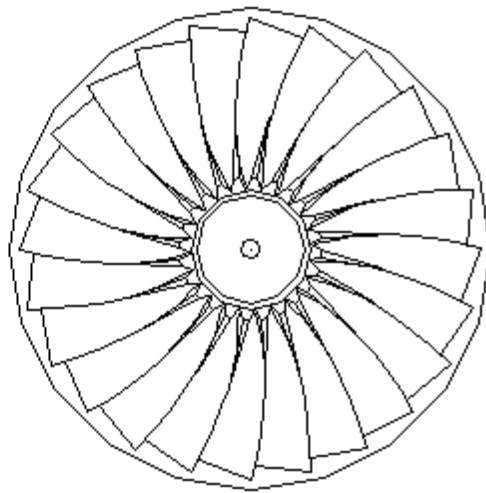
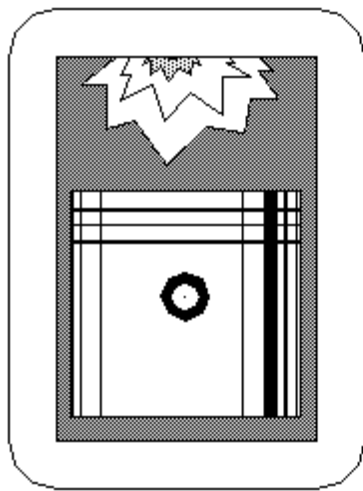


**National Aerospace University «KhAI»
National Technical University «KhPI»
State Enterprise «Ivchenko-Progress»
Joint Stock Company «FED»
Politechnika Warszawska
Kielce University of Tehnology
Piri Reis University
Milli Aviasiya Akademiyası**



XXXI

INTERNATIONAL CONGRESS OF PROPULSION ENGINEERING

September 8-11, 2026

Invitation letter and program

Kharkiv – Ukraine

WELCOME!

The Organizing Committee would like to cordially invite you to attend the XXXI International Congress of Propulsion Engineering.

The Congress focuses scientific-technical communications, the determination of perspective ways to create and develop new equipment and technologies, finding new opportunities for designing the engines of non-standard schemes and sizes, making business and finding new commercial contacts.

The work will be organized in a distant form of video-audioconference, using Zoom platform.

ORGANIZING COMMITTEE:

- National Aerospace University «KhAI»;
- National Technical University «KhPI»;
- State Enterprise «Ivchenko-Progress»;
- Public Joint Stock Company «FED».

Languages of the Congress: Ukrainian, English.

Contact persons in Kharkiv, Ukraine:

ALEXANDER BILOHUB
Dr. Eng., Prof., Academic Secretary

E-mail: av.belogub@gmail.com.
(066) 770-08-58

SERGIY YEPIFANOV
Dr. Eng., Prof.

E-mail: aedlab@gmail.com
(050) 343-76-10

Regulations:

Report to the plenary session	25 min.
Report to the session	15 min.
Discussion	5 min.

Available technical facilities:

- Computer with Internet-link;
- Webcam with (or) microphone;
- Zoom software (is recommended to be installed beforehand);
- Power Point editor is recommended for presentations.

Registration of the Congress participants:

To approve participation in the congress, you need to fill the form following the link <https://forms.gle/TEjU568y35yjnhd8>.

A link to the conference and more detailed information about the registration and the congress format can be found on our official website

<https://propulsioncongress.com>

as well as on the website of KhAI

<https://khai.edu/miznarodnij-kongres-dvignobudivnikiv>

GENERAL COMMITTEE:

O. V. Lytvynov	Rector of National Aerospace University “KhAI”, D.Sc., Prof.
I. F. Kravchenko	Head of Enterprise – General Designer of SE “Ivchenko-Progress” D.Sc.
S. V. Yepifanov	Head of Department of National Aerospace University “KhAI”, D.Sc., Prof.
A. P. Marchenko	Vice-Rector of the National Technical University “KhPI” D.Sc., Prof.
V. V. Popov	Chairman of the Board of PJSC “FED”, Ph.D.

