O P I N I O N

by Assoc. Prof. PhD Eng. Svetlana Koleva, Angel Kanchev University of Ruse, Faculty of Mechanical Engineering and Technologies, Department of Manufacturing Technology and Machine Tools

on the materials submitted for participation in a competition for occupying the academic position of **"Associate Professor"**

in professional field **5.1. Mechanical Engineering**, specialty **Manufacturing Technology**

In the competition for Associate Professor, announced in the State Gazette, Issue 53 of 09.06.2026, and on the website of the Technical University of Gabrovo for the needs of the Department of "Industrial Technologies and Design" at the Faculty of Mechanical Engineering and Precision Engineering, the candidate participating is **Chief Assist. Prof. PhD Eng. Kalin Vladimirov Anastasov** from the Department of Industrial Technologies and Design, Faculty of Mechanical and Precision Engineering.

1. Brief Biographical Data

Chief Assist. Prof. PhD Eng. Kalin Vladimirov Anastasov was born on May 22, 1978. He completed his secondary education at the "Vasil Levski" Technical School of Mechanical Engineering in the town of Gorna Oryahovitsa, majoring in "Manufacturing Technology". He graduated with a Bachelor's degree (Educational and Qualification Degree "Bachelor") in 2006 at the Technical University of Gabrovo, majoring in "Mechanical Engineering Equipment and Technologies", and in 2008 – with a Master's degree (Educational and Qualification Degree "Master"), majoring in "Mechanical Engineering Equipment and Technologies" at the same university. In 2016, he acquired the Educational and Scientific Degree "Doctor" (Ph.D.) in "Cutting of Materials and Cutting Tools" at the Technical University of Gabrovo, defending a dissertation on the topic: *"Combined and Hybrid Technological Processes for Modifying the Surface Layers of Metal Components"*.

Before starting his scientific and teaching activities, Eng. Kalin Anastasov worked in various positions in mechanical engineering enterprises in the town of Lyaskovets, and from 2020 to the present, he has served respectively as an Assistant Professor and Chief Assistant Professor at the Technical University of Gabrovo.

2. General Description of the Submitted Materials

The candidate, Eng. Kalin Anastasov, participates in the competition with:

- **Total number:**
  - Teaching aids / auxiliaries – 1;
  - Textbooks – 1;
  - Monographs – 14 equivalent publications to a monograph (Group B 4);
  - Publications – total of 14 (Group G 7 – 1, Group G 8 – 13).
- **By significance:**

- Papers in Web of Science and/or Scopus editions – 15;
- Others (textbook and teaching aids) – 2.

- **By place of publication:**
  - Papers in foreign journals – 16;
  - Proceedings papers of international scientific conferences in Bulgaria – 12.
- **By language of publication:**
  - In English – 16;
  - In Bulgarian – 12.
- **By number of co-authors:**
  - Independent – 9;
  - With one co-author – 5;
  - With two co-authors – 2;
  - With multiple co-authors – 12.

3. Impact of the Candidate's Scientific Publications in Literature (Known Citations)

The author's reference for citations of all works related to the competition, corresponding to indicator group D, contains 12 publications cited a total of 55 times, with 43 of the citations in scientific publications included in scientific editions referenced and indexed in world-renowned scientific information databases (Indicator D 12), and 12 citations in publications in non-referenced peer-reviewed journals (Indicator D 14).

4. General Characteristics of the Candidate's Activity

4.1. Teaching and Pedagogical Activity (Work with Students and Ph.D. Students)

PhD Eng. Kalin Atanasov actively participates in educational activities directly related to the scientific specialty of the competition, as evidenced by the large number of attached references. The candidate conducts training for Bachelor's degree students in the following disciplines:

- Lectures and exercises in: *Tooling Equipment and Machines; Specialized (Non-Standard) Methods and Tools for Processing; Non-Conventional Technologies in Mechanical Engineering; Technologies and Equipment for Processing Non-Metallic Materials; Electrophysical and Electrochemical Methods for Processing; Non-Conventional Methods for Materials Processing*;
- Lectures in *Powder Metallurgy*;
- Exercises in *Cutting Tools; Technology of Tool Manufacturing*;
- Course project in *Cutting Tools*.

In the Master's degree program, he delivers lectures and exercises in *"Design of Tooling Equipment for Injection Molding"*.

The candidate has supervised 13 thesis/graduate students, specifically 7 from the Master's degree and 6 from the Bachelor's degree.

