



Name	Kseniia Fesenko
Position, Department/Faculty	Associate Professor, Department of Aircraft Engines Theory Deputy Dean, Faculty of Aircraft Engines
Academic Degree, Academic Title	Candidate of Technical Sciences (PhD), Associate Professor
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Scopus Author ID:	[ID] 57312225000
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Google Scholar:	[https://scholar.google.com/citations?user=sY5DAtsAAAAJ&hl]
ResearchGate:	[https://www.researchgate.net/profile/Kseniia-Fesenko-2?ev=hdr_xprf]

EDUCATION:

Basic education (university, major, year of graduation):

Specialist Diploma with honors in Economics and Management in Mechanical Engineering

Kharkiv Aviation Institute [February 1998]

Postgraduate/Doctoral studies:

Associate Professor

Department of Aircraft Engines Theory [April 2024]

Candidate of Technical Sciences (PhD) in Turbomachines and Turbine Installations

National Technical University “Kharkiv Polytechnic Institute” [December 2015]

Additional training, certification programs:

Certificate of international distance scientific and pedagogical internship

“Teaching and Research in a Contemporary University: Challenges, Solutions, and Perspectives” Faculty of Education, University of Bialystok, Poland [September 2023] 6

ECTS credits

WORK EXPERIENCE:

Professional Career (Workplace, Years, Position):

Deputy Dean, Faculty of Aircraft Engines, National Aerospace University “Kharkiv Aviation Institute” [September 2017 – Present]

Associate Professor, Department of Aircraft Engines Theory, National Aerospace University “Kharkiv Aviation Institute” [September 2016 – Present]



Senior Lecturer, Department of Aircraft Engines Theory, National Aerospace University "Kharkiv Aviation Institute" [September 2012 – August 2016]

Assistant Professor, Department of Aircraft Engines Theory, National Aerospace University "Kharkiv Aviation Institute" [September 2009 – August 2012]

Research Fellow, National Aerospace University "Kharkiv Aviation Institute" [January 2004 – August 2009]

Junior Research Fellow, National Aerospace University "Kharkiv Aviation Institute" [April 1998 – December 2003]

Teaching Experience:

Associate Professor, Department of Aircraft Engines Theory, National Aerospace University "Kharkiv Aviation Institute" [September 2016 – Present]

Senior Lecturer, Department of Aircraft Engines Theory, National Aerospace University "Kharkiv Aviation Institute" [September 2012 – August 2016]

Assistant Professor, Department of Aircraft Engines Theory, National Aerospace University "Kharkiv Aviation Institute" [September 2009 – August 2012]

Experience in International or National Projects:

Principal Investigator

Development and Improvement of Methods for Mathematical Modeling of Gas Turbine Engines, Turbomachinery, and Turbine Units for Various Applications (0118U001842) [2018 – 2020]

Investigator

Development of High-Level Mathematical Models for Investigating the Performance Characteristics of Gas Turbine Engines and Gas Pumping Units under Steady-State Operating Conditions (0108U010972) [2009–2011]

Investigator

Theoretical Foundations for the Development of Mathematical Models of Blade Machines of Modern Gas Turbine Engines and Gas Pumping Units and the Creation of High-Level Engine Models Based on Them (0106U001048) [2006 – 2008]

Investigator

Development and Improvement of Theoretical Methods for Gas-Dynamic Calculation of Modern Aircraft Engines and Their Conversion into Ground-Based Installations (0103U004108), [2003 – 2005]

Investigator

Methodology of Mathematical Modeling of Gas Flows in Turbomachinery Flow Paths for the Design of Rational Power Plant Configurations (0100U002192), [2000 – 2002]

Investigator in industrial (contract-based) project with Sumy Machine-Building Science and Production Association (PJSC), Sumy
Development of a Software Suite for Calculating the Gas-Dynamic Characteristics of a Centrifugal Compressor Based on Known Flow Path Geometry, [2001 – 2004]

RESEARCH ACTIVITIES:

Main Research Areas:

Thermogasdynamic modeling of GTE components, centrifugal and axial compressor aerodynamics, numerical and computational fluid dynamics of turbomachinery flows, compressor stage design and modernization, vacuum-arc and pulsed plasma sources, plasma-assisted deposition of multicomponent coatings, diagnostics and control of plasma processes, thermal fields and heat transfer in plasma–material interaction, and nanostructure formation in metallic materials.

Number of Publications (Scopus, WoS, others):

Over 50 scientific publications, including indexed articles in Scopus and Web of Science databases; multiple conference proceedings and applied research outputs.

Textbooks:

Co-author of 11 textbooks on gas turbine engineering and turbomachinery, encompassing the thermogasdynamic analysis, calculation, design, testing, and operation of gas turbine engines, compressors, and related energy systems.

Participation in Scientific Conferences:

Regular participant (over 30) and speaker at international and national scientific conferences in materials science, mechanical engineering, and advanced manufacturing technologies (Ukraine, Bulgaria, and online forums).