ACADEMIC SECRETARY:

A. V. Bilohub	National aerospace university “KhAI”, D.Sc., Prof.
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Timoshenko V. I.	NASU Cor. Memb.	ITM of NASU and NCAU, Ukraine
Tkach M. R.	Dr.Eng., Prof.	Admiral Makarov NUS, Ukraine

PROGRAM OF CONGRESS

September 8 10⁰⁰ – 13⁰⁰

PLENARY SESSION

Session Chair: **S. V. Yepifanov**, Dr. Eng. (KhAI, Kharkiv);
I. F. Kravchenko, Dr. Eng. (SE «Ivchenko-Progress»,
Zaporizhzhya);
A. P. Marchenko, Dr. Eng. (KhPI, Kharkiv).
Secretary: **A. V. Bilohub**, Dr. Eng. (KhAI, Kharkiv).

1. O. M. LYTUVYNOV (Kharkiv)
Welcome speech by the rector of the National Aerospace University "Kharkiv Aviation Institute"
2. I. F. KRAVCHENKO (Zaporizhzhya)
Main trends in the development of power plants for promising civil aircraft
3. A. P. MARCHENKO, V. O. PYLYOV,
S. S. KRAVCHENKO, D. V. MESHKOV (Kharkiv)
Experience of a comprehensive approach to enhancing the creative activity of students of the department of engines and hybrid power plants of NTU "KhPI"
4. R. A. VARBANETS, D. S. MINCHEV,
Yu. M. KUCHERENKO (Odesa)
Analysis of Marine Engine Characteristics Using DEPAS 5.0W: Wavelet Vibroacoustics + Artificial Intelligence
5. Ye. MARTSENYUK, S. YEPIFANOV (Kharkiv),
I. L. GLIKSON, K. M. PODGOR`SKY (Zaporizhzhya)
Problems of operational monitoring of the service life depletion of the main parts of aircraft engines

Evening Meeting of Section
THEORY AND OPERATION PROCESSES

September 8 14⁰⁰ – 17⁰⁰

Chairmen: **G. O. Gorbenko,** Dr. Eng. (KhAI, Kharkiv);
 Yu. M. Tereschenko, Dr. Eng. (NAU, Kyiv);
 M. R. Tkach, Dr. Eng. (NSU, Mykolayiv);
Secretary: **O. V. Bondarenko,** (KhAI, Kharkiv).

1. **O. V. KISLOV, M. A. SHEVCHENKO (Kharkiv)**
 Justification of the thrust-to-weight ratio of a low-altitude unmanned aerial vehicle with a supersonic flight segment
2. **Yu. O. ULITENKO, Yu. I. TORBA,**
 I. F. KRAVCHENKO (Zaporizhzhya)
 Research of thermo-gas-dynamic characteristics of a family of turbojet double-circuit engines under the conditions of segmented profiling of the low-pressure turbine nozzle box
3. **O. E. KHRULEV (Kropyvnytskyi)**
 Mathematical modeling of engines with periodic workflow using an artificial intelligence service
4. **LI QIJIE, S. V. YEPIFANOV (Kharkiv)**
 A closed-form wall-temperature threshold for the work effect of heat transfer in a two-apex Wankel compressor
5. **K. V. BALALAIEVA, A. V. BALALAIEV,**
 O. A. SHYNKARENKO (Kyiv)
 Evaluation of the thrust characteristics and efficiency of a UAV slot propeller depending on the slot installation angle
6. **V. V. OTROSHCHENKO (Kyiv)**
 Effect of computational mesh topology and turbulence model on the accuracy of aerodynamic characteristic prediction for the NACA 0012 propeller airfoil

7. A. A. KOSHEL (Zaporizhzhya)
Main results of mathematical modelling of the aerodynamic performance of a propfan with a guide vanes
8. M. S. KULYK, F. I. KIRCHU, L. G. VOLIANSKA,
I. G. BABICHEV, O. P. YASHCHUK (Kyiv)
Experimental study of the characteristics of fans for small UAVs
9. M. V. BORYSIUK, Y. O. RUDKIN (Kyiv)
Review of protective guard for propellers of unmanned aerial vehicles
10. A. O. KHOROKHORDIN, M. M. MITRAKHOVYCH
(Zaporizhzhya)
Main results of the research of the characteristics of the axisymmetric input device for external compression
11. Ya. S. VEKLYCH, Yu. I. TORBA,
O. G. ZHYRKOV, (Kharkiv, Zaporizhzhya)
Features of forming a finite element model of a combined receiver of gas flow parameters

