OPINION

by Assoc. Prof. Dr. Eng. Pencho Angelov Stoychev, Technical University – Gabrovo
of the materials submitted for participation in a competition
for the academic position of "associate professor"
in the field of higher education 5. Technical sciences,
professional field 5.13. General Engineering, specialty "Engineering Physics",

In the competition for associate professor, announced in the State Gazette, issue 53 of 09.06.2026 and on the website of TU-Gabrovo for the needs of the Department of Mathematics, Informatics and Natural Sciences at the Faculty of Economics, the only candidate is Senior Assistant Professor Dr. Daniela Gospodinova Nedeva.

The candidate participates in the competition with the following materials: habilitation thesis - monograph, 34 scientific publications (4 in publications indexed in Web of Science and/or Scopus , and 30 in non-refereed publications with scientific review), a university textbook and a teaching aid. According to the submitted reference, she covers the minimum national requirements: group A - 50 points, group B - 100 points, group D - 254.44 points (with a required score of 200 points) and group D - 130 points (with a required score of 50 points). The additional requirements of TU - Gabrovo have also been met.

1. Overview of the content and results in the presented papers

The candidate's works are in four thematic areas. What they have in common is the application of physical methods to the study and management of engineering and environmental processes.

The habilitation thesis – the monograph “Integrated Scientific and Engineering Approaches to Ecological Processes and Material Systems” (Vasil Aprilov University Publishing House, 2026), summarizes the candidate’s many years of research in two areas: radioecology and processing of materials with high-energy flows. The logic of the presentation follows the relationship “material – energy – environment”. In the radioecological part, the transfer of radionuclides between soil, plants, sands and waters is tracked. In materials science, the transfer of energy from the laser or electron beam to the material and the subsequent change in its structure and properties is analyzed.

Radioecological research (17 papers) is the most voluminous direction. By means of low-background gamma-spectrometry, the specific activities of natural radionuclides and ^{137}Cs in medicinal plants, soils and sands from the Shumen Plateau, the Rhodope Mountains, the Gabrovo region and the Black Sea coast, as well as in atmospheric aerosols, were determined. Soil-plant transfer factors, radiation hazard indices and effective doses were calculated. Maps of the spatial distribution of radionuclides were constructed using GIS and geostatistical methods. The results show that the accumulation depends on the plant species and organ, on the local soil-geological conditions and on the season. Therefore, the assessment requires repeated, not single, sampling .

The studies with high-intensity energy flows (9 papers) include three groups of results. The first is a review article on the preparation, properties and applications of TiC coatings in *Zeitschrift for Naturforschung A* . The second covers the experimental results for electron beam alloying of titanium with carbon and boron, published in *Coatings* (Q2). The third is the theoretical determination of the power density and operating modes in laser welding of lamellar packages. Ti / TiC layers with a microhardness of about 510 HV and Ti –B layers with a microhardness of up to about 4500 HV and a friction coefficient of about 0.34 were obtained.

Studies of polymer materials (5 papers) monitor the influence of temperature, elongation rate and tensile stress on the structure of partially crystalline PET fibers using differential scanning calorimetry . **Studies of thermoluminescent materials** (3 papers) are related to the evaluation of Gd_2O_3: Eu,Li as a UV dosimeter and of BGO:V single crystals under irradiation with ^{99m} Tc and ^{188} Re .

2. General characteristics of the candidate's activities

2.1. Educational and pedagogical activities (work with students and doctoral candidates)

Senior Assistant Professor Dr. Daniela Nedeva has been teaching at TU - Gabrovo since 2009. She lectures and exercises in "Physics" in the three educational and qualification levels, in " Vibration Analysis and Noise Protection" and in master's disciplines in the field of ecology: "Air Purification Techniques", "Management of Specific Waste Streams", "Radiological Monitoring of the Environment". She has developed curricula in 4 disciplines. She is a co-author of the university textbook "Engineering Physics" (2025, 250 p.) and of "Practical Guide to Physics" (2024, 96 p.), which are used directly in the training of students.

The candidate has supervised 4 master's degree students and reviewed 13 diploma theses. She involves students in scientific work, as evidenced by 6 student reports under her supervision. She has 7 publications on physics teaching methodology. She was a guest lecturer at the University of Shumen and has carried out teaching mobility under "Erasmus +" in Romania. She has not yet supervised doctoral students.

