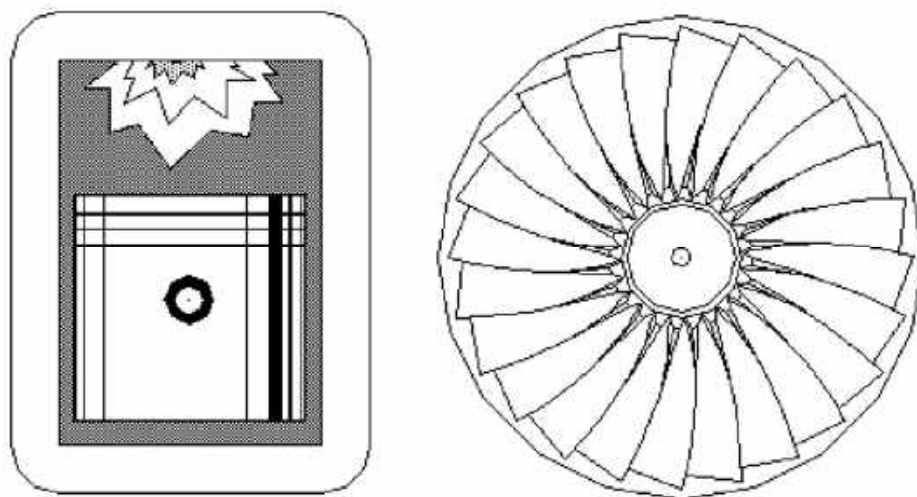


**National Aerospace University «KhAI»
National Technical University «KhPI»
Joint Stock Company «Ivchenko-Progress»
Joint Stock Company «Motor Sich»
Joint Stock Company «FED»**



XXX
**INTERNATIONAL CONGRESS
OF PROPULSION ENGINEERING**

September 2-5, 2025

Invite letter and program

WELCOME!

The Organizing Committee would like to cordially invite you to attend the **XXX 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»;
- Joint Stock Company «Ivchenko-Progress»;
- Public Stock Company «Motor Sich»;
- Public Joint Stock Company «FED».

Languages of the Congress: Ukrainian, English.

Contact persons in Kharkiv, Ukraine:

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Regulations:

Report to the plenary session	25 min.
Report to the session	12 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/RMRLw6CpeSETiKE57>.

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.ua/nauka/konferentsiyi/naukovi-konferencii-hai/mizhnarodnij-kongres-dvigunobudivnikiv4/>

GENERAL COMMITTEE:

I. F. Kravchenko	Head of Enterprise – General Designer of JSC “Ivchenko-Progress” D.Sc., Prof.
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”, D.Sc.
K. B. Balushok	Chief Engineer of SC «Motor Sich», PhD

ACADEMIC SECRETARY:

O. V. Bilohub	National aerospace university “KhAI”, D.Sc., Prof.
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PROGRAM OF CONGRESS

September 2

10⁰⁰ – 13⁰⁰

PLENARY SESSION

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

1. I. KRAVCHENKO, M. KIRICHKOV, S. DMYTRIYEV,
S. PUSHYLIN, S. SMIRNOV (Zaporizhzhia)
‘Ivchenko-Progress’ works towards "clean" aviation
2. K. BALUSHOK (Zaporizhzhia)
**Production development and import substitution strategy
of JSC "MOTOR SICH"**
3. A. MARCHENKO, M. MISHCHENKO, S. MISHCHENKO
(Kharkiv)
**Analysis of the efficiency and perspectives of the development of
power plants of land transport**
4. R. VARBANETS, D. MINCHEV, Yu. KUCHERENKO (Odesa)
**Flight tests of the new DEPAS 5.0W marine diesel engine
diagnostics system**