September 9

Morning Meeting of Section

THEORY AND OPERATION PROCESSES

September 9 9⁰⁰ – 13⁰⁰

Chairmen: M. M. Mitrakhovych,	Dr. Eng. (SE «Ivchenko-Progress», Zaporizhzhya);
I. I. Petukhov,	PhD (KhAI, Kharkiv).
Secretary: T. P. Mikhaylenko,	PhD (KhAI, Kharkiv).

1. S. A. YEVSIEIEV (Zaporizhzhya)
Verification and experimental validation of the CFD methodology for modeling the temperature field at the exit of the combustion chamber of a small gas turbine engine

2. O. D. NIKOLAYEV, I. D. BASHLII, R. A. MARCHAN,
S. Sh. VEKILOV (Dnipro)
Numerical determination of acoustic space oscillating gas parameters in chamber of a liquid fuel power plant
3. Yu. V. KNYSHENKO, V. M. DURACHENKO (Dnipro)
Method for calculating parameters of small thrust jet engines using "GREEN" fuel and its verification
4. V. V. KOROBKO, A. P. SHEVTSOV (Mykolaiv)
Using the temperature potential of cryogenic fuels in hybrid ship power plants with fuel cells
5. S. G. ORLOVSKA (Odesa)
Research on phase transitions during the ignition of alkane-based fuels
6. M. R. TKACH, B. G. TYMOSHEVSKYI,
O. S. MYTROFANOV, A. Yu. PROSKURIN (Mykolaiv)
Performance indicators of a solid-oxide fuel cell in a hydrogen-sulphide energy technology plant
7. O. Yu. LYSYTSIA, I. I. PETUKHOV,
T. P. MYKHAILENKO, A. V. KOVALOV (Kharkiv)
Specific aspects of modeling hydrogen flow distribution following leakage in the fuel system of a hydrogen aircraft engine
8. I. I. PETUKHOV, O. Yu. LYSYTSIA,
T. P. MYKHAILENKO, M. S. GUMANOV (Kharkiv)
Modeling of heat and mass transfer during the precipitation of the condensed phase on the walls of the recuperator
9. I. I. PETUKHOV, A. V. KOVALOV (Kharkiv)
Modeling of heat transfer during oil film formation in the GTE bearing chamber
10. T. P. MYKHAILENKO, O. V. GORIDKO,
I. I. PETUKHOV (Kharkiv)
Effect of operating parameters on the oil-air mixture scavenging process from an aero-engine bearing chamber

11. R. Yu. TSUKANOV, S. V. YEPIFANOV, Yu. I. TORBA,
O. Ye. ZHYRKOV (Kharkiv, Zaporizhzhya)
Study of gas-turbine engine oil system ejector
12. V. A. SHKABURA (Kharkiv)
**Research on turbochargers with a common impeller for use
in gas turbine engines**

Evening Meeting of Section

PISTON INTERNAL COMBUSTION ENGINES

September 9 14⁰⁰ – 17⁰⁰

Chairmen:	A. P. Marchenko,	Dr. Eng. (KhPI, Kharkiv);
	V. A. Pylyov,	Dr. Eng. (KhPI, Kharkiv);
Secretary:	A. V. Bilohub,	Dr. Eng. (KhAI, Kharkiv).

1. O. V. GRYTSYUK, N. O. KOMYSHAN (Kharkiv)
**Innovative distance education: methodology for integrating
learning technologies and student activity monitoring**
2. F. I. ABRAMCHUK, A. M. AVRAMENKO,
D. O. TROFIMENKO (Dnipro, Kharkiv)
**The future of internal combustion engines in the automotive
industry**
3. D. V. MESHKOV, B. M. ROMANOV (Kharkiv)
**Sources of heat emissions from transport power plants: features
impact on the urban environment**
4. D. V. MESHKOV, I. O. SELIVANOV (Kharkiv)
**Thermal stability factors of traction batteries of hybrid and electric
vehicles in urban operating conditions: an analytical review**
5. O. M. KONDRATENKO, K. R. UMERENKOVA,
O. P. STROKOV, V. Yu. KOLOSKOV, H. M. KOLOSKOVA,
O. O. LYTUVYNNENKO (Kharkiv, Kremenchuk, Cherkasy)
**Consideration thermodynamic properties of the alternative
gaseous motor fuel of biological origin using perturbation theory
to ensure technogenic and environmental safety of firefighting
and emergency-rescue vehicles**

