

45th European Rotorcraft Forum

Warsaw, Poland, 17–20 September 2019



Warsaw University of Technology - Centre for Innovation Management and Technology Transfer
Rektorska 4, Warsaw

Monday September 16th

14:00 - 17:00 Registration open

Day 1 - Tuesday September 17th

07:30 Registration open

Auditorium

08:45 Auditorium opens

09:00 Welcome prof. Rajmund Bacewicz, Vice Rector for Research WUT

09:15 **Airbus Helicopters PL**

09:45 **Leonardo Helicopters PL**

10:15

Coffee break (live helicopter show)

11:15 **Clean Sky 2 presentation**

12:30

Networking Lunch

	Room 1	Room 2	Room 3	Room 4	Room 5
	Aerodynamics I Richard Markiewicz	Flight Mechanics I Rainer Heger	Test & Evaluation I Joost Hakkaart	Dynamics I Pierangelo Masarati	CleanSky Andrzej Podsadowski
13:30	9 Effect of Vortex Deformation on Vortex-Rotor Interaction <i>Prof Berend van der Wall (German Aerospace Center)</i>	6 Inverse Simulation of a Helicopter - Towing Cable - Sonar System <i>Prof Giulio Avanzini/Prof Giulio Avanzini, Mr Flavio Liberati, Prof Guido De Matteis (University of Salento)</i>	13 Design Study, Prototyping and Performance Evaluation for On-board Blade Pitch Control System of Rotorcraft Considering High G Environment <i>Mr. Noboru Kobiki (JAXA)</i>	10 Rotor Loads Reduction by Dynamic Extendable Chord <i>Dr Dong Han/Dr Dong Han, Prof George Barakos (Nanjing University of Aeronautics and Astronautic)</i>	86 DLR Analysis on the Noise Emission from the RACER Configuration <i>Dr Jianping Yin/Dr Jianping Yin, Dr Thorsten Schwarz, MSc Marc Wenstrup, MSc Frédéric Guntzer (Airbus Helicopters)</i>
14:00	14 A Coupled Numerical/Experimental Study of Flow Separation Suppression over a Curved Surface using Fluidic Oscillators <i>Mr Nicholson Koukpaizan/Mr Nicholson Koukpaizan, Mr Curtis Peterson, Dr Daniel Heathcote, Prof Ari Glezer, Prof Marilyn Smith (Georgia Institute of Technology)</i>	20 Implementation of a Comprehensive Mathematical Model for Tilt-Rotor Real-Time Flight Simulation <i>MSc Federico Barra/MSc Federico Barra, Prof Giorgio Guglieri, MSc Pierluigi Capone (Politecnico di Torino)</i>	18 Experimental Evaluation on a Mach-Scaled Snuf Blade for Active Vibration Control <i>Mr Byeong Uk Im/Mr Byeong Uk Im, Mr Chang Bae Lee, Prof Sang Joon Shin (Seoul National University)</i>	50 Helicopter Gearbox Periodic Strut With Geometrical Discontinuity for Vibration and Noise Reduction <i>Miss Fengjiao Wang/Miss Fengjiao Wang, Prof Yang Lu, Prof Heow Pueh Lee, Mr Huiyu Yue (Nanjing University of Aeronautics and Astronautics)</i>	156 Advanced concept of drive shaft system for hybrid high-speed helicopter <i>MSc Dawid Cander/MSc Dawid Cander, Dr Jerome Geneix (Airbus Helicopters Polska)</i>
14:30	28 Performance Optimization of Plate Airfoils for Martian Rotor Applications Using a Genetic Algorithm <i>MSc Witold Koning/MSc Witold Koning, MSc Ethan A. Romander, Dr Wayne Johnson (NASA Ames Research Center)</i>	46 Helicopter Maneuver Performance with Active Load Limiting <i>Prof JVR Prasad/Prof JVR Prasad, Mr Chams Mballo (Georgia Institute of Technology)</i>	65 Autorotation: Physiological Measures Of Workload <i>MSc Jose Scarpari (Brazilian Flight Test and Research Institute)</i>	61 Aeromechanics Investigation of Tiltrotor Transition Maneuver <i>Dr Hyeonsoo Yeo (US Army Aviation Development Directorate)</i>	105 Enhanced Gust Load Recovery for the AW609 Tiltrotor <i>Dr Federico Fonte/Dr Federico Fonte, MSc Marco Favale, Prof Giuseppe Quaranta, MSc Alberto Rigo (Leonardo Helicopters)</i>
15:00	41 Towards Optimisation of Compound Rotorcraft <i>Mr Tao Zhang/Mr Tao Zhang, Prof George Barakos (University of Glasgow)</i>	73 Time Domain Identification Method with Improved Robustness for Rotorcraft Flight Dynamics Modeling <i>Prof Wei Wu (Nanjing University of Aeronautics and Astronautics)</i>	119 Experimental Investigation of the Helicopter Flight Operating in the Vortex Ring State Conditions <i>Dr Katarzyna Surmacz, MSc Pawel Ruchala, Dr Wit Stryczniewicz (Institute of Aviation, Poland)</i>	97 A Multibody Model of the Flap Stop Contact Dynamicso of an Articulated Rotor <i>Mr Giovanni Tovo/Mr Giovanni Tovo, Mr Raffaele Frajese (Leonardo Helicopters)</i>	98 Matrix Pencil Method Integration into Stabilization Diagram for Poles Identification in Rotorcraft and Powered-Lift Applications <i>MSc Paolo Pivetta/MSc Paolo Pivetta, MSc Alberto Angelo Trezzini, MSc Marco Favale, MSc Cristian Lilliu, Mr Attilio Colombo (Leonardo Helicopters)</i>
15:30	Coffee break				

