

READ 2022 Research & Education in Aircraft Design	III ASC 2022 Aviation & Space Congress	XVI EWAD 2022 European Workshop on Aircraft Design Education
Rzeszow	   	8-10 June 2022

Wednesday, June 8, 2022

SESSION 1 - Aircraft design

Chair: Goraj Zdobyslaw

Room: V.2

1	Lukáš Dubnický, Jaroslav Juračka	PRELIMINARY STRUCTURAL ANALYSIS OF MORPHING FLAPERON
2	Stanisław Gajek	AUTOMATIC ESTIMATION OF AIRCRAFT FATIGUE LIFE
3	Janusz Piechna, Wojciech Grendysa	STUDY OF THE ACCEPTABILITY, FEASIBILITY, EFFECTIVENESS AND PRACTICABILITY, OF SOLUTIONS ALLOWING FOR THE CONSTRUCTION AND OPERATION OF HYPERLOOP HIGH-SPEED RAIL
4	Agnieszka Kwiek, Jacek Mieloszyk, Andrzej Tarnowski, Tomasz Goetzendorf-Grabowski	RAPID DESIGN AND OPTIMIZATION OF UNCONVENTIONAL AIRCRAFT USING SOFTWARE TOOLS COUPLED IN OPTIMIZATION LOOP

SESSION 2 - Dynamics and control systems

Chair: Grzegorz Kopecki

Room: V.6

1	Dominika Kacik, Tomasz Goetzendorf-Grabowski	ENERGY OPTIMISATION IN THE TRANSITION PHASE BETWEEN THE VERTICAL AND HORIZONTAL FLIGHT FOR THE PW CHIMERA UAV
2	Albert Zajdel	INFLUENCE OF ADVERSE RUNWAY SURFACE CONDITIONS ON THE AIRCRAFT LANDING RISK LEVEL
3	Sebastian Topczewski, Przemysław Bibik	LQR AND LQG CONTROL OF THE HELICOPTER DURING LANDING ON A MOVING SHIP DECK
4	Izabela Krzysztofik, Maciej Salwa, Łukasz Nocoń	SELECTION OF PID CONTROLLER PARAMETERS FOR TRICOPTER CONTROL

SESSION 3 – Equipment*Chair:* Cristina-Elisabeta Pelin

Room: V.2

1	Michał Kuźniar, Marek Orkisz, Piotr Wygonik	ENERGY MANAGEMENT ON BOARD AIRPLANE WITH HYBRID AND DISTRIBUTED PROPULSION
2	Antoni Kopyt, Marcin Adamczuk, Antonina Waszkiewicz	DEVELOPMENT OF BIOFEEDBACK-BASED ADAPTIVE SYSTEM FOR HUMAN OPERATOR PERFORMANCE OPTIMIZATION
3	Robert Głębocki, Antoni Kopyt, Mariusz Jacewicz, Dawid Florczak	AUTONOMOUS SOLAR-POWERED DOCKING STATION FOR UAVS
4	Józef Grzybowski	INVESTIGATION ON ANTI-ICING INSTALLATION CONTROL SYSTEM FOR PZL M28 AND BRYZA AIRCRAFT SAMOLOTU M28 I BRYZA

SESSION 4 - Materials and structures*Chair:* Adrian Gâz

Room: V.6

1	Tomáš Katrňák, Andrzej Kubit	DISPROVAL OF PREDICTION RULE OF STRENGTH OF DOUBLE SHEAR RIVET JOINT
2	Cristina-Elisabeta Pelin, Alexandra-Raluca Petre, Adrian Gâz, George Pelin, Adriana Ștefan, Cristian Moisei, Albert Arnau Cubillo	DESIGN, MANUFACTURING AND TESTING OF PULL-OUT AND SHEAR-OUT INSERT ALLOWABLE FOR COMPOSITE MATERIALS SANDWICH APPLICATIONS
3	Petre Alexandra Raluca, Craciun Daniel Dumitru, Munteanu Camelia Elena, Nastase Mihaela, Nenciu Andrei, Ristea Alexandru Costin	EVALUATION OF THE CFRP COMPOSITE FAIRING STRUCTURE FOR A VTOL VEHICLE
4	Antoni Derda, Piotr Mazowiecki, Sebastian Dylicki, Aleksander Czernicki, Paweł Ryś, Kamil Koszarksi, Muhammad Ibraheem, Stanisław Gradolewski	IMPROVED „BLOW THERMOFORMING” METHOD IN MANUFACTURING COMPOSITE TRANSPARENT POLYMERS WITH COMPLEX SHAPES