4.2. Scientific and Applied-Scientific Activity

Candidate PhD Kalin Atanasov actively works on topics within the scientific specialty of the competition – Manufacturing Technology. His developments are in the fields of: surface plastic deformation of components made of various materials and investigation of process factors; ensuring the quality indicators of the surface layer of components through diamond burnishing and factors affecting them; the influence of cutting mode elements in turning operations; corrosion resistance; technological processes for machining and restoration of components, etc.

Chief Assist. Prof. PhD Atanasov has participated in 5 research projects: 1 project with national funding from the Operational Programme "Science and Education for Smart Growth" and 4 funded by the "Scientific Research" University Fund of the Technical University of Gabrovo. They are thematically related to the scientific field of the competition. Kalin Atanasov participated in the modernization of the material and technical base of the Department of "Industrial Technologies and Design", as evidenced by the attached reference.

4.3. Implementation Activity

The documents provided by Chief Assist. Prof. PhD Kalin Anastasov show that under his supervision, technological processes have been implemented for: heat treatment of components; mechanical machining and component restoration; laser welding. This demonstrates the practical realization of elements from the candidate's research activities within the manufacturing mechanical engineering sector.

4.4. Contributions (Scientific, Applied-Scientific, Practical)

The presented applied-scientific and practical contributions fully correspond to and stem from PhD Atanasov's published developments. However, I have a remark regarding their formulation: they are overly circumstantial and unnecessarily segmented. I recommend that the contributions be consolidated not only by publication but also by topic, for example:

- **For applied-scientific contribution:**
  - *"A stable combined process has been developed for machining shafts and axles made of heat-treated 42CrMo4 steel, including successive turning and dry slide ball/roller burnishing, and it has been proven that at a deforming force of 50 N, the rotating bending fatigue limit increases by 20 MPa, and the fatigue life by more than 70 times compared to preliminary dry turning [B.4.5]"*;
  - *"A new method for surface plastic deformation (SPD) of external cylindrical surfaces, called Slide Roller Burnishing (SRB), utilizing a deforming element with a toroidal roller, has been theoretically substantiated and experimentally tested; it reduces roughness approximately 2 times compared to analogous processes, provides significant compressive residual stresses at depth, and a favorable surface texture suitable for improving tribological behavior under boundary lubrication conditions [B.4.1]"*;

and others.

- **For practical contributions:**

- *"The values of the determining factors in a mixed single-pass process with diamond tools have been established regarding the achieved roughness and the requirement for increased wear resistance [B.4.4; B.4.5]"*;
- *"Based on a holistic approach, it has been proven that the subsequent slide roller burnishing (SRB/DB) process of normalized and tempered C45 steel is affected by the wear of the cutting insert during preliminary turning, leading to a significant increase in surface microhardness and a drastic absolute increase in axial compressive residual stresses up to a depth of 0.1 mm. A clear correlation has been established between flank wear of the cutting insert, the structure of the affected layer, and the fatigue limit of normalized and tempered C45 steel after turning and DB [B.4.10]"*;

and others.

When "optimal criteria" are stated, the indicator by which they were accepted as such should be noted.

I do not accept the last three practical contributions as they represent a traditional engineering solution.

5. Evaluation of the Candidate's Personal Contribution

In my opinion, the personal contribution of candidate Chief Assist. Prof. PhD Kalin Atanasov, related to the results obtained from teaching-pedagogical, scientific, and applied-scientific activities, is undisputed. It must be emphasized that the obtained applied-scientific, practical results and citations are largely due to the personal efforts, ideas, expertise, qualities, and skills of PhD Atanasov.

6. Critical Remarks

The materials presented to me for review regarding the competition do not give grounds to formulate significant critical remarks.

7. Personal Impressions

I know Chief Assist. Prof. PhD Kalin Atanasov only through his scientific and applied-scientific activities in accordance with the provided materials. A careful reading and analysis of the documents have firmly convinced me that he has traveled a significant path of growth to the level of an expert and scientist and could successfully continue his development upon occupying a higher academic position.

8. Conclusion:

In view of the above, I propose that Chief Assist. Prof. PhD Eng. Kalin Anastasov be elected as **"Associate Professor"** in professional field **5.1. Mechanical Engineering**, specialty **Manufacturing Technology**.

19.10.2026 **Prepared the Statement:**

(Assoc. Prof. PhD Svetlana Koleva)