Evening Meeting of Section

THEORY AND OPERATION PROCESSES

September 2

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. **I. YUDIN (Kyiv)**
 Verification of the mixing chamber model against NASA experiment results
2. **Y. TERESHCHENKO, I. YUDIN (Kyiv)**
 Thermal efficiency of flow mixing as a function of bypass ratio
3. **M. BORYSIUK, Y. RUDKIN (Kyiv)**
 Review of test stand for single propellers of mini- and micro-unmanned aerial vehicles
4. **M. KULYK, F. KIRCHU, L. VOLIANSKA, I. BABICHEV (Kyiv)**
 Efficiency of tandem UAV propulsion fans with toroidal-helical connected blade tips
5. **K. KAPITANCHUK, D. SHKLIARUK (Kyiv)**
 Research on the influence of natural gas and a natural-gas–hydrogen mixture on compressor impeller efficiency
6. **K. KAPITANCHUK, S. YAKYMCHUK (Kyiv)**
 Modeling and investigation of the efficiency of a centrifugal fan with backward-curved
7. **R. LAPIL, Y. TERESHCHENKO (Kyiv)**
 Selection and substantiation of the turbulence model and calculation grid parameters for flow simulation in a compressor with tandem blades
8. **A. BALALAIEV, K. BALALAIEVA, G. GOLEMBIYEVSKYY, A. MELCHENKO, V. USENKO (Kyiv)**
 Application of topological optimization method for the ducted propeller of an unmanned aircraft

9. L. MARKOVSKA, K. BALALAIEVA, A. BALALAIEV (Kyiv)
Thrust performance of the UAV slotted propeller
10. L. MARKOVSKA (Kyiv)
Normal characteristics of a UAV air slot propeller
11. A. KHOROKHORDIN, M. MITRAKHOVYCH (Zaporizhzhia)
Main results of research on hypersonic input devices of aircraft
12. D. PLAKUSHCHYU (Zaporizhzhia)
Main results of the research of the reverse start-up system of a turbofan with ultra-high bypass ratio
13. A. KOSHEL (Zaporizhzhia)
Validation of the mathematical model for the study of the aerodynamic characteristics of a propeller fan
14. O. PUSHYLIN, V. LOGINOV (Zaporizhzhia)
Justification characteristics of a turboprop engine as part of a hybrid turboelectric power plant of a passenger aircraft
15. V. OTROSHCHENKO, M. PIKUL (Kyiv)
The influence of blade temperature on changes of flow deflection angle

September 3

Morning Meeting of Section

THEORY AND OPERATION PROCESSES

September 3 9⁰⁰ – 13⁰⁰

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

1. V. KOROBKO, O. MOSKOVKO, A. SHEVTSOV (Mykolaiv)
Numerical modeling of thermoconvective flows during startup of low-temperature thermoacoustic engines

2. V. KUZNETSOV, O. CHEREDNICHENKO,
S. KUZNETSOVA (Mykolaiv)
Improvement of the weight and size indexes of offshore gas production platforms power plants by using gas turbine plants with thermochemical heat recovery
3. B. TYMOSHEVSKYY, M. TKACH, O. POPOV (Mykolaiv)
Indicators of the gas turbine marine power plant of a vessel for processing plastic waste into fuel
4. O. KOPIYKA, V. KALINCHAK, O. CHERNENKO,
V. SHEVCHUK, O. IVANOV (Odesa)
Effect of Al_2O_3 nanoparticles on the combustion of diesel fuel droplets
5. O. IVANOV, O. CHERNENKO, K. TIMOFIENKO (Odesa)
Features of pulsational evaporation of emulsion drops under the action of electrical discharge
6. O. KOPIYKA, V. KALINCHAK, O. IVANOV,
O. CHERNENKO (Odesa)
Forced ignition temperature of liquids in nitrogen-oxygen mixtures
7. S. ORLOVSKA (Odesa)
Evaporation and burning of paraffin-based fuel drops
8. I. PETUKHOV, A. KOVALOV (Kharkiv)
CFD-analysis of the air sampling impact on the velocity field in the GTE bearing chamber
9. V. SHKABURA (Kharkiv)
Research of turbocompressors with general impeller for their application in gas turbine engines and in power plants
10. A. KHRULEV, V. MUNTIAN (Kyiv)
Mathematical modeling of pulse jet engine parameters and characteristics using online software service
11. R. TSUKANOV, S. YEPIFANOV (Kharkiv)
Thrust augmenting ejector nozzles for micro-turbojets
12. A. KARPENKO (Zaporizhzhia)
Review of CFD methods for the analysis of temperature separation of flow in a Ranque-Hilsch vortex tube

