

МИНИСТЕРСТВО НА ОТБРАНАТА

ИНСТИТУТ ПО ОТБРАНА "ПРОФЕСОР ЦВЕТАН ЛАЗАРОВ"

София 1592, бул. "Проф. Цветан Лазаров" № 2, факс: 02/92 21 808, http://di.mod.bg

REPORT

by Associate Professor Dr. Eng. Petya Vasileva Nedyalkova, Head of the "Combat Systems and Equipment" Department, Directorate of "Development of Armaments, Equipment and Logistics Assets and Materials" at the Defence Institute "Prof. Tsvetan Lazarov", 1592 Sofia, 2 "Prof. Tsvetan Lazarov" Blvd., Tel. +359 2 92 21865

regarding the competition for the academic position of "Associate Professor" in the scientific specialty "Design and Construction of Automatic and Manned Aerial Vehicles" in the professional field 5.5 "Transport, Shipping, and Aviation," in the higher education area 5 "Technical Sciences"

Candidate for the position:

• Dr. Eng. Atanas Yordanov Ganchev, Chief Assistant Professor at the Defence Institute "Prof. Tsvetan Lazarov"

Pursuant to the order of the Director of the Defence Institute "Prof. Tsvetan Lazarov" No. 285/13.05.2025 and the announcement published in the State Gazette, issue 29 from 04.04.2025, regarding the competition for the academic position of "Associate Professor" in the higher education area 5 "Technical Sciences," professional field 5.5 "Transport, Shipping, and Aviation," for the needs of the Defence Institute, the present opinion has been prepared to assess the documents submitted by the sole candidate – Dr. Eng. Atanas Yordanov Ganchev, Chief Assistant Professor at the Defence Institute.

1. General Characteristics of the Candidate's Research, Applied Science, and Teaching Activities

Chief Assistant Professor Dr. Eng. Atanas Yordanov Ganchev holds the academic position of "Chief Assistant Professor" at the Defence Institute "Prof. Tsvetan Lazarov" and has consecutively served in the "Armaments and Ammunition" Department under the Directorate of "Development of Armaments, Equipment and Logistics Assets and Materials," and in the "Research and Analysis in Security and Defence" Department.

The candidate has a strong engineering and academic background, having graduated from the Higher Air Force School "G. Benkovski" in Dolna Mitropoliya with a bachelor's degree and qualification as an "Aircraft Maintenance and Repair Engineer." He later earned a master's degree from the "G. S. Rakovski" Military Academy in the specialty "Command and Staff Training – Operational and Tactical Level, Air Force," and obtained a PhD degree with a dissertation titled *"Minimizing the Adverse Impact of Bird Strikes on Aircraft"* in the professional field 5.1 "Mechanical Engineering," in the higher education area 5 "Technical Sciences."

His research, applied science, and pedagogical work are all within the scope of professional field 5.5 "Transport, Shipping, and Aviation." His key research areas include:

• Ornithological safety and operational reliability of aircraft, including structural strength of aircraft and engines, flight control, bird strike prevention methods, and optimization of crew-aircraft interaction to improve flight safety;

• Unmanned Aerial Vehicles (UAVs), analyzing their design features, operational parameters, combat capabilities, communications, navigation, and logistics support;

• Materials science and strength of aircraft components, focusing on the functional and mechanical properties of materials and machine elements used in aircraft construction;

• Modeling and simulation of bird-aircraft collisions, developing simulators for dynamic modeling to forecast outcomes and create prevention strategies;

• **Technical documentation and standardization**, involving analysis and participation in developing documents related to aircraft design, certification, and operation.

The presented scientific output demonstrates that the candidate works consistently and sustainably within professional field 5.5, contributing practically to the defense sector.

2. Evaluation of the Candidate's Specialized Training and Activities

Chief Assistant Professor Dr. Eng. Atanas Yordanov Ganchev has submitted for the competition:

- •13 scientific publications,
- •5 military-economic analyses,
- More then 63 applied scientific developments relevant to the competition's theme.