	Aerodynamics II Arnaud la Pape	Flight Mechanics II Rainer Heger	Aircraft Design I Alan Irvin	Dynamics II Pierangelo Masarati	Simulation & Training I Przemyslaw Bibik
16:00	42 Experimental Study of Secondary Vortex Structures in a Rotor Wake <i>Dr Claus Christian Wolf/Dr Claus Christian Wolf, MSc Clemens Schwarz, Dr Kurt Kaufmann, Dr Anthony Donald Gardner, Dr Dirk Michaelis, Dr Johannes Bosbach, Dr Daniel Schanz, Dr Andreas Schröder (German Aerospace Center)</i>	89 Investigation of the Effects of Flapping Hinge Restraint Variation on Helicopter Flight Dynamics in Autorotation <i>MSc Paolo Francesco Scaramuzzino/MSc Paolo Francesco Scaramuzzino, Dr Marilena D. Pavel, Dr Daan M. Pool, MSc Olaf Stroosma, Prof Giuseppe Quaranta, Prof Max Mulder (Delft University of Technology)</i>	27 The GRC1 Bearingless Main Rotor – Earnings of the H135 Heritage <i>Mr Stefan Emmerling/Mr Stefan Emmerling, Mr Gerald Kuntze-Fechner (Airbus Helicopters)</i>	108 UH-60A Rotor and Coupled Rotor-Fuselage Simulation Framework Validation and Analysis <i>MSc Willem Rex/MSc Willem Rex, MSc Tobias Pflumm, Prof Manfred Hajek (Technical University of Munich)</i>	8 Dynamic Modeling and Simulation of Cable/Body System of a Helicopter <i>Dr J.V.R. Prasad/Dr J.V.R. Prasad, Mr Zenhao Jing, Dr Chengjian He, Dr Jan Goericke (Georgia Institute of Technology)</i>
16:30	58 Mid-Fidelity Analysis Of Unsteady Interactional Aerodynamics of Complex Vtol Configurations <i>Dr Matteo Tugnoli/Dr Davide Montagnani, Dr Matteo Tugnoli, Dr Federico Fonte, Dr Alex Zanotti, Dr Monica Syal, Dr Giovanni Droandi (Politecnico di Milano)</i>	93 Optimization Based Inverse Simulation Method for Helicopter Pull up Maneuver <i>MSc Ugur Kalkan/MSc Ugur Kalkan, Mr Fatih TOSUN, MSc Fatih Mutlu KARADAL (Turkish Aerospace Inc.)</i>	31 Design Evaluation And Performance Assessment Of Rotorcraft Technology By 2050 <i>Jos Stevens/ Jos Stevens, Edward Rademaker, Devaiah Nalianda, Stavros Vouros, Calum Scullion, Vassilios Pachidis, Nico van Oosten, Gianluigi Misté, Ernesto Benini (Netherlands Aerospace Centre)</i>	111 Influence of Contact Points of Skid Landing Gears on Helicopter Ground Resonance Stability <i>MSc Reinhard Lojewski (German Aerospace Center)</i>	102 Visual-Vestibular Motion Cueing Assessment in Maritime Rotorcraft Flight Simulators <i>Mr Wajih A Memon/Mr Wajih A Memon, Dr Mark D White, Prof Ieuan Owen (The University of Liverpool)</i>
17:00	59 Wind tunnel investigation of a helicopter model in shipboard operations <i>Neda Taymourtash/ Neda Taymourtash, Dr Daniele Zagaglia, Prof Alex Zanotti, Prof Giuseppe Gibertini, Prof Giuseppe Quaranta (Politecnico di Milano)</i>	94 Analysis of Rotorcraft Wind Turbine Wake Encounters Using Piloted Simulation <i>Mr Alexander Strbac/Mr Alexander Strbac, MSc Tanja Martini, BSc Daniel Greiwe, Dr Michael Jones (German Aerospace Center)</i>	106 Thermal Management of Helicopter Sub-Systems in Various States of Flight <i>Dr Adam Dziubiński/Dr Katarzyna Surmacz, Dr Adam Dziubiński, MSc Frieder Hirsch (Instiute of Aviation)</i>	122 Aeromechanics of a Coaxial Mars Helicopter using High-Fidelity CFD/CA <i>Daniel Escobar, Dr Inderjit Chopra, Dr Anubhav Datta (University of Maryland)</i>	144 Rotorcraft Fidelity Enhancement Using ‘Additive’ System Identification <i>Dr Dheeraj Agarwal/Dr Dheeraj Agarwal, Dr Linghai Lu, Prof Padfield Gareth D, Dr Neil Cameron, Dr Mark D White (Liverpool John Moores University)</i>