13. D. DOLMATOV (Kharkiv)
Impact of stationary and transient factors on the formation of NO_x in stimulated flames
14. D. DOLMATOV (Kharkiv)
Numerical and natural studies of high temperature primary zone microstructure
15. N. ZINEVICH (Dnipro)
Method of aerodynamic improvement of axial and centrifugal compressor stages of gas turbine engines

Evening Meeting of Section

PISTON INTERNAL COMBUSTION ENGINES

September 3 14⁰⁰ – 17⁰⁰

Chairmen:	A. P. Marchenko, I. V. Parsadanov, R. A. Varbanets,	Dr. Eng. (KhPI, Kharkiv); Dr. Eng. (KhPI, Kharkiv); Dr. Eng. (OSMU, Odesa)
Secretary:	O. V. Bilohub,	Dr. Eng. (KhAI, Kharkiv).

1. A. MARCHENKO, V. PYLYOV, V. PYLYOV (Kharkiv)
Promising ways of organizing the circular economy based on the use of internal combustion engines
2. O. GRYTSYUK, O. VRUBLEVSKYI, A. KUZMENKO, S. KUZMENKO (Kharkiv, Olsztyn, Poland)
Analysis of the efficiency of a diesel engine in parallel and series hybrid power plants of a vehicle using AMESim
3. I. PARSADANOV, I. RYKOVA, A. LAL, M. SHELESTOV (Kharkiv)
Determination of environmental performance of a diesel engine in production conditions
4. O. KONDRATENKO, V. KOLOSKOV, H. KOLOSKOVA, O. STROKOV, O. LYTVYNENKO, D. MIROSHNYCHENKO (Kharkiv, Kremenchuk)
Consideration thermal energy and motor fuel vapor emissions in criteria-based assessment of the ecological safety of exploitation of reciprocating ICE of fire-fighting and emergency-rescue equipment in conditions of armed aggression

5. V. ALOKHIN, A. MARCHENKO, S. KRAVCHENKO (Kharkiv)
Creating a digital twin for a two-stroke engine cylinder in the parametric domain of a PLM system
6. S. KRAVCHENKO, A. PROKHORENKO, A. KUZMENKO (Kharkiv)
Adaptation of automobile gasoline engine for work on mixed fuel with bioethanol
7. A. SAVCHENKO, D. TALANIN (Kharkiv)
Reducing the carbon footprint of diesel engines through the use of plant-based fuels
8. A. SAVCHENKO, P. KITSENKO (Kharkiv)
Fuel quality assessment methods for improving the reliability of diesel fuel systems
9. M.R. TKACH, B.G. TYMOSHEVSKY, O.S. MITROFANOV, A.Yu. PROSKURIN, A.S. POZNANSKY (Mykolaiv)
Features of modeling the combustion process of synthesis gas in piston engines
10. B. TYMOSHEVSKYY, M. TKACH, O. POPOV (Mykolaiv)
Motor properties of alternative fuels obtained by processing polymer waste
11. A. LISOVAL, O. HOVOROV, V. PUKAS, M. VOLYNKIN (Kyiv, Kamyanetsi-Podilskyi)
Justification for using synthesized E-fuels in the diesel engines of vehicles
12. L. KLYMENKO, O. PRYSHCHEPOV, O. SHCHESYUK, V. ANDREEV (Mykolaiv)
Modernization of mobile diesel generator sets
13. L. KLYMENKO, O. PRYSHCHEPOV, V. ANDRIEIEV, O. SHCHESIUK, N. SIDELEV (Mykolaiv)
Modelling the operation of an electronic gas distribution system for low-power internal combustion engines