SESSION 5- Measurement systems and methods

Chair: Albert Zajdel

Room: V.2

1	Antoni Kopyt, Vin'icius Ferreira Bandeira do Nascimento	EYE TRACKER SOFTWARE DEVELOPMENT APPLIED TO AERONAUTICAL PURPOSES
2	Krystian Borodacz, Cezary Szczepański, Mariusz Krawczyk	IMPACT OF SENSORS EXCELLENCE ON THE ACCURACY OF HYPERSONIC MISSILES
3	Jacek Pieniążek, Piotr Cieciniński, Marek Szumski, Daniel Ficek	RESEARCHING DYNAMIC FEATURES OF A PRESSURE MEASURING SYSTEM
4	Dawid Cieśliński	THE IMPACT OF DISTURBANCE IN STATIC PRESSURE MEASUREMENT ON FLIGHT PARAMETERS IN ILR-33 AMBER ROCKET

SESSION 6- Propulsion

Chair: Allan Nõmmik

Room: V.6

1	Katarzyna Pobikrowska, Kamil Zawadzki, Patryk Widera	VTOL UAV HYBRID-ELECTRIC PROPULSION SYSTEM - MODELLING AND VALIDATION ON A TEST BENCH
2	Rafał Bartłomowicz , Arkadiusz Bednarz	NUMERICAL EVALUATION OF THE IMPACT OF THE CHANGE IN THE NUMBER OF CENTRIFUGAL COMPRESSOR BLADES ON THE PERFORMANCE OF A TURBINE ENGINE
3	Jacek Czarnigowski	AIRCRAFT PISTON ENGINE OPERATING PARAMETERS DISTRIBUTION IN OPERATING CONDITIONS
4	Allan Nõmmik, Karl-Eerik Unt	CHALLENGES AND SOLUTIONS FOR OPERATIONAL STAFF TRAINING OF EUROPEAN AIRLINES

SESSION 7- Traffic and infrastructure*Chair:* Jaroslav Juračka

Room: V.2

1	Daniel Lichoń, Andrzej Majka, Tomasz Lis	RPAS PERFORMANCE MODEL FOR FAST-TIME SIMULATION RESEARCH ON INTEGRATION IN NON-SEGREGATED AIRSPACE
2	Anna Sibilska-Mroziewicz, Edyta Ładyżyńska-Kozdraś, Krzysztof Sibilski	VIRTUAL REALITY FOR NUMERICAL ANALYSIS OF ELEMENTS OF THE MAGNETIC LAUNCHER SYSTEM OF UNMANNED AIRCRAFT
3	Anna Ziaja, Magdalena Kobrzyńska, Łukasz Bańczyk, Antoni Bryniczka, Bartosz Nakwasiński, Patryk Oleś	LASERS DAZZLE DANGER

SESSION 8- Propulsion*Chair:* Jacek Czarnigowski

Room: V.6

1	Michał Kuźniar, Andrzej Majka	ANALYSIS OF THE USED TYPE OF PROPULSION SYSTEM FOR THE RANGE AND DURATION OF THE UAV FLIGHT
2	Andrzej Majka	PERSPECTIVES ON HYDROGEN-POWERED AVIATION
3	Andrzej Majka, Aleksandra Pasich, Paweł Ostreża	HYDROGEN FUEL AS SOURCE FOR AIRCRAFT POWER AND PROPULSION

SESSION 9- Education for aviation*Chair:* Tomasz Rogalski

Room: V.2

1	Henzel Maciej, Ważny Mariusz	EDUCATION ON AVIATION AT THE MILITARY UNIVERSITY OF TECHNOLOGY - CONTEMPORARY PURPOSES AND CHALLENGES
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SESSION 10- Traffic and infrastructure (ONLINE)*Chair:* Grzegorz Drupka