6. S. Y. BILYK, V. Y. LOHVINOV (Kharkiv)
Substantiation of the concept of a combined increase in ICE energy efficiency by combining aqueous ammonia fuel blends and catalytic activation of the piston group
7. V. I. ALOKHIN, A. P. MARCHENKO (Kharkiv)
Fundamentals of forming a sustainable design and manufacturing paradigm for cast ice components: the configurational parameterization algorithm
8. M. T. MISHCHENKO, S. G. MISHCHENKO, T. B. SOROKA (Kharkiv)
Research on the efficiency of adaptive control of gas additives to gasoline in drive cycle conditions using a digital engine twin
9. N. I. ALEKSANDROVSKA, K. O. SHESTOPALOV, O. Ya. KHLIYEVA (Odesa)
Reduction of CO₂ emissions through low-grade waste heat recovery from the 8G50ME-C10.7 marine main engine in an ORC system
10. A. V. SAVCHENKO, M. S. SHELESTOV, I. V. RYKOVA, D. S. TALANIN (Kharkiv)
Knock resistance assessment of a light aircraft engine
11. A. O. NAHORNYI, S. Yu. BILYK (Kharkiv)
The impact of non-stationary processes and operational contamination on the efficiency of heat exchangers in small energy conversion systems: a review
12. QIJIE LI, S. V. YEPIFANOV (Kharkiv)
Analytical model of the working process of a double-peak rotary compressor

September 10

Morning Meeting of Section

PISTON INTERNAL COMBUSTION ENGINES

September 10 9⁰⁰ – 13⁰⁰

Chairmen: **M. R. Tkach,** Dr. Eng. (NSU, Mykolayiv);
 Ye. V. Bilousov, Dr. Eng. (KSMA, Kherson);
Secretary: **O. V. Bilohub,** Dr. Eng. (KhAI, Kharkiv).

1. **M. M. TKACHUK, A. V. GRABOVSKIY, M. A. TKACHUK,**
 S. O. KRAVCHENKO, N. A. DOMINA, S. O. NAZARENKO,
 V. V. SUBBOTINA (Zaporizhzhya, Kharkiv)
 Analysis of effects during contact interaction of discrete-
 continuous-temperature hardened bodies
2. **V. V. PYLYOV (Kharkiv)**
 Mathematical description of the creep process in the piston alloy
 AK12M2MGN and an analysis of it
3. **V. V. PYLYOV (Kharkiv)**
 Methodological basis of ensuring reliability of the outer surface
 of the pistons of boosted ICEs in the conditions of transition
 to industry 4.0/5.0
4. **M. R. TKACH, Yu. M. HALYNKIN,**
 A. A. MONAKHOV, O. O. KOSTRIKOV (Mykolaiv)
 Evaluation of dynamic piston strength parameters using speckle
 interferometry
5. **H. S. KONSHYNA, O. U. LINKOV, V. O. PYLYOV (Kharkiv)**
 Conceptual substantiation of an adaptive methodology for deter-
 mining the resource strength of pistons of forced diesel engines
6. **S. S. KRAVCHENKO, A. P. KUZMENKO,**
 A. O. PROKHORENKO, D. K. OBODEC,
 S. S. KUZMENKO (Kharkiv)
 Improving the efficiency of the ICE air cooling system
 by pigmentation of outer cylinder surfaces