14. I. BILOUSOV, V. SAVCHUK, H. TULUCHENKO
(Odesa, Kharkiv)

Use of numerical profiles of the working process to determine dynamic phases of exhaust valve closure of a two-stroke low-speed diesel engine

15. O. GRYTSYUK, A. KUZMENKO, V. DROBIAZKO,
D. KOVALENKO (Kharkiv)

Design features of supercharging systems for modern automotive diesels based on air charge pressure speed characteristics

September 4

Morning Meeting of Section

PISTON INTERNAL COMBUSTION ENGINES

September 4 9⁰⁰ – 13⁰⁰

Chairmen:	V. O. Pylyov,	Dr. Eng. (KhPI, Kharkiv);
	Yu. F. Gutarevych,	Dr. Eng. (NTU, Kyiv);
	Ye. V. Bilousov,	Dr. Eng. (ONMU, Odesa)
Secretary:	O. V. Bilohub,	Dr. Eng. (KhAI, Kharkiv).

1. V. ZALOU (Izmail)

Methods for diagnosing marine diesel engines using real-time workflow parameters

2. M. BUDUROV (Odesa)

Optimization of electronic speed governor for marine diesel engine

3. D. OBODETS, S. KRAVCHENKO (Kharkiv)

Improvement of efficiency and operational parameters of a two-stroke engine for unmanned aerial vehicles

4. A. LAL, S. KRAVCHENKO (Kharkiv)

UAV engine featuring advanced specific power performance

5. I. POZHYDAIEV, O. LINKOV (Kharkiv)
Fuel supply control by a battery-type system to reduce pump drive losses
6. V. SAVCHUK, YE. BILOUSOV, D. KURNOSENKO (Odesa, Kherson)
Study of the impact of operating modes of marine low-speed diesels on the dynamic characteristics of the crank-shaft mechanism
7. O. SHEVCHENKO, O. LINKOV, A. SAVCHENKO (Kharkiv)
Analysis and calibration of fuel pressure sensor for diesel engine injector fault diagnostics
8. M.R. TKACH, YU.M. HALINKIN, YU.G. ZOLOTY, A.A. MONAKHOV, O.A. KOSTRIKOV (Mykolaiv)
Dynamic strength of a tubular part with holes
9. O. BILOGUB, O. ZOTOV (Kharkiv)
Compound piston of a two-stroke engine
10. O. TRYNOV, D. SIVYKH (Kharkiv)
Modeling of air filter foundation processes in motor experiments
11. M. TKACHUK, A. GRABOVSKIY, M. TKACHUK, S. KRAVCHENKO, H. TKACHUK, O. LOZNYI (Kharkiv)
Discrete and continuous methods and tools of strengthening of military and civil machines elements
12. V. ALOKHIN, A. MARCHENKO, S. KRAVCHENKO, A. LAL (Kharkiv)
Implementation of industry 4.0 technological methods in the production of cast ICE components, an algorithm for their comprehensive application
13. S. BODU, A. NOVOSHYTSKY, V. POLISHCHUK, O. SHUMILOV (Mykolaiv)
The influence of technological inheritance on the operational reliability of fuel system elements

Evening Meeting of Section
DESIGN AND STRENGTH

September 4 14⁰⁰ – 17⁰⁰

Chairmen:	S. R. Ignatovych,	Dr. Eng. (NAU, Kyiv);
	M. G. Shulzhenko,	Dr. Eng. (IPS, Kyiv);
	S. V. Filipkovskii,	Dr. Eng. (KhAI, Kharkiv)
Secretary:	S. Yu. Sviezhentsev	(KhAI, Kharkiv).