Room: V.2

1	Anna Mazur, Bartosz Dziugiel, Adam Liberacki, Piotr Ginter, Agata Utracka, Sylwester Wyka, Vittorio Di Vito, Aniello Menichino	BARRIERS IDENTIFICATION FOR MULTIMODAL TRANSPORT SYSTEM IMPLEMENTATION INTO POPULATED MUNICIPALITIES
2	Anna Mazur, Piotr Ginter, Aleksandra Drożdżikowska	PRACTICAL APPLICATION OF RISK MITIGATION IN SORA
3	Jakub Zboch	HOW TO REDUCE THE THREAT OF INFECTION IN AVIATION DURING PANDEMIC? – TECHNICAL AND PROCEDURAL SOLUTIONS
4	Adam Liberacki, Bartosz Dziugiel, Paulina Woroniecka, Piotr Ginter, Anna Stańczyk, Anna Mazur, Jens Ten Thije, Marta Tojal	KEY FACTORS IN REDUCING THE TOTAL COST OF IMPLEMENTATION OF URBAN AIR MOBILITY

SESSION 11- Materials and structures (ONLINE)*Chair:* Jacek Pieniążek

Room: V.6

1	Anatoli Kretov, Dmytro Tiniakov	PRELIMINARY EVALUATION OF THE FOLDING COMPOSITE WING ON PASSENGER AIRCRAFT EFFICIENCY
2	Sintija Zeltiņa, Mārtiņš Kleinhofs, Irena Chatys	MATERIAL MAINTENANCE ACCORDING TO SAFE FLIGHT
3	František Löffelmann	BLENDING CONSTRAINT APPLIED TO GRADIENT SANDWICH OPTIMIZATION
4	Stanisław Noga, Paweł Fudali, Tadeusz Markowski	ANALYSIS OF TRANSVERSE NATURAL VIBRATIONS OF TOOTHED WHEELS IN AVIATION TRANSMISSIONS

SESSION 12 - Aircraft design (ONLINE)*Chair:* Tomasz Goetzendorf-Grabowski

Room: V.2

1	Zdobyslaw Goraj, Andrea Ciarella, Peter Wong	ARTIFICIAL INTELLIGENCE AND ITS APPLICATION FOR CONCEPTUAL DESIGN OF UNCONVENTIONAL ARCHITECTURE
2	Petter Krus	AIRCRAFT SYSTEM SIMULATION FOR SUBSYSTEM DESIGN AND MISSIONS PERFORMANCE

SESSION 13 - Education for aviation (ONLINE)*Chair:* Andrzej Majka

Room: V.6

1	Adson Agrico de Paula, Roberto Gil Annes da Silva	A PEDAGOGICAL APPROACH BASED ON PROBLEM-BASED LEARNING FOR AERODYNAMIC EDUCATION
2	Diane Uyoga	IMPACT OF LEARNING ON PRODUCT, DESIGN AND SERVICE EXPERIENCE
3	Ingo Staack, David Lundström, Petter Krus	COMPONENT-BASED CYBER-PHYSICAL SYSTEM SIMULATIONS WITHIN AERONAUTICAL EDUCATION
4	Dominika Pytlak, Weronika Dziaduch, Nezar Sahbon, Konrad Wojciechowski, Jakub Czerniej, Izabela Lechowicz, Kajusz Zieliński, Kamil Siemionek, Mateusz Karpiński, Mateusz Sochacki, Tomasz Miś, Michał Haloń, Jan Kindracki	DEVELOPMENT OF STUDENTS' SPACE ASSOCIATION AT WARSAW UNIVERSITY OF TECHNOLOGY – 25 YEARS OF ACTIVITIES, ACHIEVEMENTS AND CHALLENGES

SESSION 14 – Equipment / Propulsion (ONLINE)*Chair:* Damian Kordos

Room: V.2

1	Zdobyslaw Goraj, Rafał Frackowiak	ESTIMATION BIG GAME SPECIES NUMBER USING A THERMAL CAMERA MOUNTED ON A UAV DEVICE
2	Mohamed Hammami, Dieter Scholz	TURBOFAN SPECIFIC FUEL CONSUMPTION, SIZE, AND MASS FROM CORRELATED ENGINE PARAMETERS
3	Mariusz Korkosz, Stanisław Noga, Tomasz Rogalski	ANALYSIS OF THE MECHANICAL LIMITATIONS OF THE SELECTED HIGH SPEED ELECTRIC MOTOR

