

REVIEW

From: Prof. Dr. Mira Dimitrova Zafirova
University of transport "Todor Kableshkov"
Sofia, 31 Vladayska Street, GSM 0886407271

Regarding: Competition for the academic position of "Associate Professor";
field of higher education: 5. "Technical Sciences";
professional field: 5.7. "Architecture, Construction and Geodesy";
Department of "Safety Management and Prevention"
Faculty of "Fire Safety and Civil Protection" at the Academy of the Ministry of Internal Affairs;
in the academic disciplines "Hydraulics and water supply for firefighting" and "Design of fire extinguishing systems".

The competition has been given for the academic position of "Associate Professor" for civil servants under Article 142, paragraph 1, point 1 and paragraph 3 of the Law on the Ministry of Internal Affairs in the field of higher education: 5. "Technical Sciences", professional field 5.7. "Architecture, Construction and Geodesy" in the academic disciplines "Hydraulics and Water Supply for Fire Fighting" and "Design of Fire Fighting Systems" is announced for the needs of the Department of "Tactics" of the Faculty of "Fire Safety and Civil Protection" at the Academy of the Ministry of Internal Affairs - city of Sofia, promulgated in the State Gazette, issue 42 of 08.05.2026.

This review was assigned by decision of the Scientific Jury, determined in accordance with the Order of the Rector 4581z- 1721/10.08.2026.

1. Brief biographical data

In the competition for the academic position of "Associate Professor" in the professional field 5.7. "Architecture, Construction and Geodesy", only one candidate was admitted - Dr. Eng. Svilena Sevdalinova Arabadzhieva, senior lecturer at the Faculty of "Fire Safety and Civil Protection" at the Academy of the Ministry of Internal Affairs.

Master Eng. Svilena Arabadzhieva graduated in 2007 as a bachelor, and in 2011 as a master in the specialty "Fire and Emergency Safety" at the Faculty of Fire Safety and Civil Protection at the Academy of the Ministry of Internal Affairs.

In 2021, she also acquired the "Master" degree in the specialty "Security and Defense Logistics" at the Military Academy "G. S. Rakovski".

By order No. 4581z 961/26.10.2015, Asst. Svilena Arabadzhieva was enrolled as a freelance doctoral student in the Department of Tactics of the Faculty of Fire Safety and Civil Protection at the Academy of the Ministry of Internal Affairs with the topic of the dissertation "Dynamics of Fire Development in Passenger Railway Wagons".

By order No. 4581z 1141/26.11.2019, the doctoral student was dismissed with the right to defense.

In 2024, she successfully defended her doctoral dissertation in the doctoral program "Occupational Safety and Fire Protection Equipment".

From 2007 to 2010, Eng. Arabadzhieva was an inspector of the "State Fire Control and Preventive Activities" in the First Main directorate "Fire safety and civil protection" (GDFSCP) -Ruse, Main directorate "Fire safety and civil protection"- Ministry of Interior, and then until 2012 - an inspector in the "State Fire Control and Preventive Activities" sector in RDFSCP-Veliko Tarnovo, Regional directorate "Fire Safety and Civil Protection -Ministry of Interior of the Republic of Bulgaria.

Dr. Eng. Sv. Arabadzhieva has increased her professional competence by participating in various trainings and courses:

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S- Crisis Management and Disaster Response Exercise Planners Training Course (NATO CODE: ETE-CM-21785) -2020г.;

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From March 2012 to June 2021, Svilena Arabadzhieva was an assistant professor, and then until now - a senior lecturer in the Department of Tactics, Faculty of Fire Safety and Civil Protection at the Academy of the Ministry of Internal Affairs. She is a main lecturer in the disciplines: "Hydraulics and Water Supply for Fire Fighting" and "Logistics".

The research activity of Eng. Svilena Arabadzhieva is focused on fire safety of rolling stock, water supply for fire fighting and fire safety of military sites. Significant attention is paid to quantitative and probabilistic risk assessment, means for initial fire extinguishing, human behavior and readiness for action, innovative training methods, rescue activities and protection of specific sites.

2. General description of the materials presented

Dr. Svilena Arabadzhieva participated in the competition with:

- *monograph* - 1 issue, entitled "Water supply for internal fire extinguishing: Internal fire hydrants", ISBN ISBN 978-954-348-267-2, Reg. No. 4581p-11257/13.07.2026, Academy of the Bulgarian Academy of Water Resources and Energy, with a volume of 120 pages;
- publications - 25 issues:
 - ✓ 2 issues in group G-7 (scientific publications in publications that are referenced and indexed in world-renowned databases with scientific information);
 - ✓ 23 issues in group G-8 (scientific publication in non-refereed journals with scientific review or in edited collective volumes).
 - ✓ By number of co-authors
 - 5 issues with sole author;
 - 10 issues with two authors, of which the candidate is the first author;
 - 5 with two authors, of which the candidate is the second author;
 - 3 with three authors, of which the candidate is the second author;
 - 2 with three authors, of which the candidate is the third author.

3. Reflection of the candidate's scientific publications in the literature

Dr. Eng. Svilena Arabadzhieva has presented 23 citations.

Publications related to the following main areas are cited:

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The large number of citations shows the recognition and scientific recognition of the developments of Dr. Svilena Arabadzhieva.

