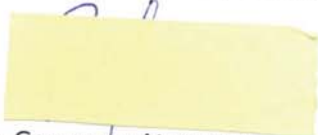
5. Conclusion

The scientometric indicators of assoc. prof. dr. Jenia Georgieva, as presented above, meet and exceed all the requirements of the "Development of Academic Staff in the Republic of Bulgaria Act" and the "Regulations of the Institute of Physical Chemistry" for appointment to the academic position of Professor. The documents submitted for participation in the competition provide a clear and comprehensive overview of the

candidate's scientific activities, achievements and contributions. The supporting evidence is comprehensive and sufficiently substantiates the claims presented.

Based on the evidence and assessment presented above, I confidently recommend that the Scientific Jury of the Institute of Physical Chemistry, Bulgarian Academy of Sciences, award assoc. prof. dr. JENIA STEFANOVA GEORGIEVA the academic position of Professor in Professional Field 4.2. Chemical Sciences, scientific specialty "Electrochemistry, including Chemical Power Sources".

28 October 2026, Sofia



assoc. prof. dr. Genoveva Atanasova