19:00 Welcome reception at Primate's Palace- Hotel Bellotto (Senatorska 13/15, Warsaw)
Short walk from the Conference Center, about 30 min.

Day 2 - Wednesday September 18th

08:00 Registration open					
	Room 1	Room 2	Room 3	Room 4	Room 5
	Aerodynamics III Arnaud la Pape	Flight Mechanics III Przemyslaw Bibik	Aircraft Design II Luca Medici	Dynamics III TBD	Unmanned Rotorcraft I Joost Hakkaart
09:00	64 Aerodynamic analysis of Store Jettison on a helicopter <i>Dr Minhyoung Ryu/Dr Minhyoung Ryu, Dr Philkwon Shin, Mr Tongin Lee, Mr Yoosang Hwang, Mr Karel Lammers, Mr Anton De Bruin (Korea Aerospace Industries)</i>	118 Aeromechanics Modelling of Tiltrotor Aircraft <i>Mr Wesley Appleton/Mr Wesley Appleton, Dr Antonio Filippone, Dr Nicholas Bojdo (University of Manchester)</i>	83 Implementation of a Flight Simulation Tool into a Rotorcraft Design Environment <i>MSc Michel Buchwald/MSc Michel Buchwald, MSc Peter Weiand, MSc Dominik Schwinn (German Aerospace Center)</i>	133 Helicopter Main Rotor Dynamic Properties Identification Using Full Scale Ground And Flight Tests Measurements <i>MSc Jacek Malecki (PZL Świdnik S.A., the Leonardo Helicopters Company)</i>	47 Numerical Analyses of Different State of Flight of New Concept Coaxial Rotor Dedicated to Unmanned Helicopters <i>MSc Małgorzata Wojtas/MSc Małgorzata Wojtas, MSc Łukasz Czajkowski, Prof Kazimierz Szumański, Dr Jarosław Stanisławski (Institute of Aviation)</i>
09:30	77 Assessment of the Harmonic Balance method for Rotor Blade Performance Predictions <i>Mr Thomas Fitzgibbon/Mr Thomas Fitzgibbon, Dr Mark Woodgate, Prof George Barakos (University of Glasgow)</i>	129 Preparation of Input And Validation Data For PZL SW-4 Helicopter Dynamic Model In Scope of Helimaris Project <i>MSc Adam Rosłowicz (W.S.K. PZL-Świdnik S.A.)</i>	82 Topology Optimization in Rotorcraft Applications. <i>Rafał Żurawski/Rafał Żurawski, Dawid Ulma, Jacek Dudziak, Marek Tabor, Arkadiusz Gawlik, Paweł Guła (Institute of Aviation)</i>	141 Quasi-static Loads Analysis of a 5-bladed Rotor in Maneuver using CFD/CSD Coupling <i>Mr Seonghyun Hong/Mr Seonghyun Hong, Mr Da-woon Lee, Mr Kiro Kim, Prof Soo Park, Prof Sung Jung, Dr Joonbae Lee (Konkuk University)</i>	90 Experimental Study of Gyrodyne UAV Aerodynamics <i>MSc Jan Muchowski/MSc Jan Muchowski, Prof Andrzej Krzysiak, Dr Marek Szumski (Rzeszow University of Technology)</i>
10:00	79 Experimental Investigation of OA212 Airfoil Dynamic Stall Control Using DBD Plasma Actuators <i>Mr Chang Wang/Mr Chang Wang, Mr Zhiqiang Chang, Dr Xin Zhang, Mr Guoqiang Li (China Aerodynamics Research and Development Center)</i>	145 Investigation of Active and Passive Pilot Effects on the Handling Qualities of Coaxial Compound Helicopters <i>Renliang Chen/Mr Ye Yuan, Dr Thomson Douglas, Renliang Chen (Nanjing University of Aeronautics and Astronautics)</i>	107 Applying Artificial Neural Networks To The Tasks of Designing Aerofoil Sections of a Helikopter's Main Rotor <i>Miss Yana Indrulenayte/Miss Yana Indrulenayte, Prof Victor Anikin, Dr Yuriy Sviridenko (LCC "VR-Technologies")</i>	143 Automated Model Based Conceptual Design Approach For Composite Helicopter Rotor Blades <i>MSc Alperen Ayberk Isik/MSc Alperen Ayberk Isik, MSc M. Emre Bilen (Turkish Aerospace Industries)</i>	184 Archer-Autonomous Reconfigurable Compound Helicopter For Education and Research <i>BSc Aleksandra Bedyńska/BSc Aleksandra Bedyńska, Marek Łukasiewicz, Przemysław Curyło, Damian Cichy, Mateusz Ceniuk, Łukasz Grabowski, Dr Przemysław Bibik (Warsaw University of Technology)</i>
10:30	Coffee break				
	Lecture Room				
11:00	The Electric VTOL Revolution by Mr. Mike Hirschberg (Executive Director VFS—The Vertical Flight Society)				
11:30	VFS Best Paper Award;				
12:00	ARF Best Paper Award;				