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4. Implementation of the requirements for holding the academic position

Groupe indicators	Min	Numbers for candidate	Number of points by key indicators	
A	50	50	Dicertation	
B	100	100	B 1	Monography
G	200	303.35	G -7	40 p. list of publications
			G- 8	263.35 p. list of publications
D	50	99	D-12	50т. p. list of citations in refereed journals
			D-13	39т. p. list of citations in monographies
			D-14	10 p. list of citations in non-refereed journals
E		10	E-18	
Total	400	512.35		

5. General characteristics of the candidate's activities

5.1. Teaching, methodological and organizational activities

According to the provided reference for the study load (31.07.2026), for the academic years 2020/2021, 2021/2022, 2022/2023, 2023/2024 and 2024/2025 the candidate has the necessary study load (summary of classroom, extracurricular and exam work).

Eng. Svilena Arabadzhieva strives to popularize her scientific developments among students. A positive example in this direction is the created simulator for a fire in a kitchen. The simulator allows for a safe demonstration of the so-called "fat explosion", practical training in using a lid or fire blanket, actions with gas cylinders and interruption of the electrical supply.

Senior lecturer Dr. Arabadzhieva skillfully combines quantitative mathematical methods (part of the mandatory theoretical training) in her teaching activities into a tool for predicting the development of fires, modeling emergency scenarios, risk assessment, and provokes in students the skills to make reliable professional decisions.

5.2. Scientific and applied scientific activity

5.2.1. Assessment of the habilitation work (monograph)

The monograph is entitled "Water supply for internal fire extinguishing: internal fire hydrants" with author Svilena Sevdalinova Arabadzhieva, ISBN 978-954-348-267-2, 120, Reg. No. 4581p-11257/13.07.2026, Academy of the Bulgarian Academy of Fire and Rescue

Services. It consists of an Introduction, four chapters, Main conclusions and proposals, Conclusion and bibliographic reference.

The introduction presents the need to consider the internal fire hydrant as a system with a demonstrable function, and not as a separate cartridge with a hose and its harmonization with European standards.

The object of the study is the building water supply installations for fire extinguishing with internal fire hydrants installed on them, the sets and components of the indoor fire hydrant, the regulatory and standardization requirements for them, the replacement and maintenance processes.

The subject of the study is the set of regulatory, technical, hydraulic, operational, behavioral and operational-tactical dependencies that determine the ability of the indoor fire hydrant to provide the necessary water quantity and effective range to the critical point with safe and timely use.

The purpose of the developed monograph is to present a comprehensive scientific and applied framework for assessing and increasing the reliability of the water supply for internal fire extinguishing through the indoor fire hydrant, by linking the regulatory coverage, product compliance, hydraulic compatibility, operational readiness, user training and operational use by fire teams.

Chapter One, “Normative and technical evolution of building water supply installations for fire extinguishing and internal fire hydrants”, examines the development of the normative and technical requirements for building water supply installations for fire extinguishing and the internal fire hydrants installed on them. The current normative documents are also examined: Regulation No. Iz-1971 on construction and technical rules and norms for ensuring fire safety, Regulation No. 4 on building water supply and sewage installations and the series of standards BDS EN 671 Stationary fire extinguishing installations. Hose installations. The normative continuity and main trends are given.

Chapter Two examines “Technical and hydraulic compatibility when replacing internal fire hydrants”.

Attention is paid to the critical element - the position of the valve relative to the clear opening of the cartridge. Risk situations are also indicated.

The theoretical foundations and development of the design criteria for the water jet range are examined. The design and hydraulic requirements for modeling modern combined jets, as well as testing methods, are given.

The third chapter is entitled “Survey of knowledge, recognition and practical readiness

Chapter Four presents “Operational use of internal fire hydrants in the Republic of Bulgaria”. An analysis has been made of the fires registered by the RD”Fire Safety and civil protection”-MIA in which hydrants were used during the period 2015–2024. The distribution

5.2.2. Assessment of other scientific works (publications)

The publications of senior lecturer Dr. Eng. Svilena Arabadzhieva are in the following areas:

5.3. Contributions

Based on the submitted publications, the candidate's contributions can be systematized as follows:

- Scientific contributions
 - ✓ Mathematical, probabilistic and numerical models for fire risk analysis, assessment and management have been developed, including CFD models, factor-parameter models, event trees, risk assessment methodologies, evacuation models and engineering computational procedures (papers No. 2.6, 2.8, 2.9, 2.10, 2.12, 2.15, 2.18, 2.21, 2.23).
 - ✓ A theoretical and computational framework for evaluating modern combined jets with complex and variable geometry has been developed. It has been proven that nozzles with the same nominal or equivalent diameter can have significantly different flow rates, flow rates, required operating pressures and jet range (papers No. 1.1., 2.4, 2.5, 2.13, 2.17, 2.21, 2.22).

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8. Critical notes and recommendations

The papers of Dr. Eng. Svilena Sevdalinova Arabadzhieva examine a wide range of problems, thematically corresponding to the professional direction of the competition. I accept the submitted papers and the contributions to them. The personal participation of the candidate is clearly evident from the materials submitted for the competition. The submitted documents are extremely precisely prepared.

I would recommend Dr. Svilena Sevdalinova Arabadzhieva for further academic

, participation in national and international scientific projects and expansion of publication activity in journals with an impact factor.

9. Conclusion

The materials submitted by the candidate for the announced competition for "associate professor" meet the requirements of the Law on the State Administration of the Republic of Bulgaria, the Regulations for its implementation and the Regulations on the organization and activities of the Academy of the Ministry of Interior.

Based on the above, I propose to the esteemed Scientific Jury senior lecturer Dr. Svilena Sevdalinova Arabadzhieva to occupy the academic position of "associate professor" in the field of higher education 5. Technical Sciences, professional field 5.7 "Architecture, construction and geodesy", academic disciplines "Hydraulics and water supply for fire extinguishing" and "Design of fire extinguishing systems" at the Academy of the Ministry of Interior.

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