7. A. P. KUZMENKO, S. S. KRAVCHENKO,
A. O. PROKHORENKO (Kharkiv)
Hydrostatic liquid cooling system for a high-output special-purpose diesel engine
8. V. P. SAVCHUK, Ye. V. BILOUSOV,
D. V. KURNOSENKO (Kherson, Odesa)
Digital twin concept for monitoring and diagnostics of crank mechanism bearings in marine low-speed diesel engines
9. I. H. POZHYDAIEV, O. Y. LINKOV (Kharkiv)
Design of a high-pressure fuel pump with controlled delivery for the accumulator-type fuel system of a small-displacement diesel engine
10. O. V. TRYNOV, D. G. SIVYKH (Kharkiv)
Reliability prediction of the valve assembly in a high-speed diesel engine with local cooling
11. R. A. VARBANETS, V. I. ZALOSH (Odesa, Izmail)
Marine diesel engine diagnostics technology based on the DEPAS 5.0w real-time system
12. O. V. BILOHUB, Ye. V. MARTSENYUK,
O. Ye. KHRULYOV (Kharkiv, Kyiv)
On an attempt to model the behavior of a piston during water hammer

Evening Meeting of Section
DESIGN AND STRENGTH
September 10 14⁰⁰ – 17⁰⁰

Chairmen: **S. R. Ignatovych,** Dr. Eng. (NAU, Kyiv);
 S. V. Yepifanov, Dr. Eng. (KhAI, Kyiv);
 S. V. Filipkovskii, Dr. Eng. (KhAI, Kharkiv)
Secretary: **S. Yu. Svezhentsev,** (KhAI, Kharkiv).

1. **V. V. NERUBASKYI (Odesa)**
 Modern turbofan and afterburning turbofan engines
 for training and light combat aircraft
2. **S. S. YUTSKEVYH, V. I. PASKO (Kyiv)**
 The evolution of certification requirements as a balance between
 safety and innovation in aviation
3. **M. O. PIKUL (Kyiv)**
 Topology optimization of a turbofan engine fan considering
 the strength characteristics of a two-row blade
4. **M. O. PIKUL, V. V. OTROSHCHENKO (Kyiv)**
 Design improvement of a turbofan engine fan using topology
 optimization
5. **S. R. IGNATOVICH, I. I. DZHAVADOVA,**
 S. S. YUTSKEVYCH (Kyiv)
 Approaches to determining the plastic zone at the tip of a fatigue
 crack in durability calculations
6. **S. R. IGNATOVICH, S. S. YUTSKEVYCH,**
 I. I. DZHAVADOVA (Kyiv)
 Predicting the survivability of aircraft panel structures
 with fatigue cracks
7. **S. V. UGRIMOV, P. P. HONTAROVSKYI, N. G. GARMASH,**
 I. I. MELEZHYK, T. V. PROTASOVA (Kharkiv)
 Analysis of the crack resistance of an aircraft engine fan disk

8. A. V. NOVOSHYTSKYI, S. Z. BODU,
D. V. FABRITSYIEV (Mykolaiv)
Methodology and results of an experimental study on strip deformation during transverse bending combined with longitudinal tension
9. O. V. SHEVCHUK, O. I. TARASOV (Zaporizhzhya)
Study of the influence of hole-heat-shielding coating pair execution options on film cooling efficiency
10. O. M. BOHOZHAVETS (Kharkiv)
Creation of methods for calculating housing of hydrogenation in three-dimensional formulation
11. M. R. TKACH, A. A. SHYNKARENKO (Mykolaiv)
Numerical study of the natural frequencies of PLA beams manufactured using FFF with internal ribs oriented at different angles
12. M. R. TKACH, Y. M. HALYNKIN, A. A. MONAKHOV,
N. M. SEMENOV (Mykolaiv)
Features of low-frequency natural vibrations of a tubular product with longitudinal slots
13. V. F. MYRHOROD, I. M. HVOZDEVA (Odesa)
Research of dynamic processes in the elastic transmission of a rotorcraft
14. S. S. KRYHIN, D. V. KOZEL,
Yu. O. HUSYEV, Y. I. TORBA (Zaporizhzhya, Kharkiv)
Investigating stress-strain state of turbojet engine under high-temperature conditions
15. Ye. V. MARTSENYUK, S. V. YEPIFANOV,
I. L. GLIKSON, K. M. PODGOR`SKY (Kharkiv, Zaporizhzhya))
Analysis of the influence of uncertainty of thermo-stressed state parameters on the assessment of cyclic durability of gte parts
16. S. S. TOVKACH (Kyiv)
Mechanical influence of nanocomposites on the formation of the constructive appearance of an aircraft engine

September 11

Morning Meeting of Section

AUTOMATIC CONTROL SYSTEMS AND DIAGNOSTICS

September 11 9⁰⁰ – 13⁰⁰

Chairmen: **S. A. Dmitriev,** Dr.Eng. (NAU, Kharkiv);
 S. V. Yepifanov, Dr. Eng. (NAU, Kharkiv);
 V. F. Myrhorod, Dr. Eng. (SC “Element”, Odesa);
Secretary: **Ya. S. Veklych,** (KhAI, Kharkiv).