These works are classified according to the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria (LDASRB) and its Implementation Rules, showing a high level of scientific and applied maturity.

Highlights include:

• Indicator B.3 – One monograph addressing a significant scientific problem in aviation – 100 points;

• Indicator G.8 - 13 articles and reports in peer-reviewed journals or edited volumes - 245 points;

• Indicator D - 213 citations, including one in globally indexed and refereed databases – 63 points;

• Indicator E.18 – Participation in one national project and several projects of the Ministry of Defence and the Defence Institute – 10 points.

He is the author of a PhD dissertation and related works demonstrating indepth knowledge of flight dynamics and aircraft control, with a focus on ornithological safety. The topics and content of his works align fully with the profile of the competition.

Based on the above, the candidate has a high-level specialized academic qualification, solid practical experience, and active teaching engagement, meeting the requirements for the "Associate Professor" academic position.

3. Key Scientific Results and Contributions

The candidate has demonstrated solid methodological training, evident in his publications. His monograph "Some Aspects of Flight Operations to Optimize Ornithological Safety" (Defence Institute, 2025, ISBN 978-619-90024-9-0) addresses modern flight safety issues through optimization of crew-aircraft interaction with a focus on reducing bird strike risks. The work proposes innovative, scientifically grounded methods and measures that comply with ecological and regulatory requirements.

Other scientific works include contributions in the form of:

- classification of bird-strike processes,
- methodologies for damage and risk assessment,
- decision-support models for crew,
- analysis of real incidents.

These applied and scientific works enrich knowledge and enhance safety in both military and civil aviation. Most of the contributions are original and authored directly by the candidate.

4. Evaluation of the Significance of Contributions for Science and Practice

The candidate's scientific and applied contributions are of high value to the development of professional field 5.5 "Transport, Shipping, and Aviation." They address modern aviation challenges and offer practical, effective solutions.

He has presented his work at international and national scientific forums, underlining its relevance and applicability. Some publications have been cited, reinforcing their academic impact. Main themes include: ornithological safety, aircraft structure and strength, engine operations, flight control, bird strike prevention, crew behavior, UAV research, materials science, collision modeling, and technical documentation. These solutions are directly applicable in practice, support training and qualification of aviation personnel, and enhance aviation safety and effectiveness.

His achievements fully comply with the requirements of the LDASRB and its Implementation Rules, proving his scientific and applied contribution to the field.

5. Critical Notes on the Submitted Works

The candidate's scientific and applied works are characterized by high theoretical and analytical value and current relevance in flight safety and aircraft operation. However, it is advisable that the candidate increases the international dissemination of his scientific results by participating in foreign scientific forums, publishing in internationally refereed journals, and engaging in cooperation with research institutions abroad. This will enhance the global recognition and impact of his work.

6. Conclusion

Chief Assistant Professor Dr. Eng. Atanas Yordanov Ganchev demonstrates deep theoretical knowledge, high scientific competence, and an original creative approach in professional field 5.5 "Transport, Shipping, and Aviation." His publications and scientific contributions reflect strong expertise, methodological consistency, and an ability to develop practical solutions to important aviation problems.

7. Candidate Evaluation

The candidate fully meets the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria and its Implementation Rules, as well as the criteria of the Defence Institute "Prof. Tsvetan Lazarov" for the academic position of "Associate Professor" in higher education area 5 "Technical Sciences" and professional field 5.5 "Transport, Shipping, and Aviation."

Based on the above, I express my positive assessment and recommend that the Honorable Jury submit a report to the Scientific Council of the Defence Institute "Prof. Tsvetan Lazarov" proposing that Chief Assistant Professor Dr. Eng. Atanas Yordanov Ganchev be appointed to the academic position of "Associate Professor" in higher education area 5 "Technical Sciences" and professional field 5.5 "Transport, Shipping, and Aviation."

Member of the Jury:

..... (signature)