TEACHING ACTIVITIES:

Courses Taught:

“Theory and Computation of Impeller Machines”, “Theory of Air-Jet Engines”, “Working Processes in GTE Units”, “CAD Technologies”, “Software for GTE Design”, “Professional English in Gas Turbine Engineering”, and “Using English in Engineering Practice”

Author Courses, Academic Programs:

Author of the courses “Theory and Computation of Impeller Machines”, “Working Processes in GTE Units”, “CAD Technologies”, “Software for GTE Design”,

“Professional English in Gas Turbine Engineering”, and “Using English in Engineering Practice”.

Methodological Materials, Textbooks:

Co-author of textbooks in the fields of gas turbine engineering and turbomachinery, encompassing the thermogasdynamic analysis, calculation, design, testing, and operation of gas turbine engines, compressors, and related energy systems. Developed electronic resources and video materials for hybrid and online teaching (Mentor, Moodle).

PROFESSIONAL ACHIEVEMENTS AND AWARDS:

Honorary Titles:

Certificate of Appreciation of the Ministry of Education and Science of Ukraine [2025].

Certificate of Appreciation of the Head of the Kharkiv City Council [2023].

Honorary Certificate of the Executive Committee of the City Council [2021].

Certificate of Appreciation of the Mayor of Kharkiv [2019].

Winner of the Professional Excellence Competition “Ikars of KhAI” in the nomination “Mentor of Youth” [2013].

Winner of the Regional Competition “Best Young Scientist of the Kharkiv Region” in the field of Power and Electrical Engineering [2007].

INTERNATIONAL ACTIVITIES:

Internships:

Certificate of international distance scientific and pedagogical internship

“Teaching and Research in a Contemporary University: Challenges, Solutions, and Perspectives” Faculty of Education, University of Bialystok, Poland [September 2023]
6 ECTS credits

SELECTED PUBLICATIONS:

Key Articles (Scopus, WoS, others):

Iu. O. Sysoiev, Yu. V. Shyrokyi, K. V. Fesenko. Pulsed Vacuum-Arc Plasma Source for Multicomponent Coatings. – Metallofiz. Noveishie Tekhnol. 2025, vol. 47, No. 10, pp. 1027–1042. <https://doi.org/10.15407/mfint.47.10.1027>

Iurii Sysoiev, Yurii Shyrokyi, Kseniia Fesenko System for Measurement the Product Surface Temperature for Vacuum-Arc Coatings. – Problems of Atomic Science and Technology (PAST), 2025, № 2(156), pp. 171-176 <https://doi.org/10.46813/2025-156-171>

Yu. V. Shyrokyi, Yu. O. Sysoiev, K. V. Fesenko, T. O. Postelnyk Investigation of Temperature Fields in Steels Taking into Account the Finite Speed of Heat Propagation when Modeling the

Conditions for Obtaining Nanostructures in a Plasma Environment. – Open Information and Computer Integrated Technologies, No. 101, 2024, pp. 98–111 <https://doi.org/10.32620/oikit.2024.101.07>

Mykhailo Shevchenko, Maya Ambrozhevich, Kseniia Fesenko. Working Process Model Development of the Gas Turbine Engine Combustor Fueling on Methanol. – Eastern-European Journal of Enterprise Technologies, v.2, № 1(128), 2024, pp. 49-54 <https://doi.org/10.15587/1729-4061.2024.301325>

Hanna Vorobiova, Dmytro Dolmatov, Kseniia Fesenko, Iurii Sysoiev, Oleh Dehtiarov, Maryna Ivashchenko. Effect Detection of Using a Modified Redlich-Kwong-Aungier Equation of State on the Calculation of Carbon Dioxide Flow in a Centrifugal Compressor. – Eastern-European Journal of Enterprise Technologies, v.2, № 8(128), 2024, pp. 54-65 <https://doi.org/10.15587/1729-4061.2024.302837>

Yu. O. Sysoiev, Yu. V. Shyrokyi, K. V. Fesenko. Pulsed Vacuum-Arc Plasma Source with Laser Arc Excitation. – Problems of Atomic Science and Technology (PAST), 2024, № 1(149), pp. 110-115 <https://doi.org/10.46813/2024-149-110>

Iurii Sysoiev, Yurii Shyrokyi, Kseniia Fesenko. Long-Life Pulsed Vacuum-Arc Plasma Source. – Problems of Atomic Science and Technology (PAST), 2023, № 5(147), pp. 152-157 <https://doi.org/10.46813/2023-147-152>

V. Korohodskyi, O. Voronkov, A. Rogovyi, S. Kryshchtopa, O. Lysytsia, K. Fesenko, V. Bezridnyi, N. Rudenko. Influence of the Stratified Fuel-Air Charge Pattern on Economic and Environmental Indicators of a Two-Stroke Engine with Spark Ignition. – Transport, Ecology – Sustainable Development: proc. 27th Techn. and sci. conf., Varna, Bulgaria, 13–15 May 2021. – NY, 2021. – pp. 1–4. – (AIP Conference Proceedings; vol. 2439. – ISSN 0094-243X) <https://doi.org/10.1063/5.0068466>

L. G. Boiko, K. V. Fesenko, A. Yu. Samoilov Modernization of a centrifugal compressor stage of a gas-pumping unit. – Aerospace Engineering and Technology. – 2015. – No. 3 (120). – pp. 84–89.