1. S. IGNATOVICH, I. DZHAVADOVA (Kyiv)
Fatigue life of aircraft skin panel structures in the presence of fatigue cracks
2. I. DZHAVADOVA (Kyiv)
Strain evaluation in arbitrary directions using three arbitrarily oriented strain gauges
3. S. IGNATOVICH, O. SEMENETS, I. DZHAVADOVA (Kyiv)
Influence of Young`s modulus and Poisson`s ratio on the stress-strain state components of a plate
4. V. PASKO, S. YUTSKEVYH (Kyiv)
Application of mesh-free methods in the wing rigidity analysis to support UAV
5. M. PIKUL, K. BALALAIEVA, A. BALALAIEV,
A. MELCHENKO (Kyiv)
Application of the topological optimization method for minimizing the mass characteristics of axial compressor blades
6. D. BOROVIK, Yu. YEVDOKYMENKO, G. FROLOV,
O. KOLOTILO, O. POTAPOV, N. SUYETOVA (Kyiv)
Calculation and experimental method for determining the thermal conductivity of thermal insulation materials at high temperatures

7. O. NIKOLAYEV, I. BASHLIY (Dnipro)
Development and testing of combustion chamber dynamic instability regimes for power plants with lunar regolith as propellants
8. V. KUZNETSOV (Mykolaiv)
Improvement of the criterion for evaluating the efficiency of heat transfer processes in waste heat recovery boilers of diesel power plants
9. M. TKACH, Yu. HALINKIN, Yu. ZOLOTYI, I. ZHUK, A. SHYNKARENKO, O. KOSTRIKOV (Mykolaiv)
Evaluation of the influence of internal structure geometry on the vibrational characteristics of FFF-manufactured PLA beams with lattice infill
10. M. TKACH, YU. HALYNKIN, YU. ZOLOTYY, A. MONAKHOV, S. DOTSENKO, O. KOSTRIKOV (Mykolaiv)
Experimental and calculation determination the form of proper oscillations of the polymer cylinder
11. T. MYKHAILENKO, O. GORIDKO, I. PETUKHOV (Kharkiv, Zaporizhzhia)
Effect of air on the efficiency and reliability of an aeroengine lubrication system
12. I. PETUKHOV, O. LYSYTSIA, T. MYKHAILENKO, A. KOVALOV (Kharkiv)
Specific aspects of modeling the chill down process of cryogenic systems
13. S. FILIPKOVSKIY, E. POLYAKOV (Kharkiv)
Finite element model of wing console with engine for investigating oscillation stability
14. B. OVCHAROV (Kharkiv)
Integrated design of truss composite tail beam of the fuselage of a multipurpose light helicopter

15. Ye. MARTSENYUK, S. YEPIFANOV (Kharkiv)
Justification of the composition of the aircraft engine measuring system for life-time monitoring
16. S. BOIKO, Ye. MAMAI, I. GLIKSON (Zaporizhzhia)
On the issue of determination inspection intervals for the MS-14 turboprop engine propeller shaft
17. O. TRETIAK, S. KRAVCHENKO, P. GAKAL, B. SHESTAK, S. SERHIIENKO, V. NAZARENKO (Kharkiv)
Analysis of the bandage assembly stress-strain state to assess the possibility of increasing power of the turbogenerator
18. S. KRYHIN, Y. HUSYEV, Y. TORBA (Zaporizhzhia, Kharkiv)
Mathematical model of temperature transfer and static deformations in a strain gauge device
19. S. TOVKACH (Kyiv)
Adaptive kinematic structures for construction of an aviation gas turbine engine

September 5

Morning Meeting of Section

AUTOMATIC CONTROL SYSTEMS AND DIAGNOSTICS

September 5 9⁰⁰ – 13⁰⁰

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

1. O. CHERNIAVSKYI, S. SHEVCHENKO, S. DOLGOPOLOV (Dnipro)
Mathematical modeling of dynamic processes in the branched reconfigurable propellant feed system with check valves in a liquid rocket engine