2.2. Scientific and applied scientific activities

The candidate has a consistent scientific activity that combines experimental research, numerical modeling and generalization analysis. She works with modern equipment and methods: gamma-spectrometry, X-ray fluorescence analysis, DSC, thermoluminescence analysis, electron beam processing. She has participated in 36 scientific and educational projects. Among them are projects under operational programs, under "Erasmus" and "Horizon Europe" (MountResilience , jointly with the Municipality of Gabrovo), as well as intra-university projects at TU - Gabrovo and SH "Bishop Konstantin Preslavski". Three of the university projects in 2016 - 2018 were led by me. Since 2024, the candidate has been the head of 3 research projects at TU - Gabrovo.

Her results have received recognition: 17 citations by other authors have been presented, 12 of which in publications indexed in Web of Science and Scopus . Among the citing publications are journals with a high impact factor, for example *Materials Today Sustainability* and *Ceramics International* .

2.3. Implementation activity

No implementation documents, patents or utility models have been submitted. However, the research has a clear practical focus. The candidate has participated in a contract with the South Korean company "BISON" for a laser technology system with a CuBr laser and in projects for laser processing of lamellas for electric motors. Technological regimes for electron beam alloying of titanium, guidelines for laser welding and the approach to radioecological monitoring can be applied in industry and in the activities of environmental control institutions.

3. Contributions (scientific, applied science, applied). Significance of contributions for science and practice

I accept the contributions listed in the author's reference.

Significance of the contributions. The scientific significance of the contributions is confirmed by their publication in international journals and by their citation by foreign authors. The results on the surface modification of titanium, which are applicable in mechanical engineering, have the greatest value for practice. Data on the radioactivity of medicinal plants, soils and sands are also important because they can be used in assessing the radiation risk to the population and in planning environmental monitoring.

4. Assessment of the candidate's personal contribution

The candidate is an independent author of the monograph, of the article in *the Zeitschrift for Naturforschung A* and 3 scientific reports. She is the first author in 4 more publications. Most of her works are collective, which is common for experimental work in these fields. Her participation in them is documented with protocols for the distribution of contributions. In my opinion, her personal contribution is substantial and indisputable, especially in the summary of the results, which is evident in the monograph.

5. Critical notes and recommendations

1. I recommend that the candidate publish her radioecological results in refereed international journals, as so far they have been published mainly in proceedings of national conferences.
2. I recommend that he focus on supervising doctoral students and externally funded projects, as well as documenting his applied results through implementation acts or applications for patents and utility models.

The notes are of a recommendatory nature and do not diminish my positive assessment.

6. Personal impressions

I know Senior Assistant Professor Dr. Daniela Nedeva from our long-standing joint work at TU - Gabrovo, including as a participant in research projects under my leadership in the field of environmental protection. My impressions are that she is a responsible, organized and hardworking teacher and researcher. She carries out the tasks undertaken precisely and on time. She works well in a team and shows initiative. She treats students with attention and exactingness and manages to motivate them for scientific work. She is respected among her colleagues.

7. Conclusion

The submitted materials comply with the requirements of the Law on the State Educational Service of the Republic of Bulgaria, the Regulations for its implementation and the Regulations of the Technical University of Gabrovo. The candidate exceeds the minimum national requirements and the additional requirements of the university. The scientific works contain contributions of scientific and practical value, which have received international recognition. The candidate has many years of teaching experience, is the author of a textbook and a teaching aid and leads scientific projects.

Based on the above, I give **a positive assessment** and propose to the esteemed Scientific Jury to propose to the Faculty Council to elect **Senior Assistant Professor Dr. Daniela Gospodinova Nedeva** to the academic position of **"Associate Professor"** in the field of higher education 5. Technical Sciences, professional field 5.13. General Engineering, specialty "Engineering Physics", for the needs of the Department of "Mathematics, Informatics and Natural Sciences" at the Technical University - Gabrovo.

Date: 21.10.2026 Member of the Scientific Jury: ……

/Assoc. Prof. Dr. Eng. Pencho Stoychev/