Friday, June 10, 2022

SESSION 15- Measurement systems and methods

Chair: Tomáš Katrňák

Room: V.2

1	Paweł Dyrda, Adrianna Gardzińska, Zbigniew Gomółka, Damian Kordos, Andrzej Majka, Ewa Polak, Ewa Żesławska	MONITORING OF PILOT'S PERFORMANCE
2	Grzegorz Kopecki, Michał Banicki	HEADING CORRECTION WITH THE USE OF ROLL ANGLE – AN IDEA, SIMULATIONS, FLIGHT DATA ANALYSIS
3	Tomasz Rogalski, Dariusz Nowak, Stanisław Noga, Paweł Rzucidło	THE VISION SYSTEM TO DETERMINE THE LATERAL DEVIATION FROM THE LANDING TRAJECTORY
4	Piotr Szwed, Paweł Rzucidło, Tomasz Rogalski	ALGORITHM FOR ESTIMATING ATMOSPHERIC GUSTS USING INTEGRATED ON-BOARD SYSTEMS OF A JET TRANSPORT AIRPLANE - FLIGHT SIMULATIONS

SESSION 16- Dynamics and control systems

Chair: Krawczyk Mariusz

Room: V.6

1	Jerzy Graffstein	THE INFLUENCE OF AIRPLANE'S DYNAMICS AND ITS' STATE OF FLIGHT ON SAFETY OF AN EVASIVE MANOEUVRE PERFORMED TO AVOID MOVING OBSTACLES
2	Mateusz Sochacki, Janusz Narkiewicz	OPTIMISATION OF A SATELLITE CONSTELLATION COMPOSED OF NONHOMOGENEOUS NODES
3	Marcin Figat, Agnieszka Kwiek	ANALYSIS OF THE DYNAMIC STABILITY OF THE TANDEM WING AIRCRAFT
4	Jan Kierski, Artur Pazik, Dawid Cieśliński	SOLID ROCKET BOOSTERS SEPARATION SYSTEM DEVELOPMENT FOR THE ILR-33 AMBER 2K ROCKET

SESSION 17- Aircraft design*Chair:* Agnieszka Kwiek

Room: V.2

1	Kamil Kucharski, Michał Kuźniar	KINETIC ENERGY STORAGE SYSTEM IN A LIGHT HELICOPTER
2	Schneider Johannes, Strohmayr Andreas	DEVELOPMENT PROCESS FOR PRELIMINARY AIRCRAFT SIZING METHODS WITH REGARD TO NEW TECHNOLOGIES

SESSION 18- Propulsion*Chair:* Piotr Cieciński

Room: V.6

1	Nenciu Andrei, Craciun Daniel Dumitru, Munteanu Camelia Elena, Nastase Mihaela, Petre Alexandra Raluca, Ristea Alexandru Costin	STRUCTURAL VALIDATION OF THE ROCKET ENGINE PROPULSION SYSTEM OF A REUSABLE VTVL VEHICLE
2	Miroslav Šplíchal, Miroslav Červenka	ENGINE CONDITION MONITORING ON A SMALL SINGLE-ENGINE TURBOPROP AIRCRAFT

SESSION 19- Traffic and infrastructure*Chair:* Johannes Schneider

Room: V.2

1	Piotr Grzybowski, Maciej Pruchniak	CONCEPT AND EXPERIMENTAL VERIFICATION OF THE ADVISORY FUNCTION FOR THE FLIGHT RECONFIGURATION SYSTEM DEVELOPED IN THE COAST PROJECT
2	Andrzej Majka	AIRCRAFT TRAJECTORY OPTIMIZATION METHOD IN COMPLEX AIRSPACE ENVIRONMENT IN FREE ROUTE AIRSPACE
3	Andrzej Majka, Łukasz Salach	DETERMINING THE WEATHER PERFORMANCE OF AIRPORT AND ITS IMPACT ON FLIGHT OPERATIONS

SESSION 20- Materials and structures*Chair:* Stanisław Noga

Room: V.6

1	Aleksander Olejnik, Piotr Zalewski, Łukasz Kiszowski, Robert Rogólski, Adam Dziubiński	APPLICATION OF REVERSE ENGINEERING TECHNIQUES FOR GEOMETRY MAPPING AND MODELLING OF AERODYNAMIC AND STRENGTH PHENOMENA IN AVIATION STRUCTURES
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