12:30	Networking Lunch				
	Room 1	Room 2	Room 3	Room 4	Room 5
	Aerodynamics IV Alan Irvin	Flight Mechanics IV TBD	Acoustics Joost Hakkaart	Aircraft Design III Arnaud la Pape	Test & Evaluation II Ruslan Mirgazov
13:30	80 Study on dynamic aerodynamic characteristics of wind turbine blade airfoil <i>Mr Jie Wu/Mr Jie Wu, Mr Guoqiang LI (China Aerodynamics Research and Development Center)</i>	151 Helicopter Parameters Estimation From Subspace Identification By Constrained Nonlinear Optimization <i>Sevil Avcioglu (Turkish Aerospace)</i>	75 Aerodynamic and Blade Vortex Interaction Noise Characteristics Analysis of Electrically Controlled Rotor Based on Viscous Vortex Particle Method <i>Mr Taoyong Su/Mr Taoyong Su, Prof Yang Lu, Mr JinChao Ma, Miss Shujun Guan (Nanjing University of Aeronautics and Astronautics)</i>	115 The Electric Wheel Of Fortune; A Review Of Evtol Aircraft <i>Dr Mike Bromfield/Dr Mike Bromfield, Mr Osita Ugwueze, Mr Michael Hirschberg (Coventry University)</i>	91 Next Generation Active Twist Helicopter Rotor Blade - Simulated Results Validated by Experimental Investigation <i>MSc Steffen Kalow/MSc Steffen Kalow, MSc Bram van de Kamp, MSc Ralf Keimer, Dr Johannes Riemenschneider (German Areospace Center)</i>
14:00	88 Simulation of Trimmed Flight of a Helicopter Using the URANS Solver Ansys Fluent <i>Dr Wienczyslaw Stalewski/Dr Wienczyslaw Stalewski, Dr Wieslaw Zalewski, MSc Maximilian Pulfer, MSc Frieder Hirsch (Institute of Aviation)</i>	168 A quasi-Linear Parameter Varying (qLPV) Modeling Approach for Real Time Piloted Simulation of Tiltrotor <i>Mr Hafiz Noor Nabi/Mr Hafiz Noor Nabi, Dr Giuseppe Quaranta (Politecnico di Milano)</i>	84 Impact of Wake Modelling Uncertainty on Helicopter Rotor Aeroacoustic Analysis <i>Mr Stavros Vouros/Mr Stavros Vouros, Dr Ioannis Goulos, Dr Devaiah Nalianda, Prof Vassilios Pachidis (Cranfield University)</i>	120 Aerodynamic Design and Optimisation of Main Rotors for Light Rotorcrafts <i>Dr Wienczyslaw Stalewski/Dr Wienczyslaw Stalewski, Dr Wieslaw Zalewski (Institute of Aviation)</i>	100 Experimental Investigation of a Helicopter Slipstream in the Presence of Elevated Heliport <i>MSc Paweł Ruchała/MSc Paweł Ruchała, Dr Wit Stryczniewicz, Dr Adam Dziubiński, Prof Romana Ratkiewicz-Landowska (Institute of Aviation)</i>