2. V. NERUBASKYI, T. KOZARYK (Odesa)
Using LDRA tool suite in certification of aviation systems software
3. A. DUNAI (Odesa)
Development of the structure of a diagnostic model for the TV3-117V gas turbine engine for post-flight analysis
4. S. VIALOV (Odesa)
Simulation-based modeling of hazardous start-up and shutdown modes of a gas turbine engine for testing controller protection functions
5. V. MYRHOROD, I. HVOZDEVA (Odesa)
Determination of the trend component of a time series by real-time means in technical operation of complex energy facilities
6. V. MYRHOROD, I. HVOZDEVA (Odesa)
Estimation of parameters of the periodic component of the time series of data of bench tests and technical operation of complex energy facilities by the method of singular spectral analysis
7. O. BONDARENKO, S. YEPIFANOV (Kharkiv)
Analysis of the accuracy of identification of dynamic characteristics of the gas turbine engine taking into account errors in the initial data
8. S. SUKHOVII, S. LAKOZA, D. MATSIUK (Kharkiv, Kyiv)
Analysis of directions for gas turbine engine control algorithms improvement
9. D. MATSIUK, S. LAKOZA, S. SUKHOVII (Kharkiv, Kyiv)
Model-based design approach for development of gas turbine engine FADEC software

Evening Meeting of Section

TECHNOLOGY

September 5 14⁰⁰ – 16³⁰

Chairmen:	K. B. Balushok,	Dr.Eng. («Motor Sich» SC, Zaporizhzhya)
	A. F. Sanin,	Dr.Eng. (DNU, Dnipro);
	V. F. Sorokin,	Dr.Eng. (KhNUUE, Kharkiv);
Secretary:	V. V. Tretyak	PhD (KhAI, Kharkiv).

1. S. ADJAMSKIY, G. KONONENKO, R. PODOLSKYI,
S. BADUK (Dnipro)
**Study of selective laser melting parameters of Inconel 718:
structure, defects and ways to avoid them**
2. A. NOVOSHYTSKYI, S. BODU, D. FABRITSYIEV,
A. SHUMILOV, A. NIKOLAEV (Mykolaiv)
**Engineering methodology for calculating parameters of
profiling technology with longitudinal tension of thin-walled
parts of heat exchangers**
3. A. NOVOSHYTSKYI, S. BODU, D. FABRITSYIEV,
A. SHUMILOV, A. NIKOLAEV (Mykolaiv)
**Experimental equipment and technology for manufacturing heat
transfer elements with spherical protrusions for heat
exchangers**
4. I. ZORIK, O. SHORINOV, S. NYZHNYK, R. IPATOV,
D. NAHORNYI (Kharkiv)
**The effect of the operating regimes of cold spraying gas heater
on the heating temperature of compressed air**
5. N. SAVCHENKO, O. SHORINOV, D. BILAN (Kharkiv)
**Ways for improving cold spray coatings' operational
characteristics**
6. O. SHORINOV, N. SAVCHENKO, O. SHYPUL, R. IPATOV
(Kharkiv)
New approach to nozzle design for cold spraying

7. K. BALUCHOK, Y. MARCHENKO, A. SELIVERSTOV
(Zaporizhzhya)
Comparative assessment of the structure and properties of titanium alloy BT 20 obtained by casting, forging, and additive growth methods
8. P. NECHYPORENKO (Zaporizhzhya)
Creation of an algorithm for forming an arbitrary part profile by running-in method
9. S. MAKOVSKYI, S. SOLOKOV, K. OBNOSOV, V. GRESHTA, V. SHALOMEYEV (Zaporizhzhya)
The structure and mechanical properties of Mg-Al-Zn-Mn cast magnesium alloy inoculated with single wall carbon nanotubes

PLENARY MEETING

September 5 16³⁰

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

CLOSE OF THE XXX INTERNATIONAL CONGRESS OF PROPULSION ENGINEERING