D. A. Dolmatov, A. V. Kukurudza, M. Khadzhivand, K. V. Fesenko Interaction of Lean Heterogeneous Flames with Different Temperatures. – Aerospace Engineering and Technology. – 2014. – No. 9 (116). – pp. 33–38.

K.V. Fesenko. Improving the Efficiency of a Centrifugal Compressor by Modifying the Geometry of the Flow Path and Blade Rows. – Open Information and Computer Integrated Technologies: Collection of Scientific Papers / National Aerospace University “KhAI”. – Kharkiv, 2014. – Issue 66. – pp. 20–26.

L. G. Boiko, A. E. Demin, E. S. Barysheva, K.V. Fesenko, Yu. P. Maksymov. Methods of Computational Investigation of Flows in Axial and Centrifugal Compressors and Results of Their Practical Application. – Aerospace Engineering and Technology. – 2011. – No. 10 (87). – pp. 63–69.

L. G. Boiko, E. S. Barysheva, K.V. Fesenko, Yu. S. Bukholdin, V. N. Dovzhenko. Numerical Investigation of Two-Dimensional Flow in the Flow Path of a Centrifugal Compressor Stage. – Bulletin of Engine Engineering. – 2006. – No. 3. – pp. 8–13.

L. G. Boiko, A. E. Demin, E. S. Barysheva, K.V. Fesenko, Yu. S. Bukholdin, V. N. Dovzhenko. A Method for Flow Analysis Calculation in the Flow Path of a Centrifugal Compressor and Its Validation. – Aerospace Engineering and Technology. – 2005. – No. 2 (18). – pp. 42–48.

L. G. Boiko, M. A. Kovalev, K.V. Fesenko. A Unified Approach to the Study of Two-Dimensional Flows in Axial, Diagonal, and Centrifugal Compressor Stages. – Aerospace



Engineering and Technology: Collection of Scientific Papers / National Aerospace University “KhAI”. – Kharkiv, 2000. – Issue 15. – pp. 73–75.

Textbooks:

O. V. Kislov, K. V. Fesenko. Matching Calculation of Gas Turbine Engine Units: tutorial for course and diploma projects. – Kharkiv : National Aerospace University “Kharkiv Aviation Institute”, 2025. – 82 p.

O. V. Kislov, K. V. Fesenko. Thermogasdynamic Calculation of Gas Turbine Engines: tutorial for course and diploma projects. – Kharkiv : National Aerospace University “Kharkiv Aviation Institute”, 2025. – 76 p.

O. V. Kislov, M. V. Kononenko, K. V. Fesenko. Technical Operation of Gas Turbine Units of Compressor Stations and Gas Transmission Networks: tutorial for laboratory work. – Kharkiv: National Aerospace University “Kharkiv Aviation Institute”, 2024. – 68 p.

L. G. Boyko, A. E. Dyomin, K. V. Fesenko. Calculation and Design Methods of Turbomachinery: tutorial. Part 1. Numerical Study of Sub-, Trans- and Supersonic Flows in Compressor Blade Cascades – 2nd edition revised and enlarged. – Kharkiv : National Aerospace University “Kharkiv Aviation Institute”, 2021. – 57 p.

M. V. Kononenko, V. O. Pozdniakov, I. I. Redin, K. V. Fesenko. Testing and Fundamentals of Operation of Gas Turbine Units: tutorial. Part 1. – Kharkiv: National Aerospace University “Kharkiv Aviation Institute”, 2021. – 48 p.

E. S. Barysheva, K. V. Fesenko. Calculation of Characteristics of a Centrifugal Compressor Stage: tutorial. – Kharkiv: National Aerospace University “Kharkiv Aviation Institute”, 2016. – 48 p.

E. S. Barysheva, K. V. Fesenko. Design of a Centrifugal Compressor Stage: tutorial. – Kharkiv: National Aerospace University “Kharkiv Aviation Institute”, 2012. – 56 p.

A. H. Volov, I. F. Kravchenko, K. V. Fesenko. Equipment of Gas Pumping Units and Power Plants: tutorial. – Kharkiv: National Aerospace University “Kharkiv Aviation Institute”, 2008. – 65 p.

ADDITIONAL INFORMATION:

Language Proficiency:

Ukrainian – Native,

English – Advanced (Cambridge Assessment English Certificate B2).

IT Skills:

Programming & Mathematical Tools: Mathcad, C++, C#, Chrome DevTools.

CAD/CAE Software: Siemens NX, ANSYS CFX, ANSYS Static Structural, AutoCAD.

Social and Community Activities:

Member of the NGO “International Educators and Scientists Foundation”.