1. **S. L. LAKOZA, S. I. SUKHOVII,**
 D. M. MATSIUK (Kyiv, Kharkiv)
 Investigation into the possibility of determining the coefficients
 of a non-linear pi controller for a turboshaft engine gas generator
 rotor by solving an optimization problem
2. **D. M. MATSIUK, S. I. SUKHOVII,**
 S. L. LAKOZA (Kyiv, Kharkiv)
 Synthesis of PI controllers for steady-state operating modes
 of a turboshaft engine gas generator by solving an optimization
 problem
3. **A. V. DUNAI (Odesa)**
 Mode-dependent assessment of the technical condition
 of the TV3-117V gas turbine engine based on post-flight data
4. **S. R. VIALOV (Odesa)**
 Simulation of critical GTE start and stop scenarios for testing
 regulator protections
5. **V. F. MYRHOROD, I. M. HVOZDEVA (Odesa)**
 Interval statistics with a non-gaussian distribution of output data
6. **S. V. YEPIFANOV, O. V. BONDARENKO,**
 Ya. S. VEKLYCH (Kharkiv)

Study of the errors of agreement with experimental data of dynamic models of coupled parameters of a single-shaft turbojet engine

Evening Meeting of Section

TECHNOLOGY

September 11 14⁰⁰ – 16³⁰

Chairmen: **V. F. Sorokin,** Dr.Eng. (KhNUUE, Kharkiv);
 A. F. Sanin, Dr.Eng. (DNU, Dnipro);
 Yu. V. Shyrokyi, PhD (KhAI, Kharkiv);
Secretary: **V. V. Tretyak,** PhD (KhAI, Kharkiv).

1. S. V. ADJAMSKIY, G. A. KONONENKO,
 R. V. PODOLSKYI, S. I. BADUK (Dnipro)
 **Anisotropy of mechanical properties of ABD900 alloy produced
 by LPBF method**
2. Yu. V. SHYROKYI, O. D. SEMENENKO,
 I. O. RIABENKOV (Kharkiv)
 **Modeling of thermal stresses during femtosecond laser
 processing of combined wear-resistant coatings for cutting
 tools**
3. O. V. BONDARENKO, O. V. SHORINOV,
 V. A. DATSENKO, V. V. TRETIK (Kharkiv)
 **Application of cold gas dynamic spraying for surface finishing
 of parts manufactured by additive manufacturing methods**
4. A. O. VOLKOV, N. V. SAVCHENKO,
 O. V. SHORINOV (Kharkiv)
 **Improving the quality of gasdynamic coatings at the post-
 processing stage**
5. O. V. SHORINOV, D. O. BILAN (Kharkiv)
 **Cold spraying of protective and restorative coatings with
 an increased level of wear resistance for aircraft components**

6. R. S. IPATOV, O. V. SHORINOV,
O. O. KAPINUS, M. V. SKITSKA (Kharkiv)
Elimination of surface defects of parts obtained using additive technologies by cold gas-dynamic spraying
7. A. V. BALALAIEV, K. V. BALALAIEVA, A. A. KOVTUN,
G. G. GOLEMBIYEVSKYY, H. M. NIKITINA (Kyiv)
Assessment of the influence of taking into account interfiber shear processes in modeling the layout of prepregs on curvilinear surfaces using the example of a UAV propeller

PLENARY MEETING

September 11 16³⁰

1. **Reports of section chairmen about the meetings**
2. **Summarizing the work of XXXI International Congress of Propulsion Engineering**
3. **Approving the Congress resolution**

**Close
of the XXXI International Congress of Propulsion Engineering**