14:30	135 Phantom Blade Model - Advanced Methodology For Actuator Disk Modeling <i>Mr Thaenan Dos Reis Marioni, Dr Guillaume Legras, Dr Stefanie Link, Dr Martin Embacher (Airbus Helicopters Germany)</i>	171 Higher Augmented Control of A Utility Helicopter Using Model Following Controllers <i>Mr Ilgaz Doga Okcu/Mr Ilgaz Doga Okcu, Mr Umut Ture (Turkish Aerospace Industries, Inc.)</i>	128 Low Noise Design and Acoustic Testing of the Airbus Helicopters H160-B <i>Mr Frederic Guntzer/Mr Frederic Guntzer, Dr Vincent Gareton, Mr Jean-Paul Pinacho, Dr Julien Caillet (Airbus Helicopters)</i>	158 A Comparison Study of Rotorcrafts with Hybrid Electric Propulsion System <i>Mr Donguk Lee/Mr Donguk Lee, Mr Sekwon Kang, Prof Kwanjung Yee (Seoul National University)</i>	104 Experimental Investigation of Rotor-Propeller Interaction <i>Geoffrey Tanguy/Geoffrey Tanguy, Mr Jerome Delva (ONERA)</i>
15:00	113 Numerical Investigation of Aerodynamics and Acoustics of Rigid Main Rotor in Forward Flight <i>Dr Vladimir Bobkov/Dr Ilya Abalakin, Dr Vladimir Bobkov, Dr Tatiana Kozubskaya, Prof Boris Kritsky, Dr Ruslan Mirgazov, Mr Vladislav Vershkov (Keldysh Institute of Applied Mathematics)</i>	180 Exploratory Study Of Complementary Handling Qualities & Vibratory Loads Metrics For Helicopter Multidisciplinary Analysis <i>MSc Ezgi Akel/MSc Ezgi Akel, Dr Marilena D. Pavel, Dr M. M. van Paassen (TU Delft)</i>	137 Comprehensive Rotorcraft Aeroacoustics: Investigation of Surface Pressure Distribution Methods for Rotor Noise <i>MSc Murat Senipek/MSc Murat Senipek, MSc Arda Yucekayali, MSc Yuksel Ortakaya, Prof Yusuf Ozyoruk (Turkish Aerospace Inc.)</i>	157 Development of a Preliminary Design Tool for Rotary Wing Aircrafts <i>BSc Tomas Pimentel Fontes (Instituto Superior Tecnico)</i>	109 Novel Approach for Experimental Measurement of Sectional Stiffness Properties of Composite Rotor Blades <i>Mr Tyler Sinotte/Mr Tyler Sinotte, Dr Olivier Bauchau (University of Maryland)</i>
15:30	Coffee break				

	Aerodynamics V Klausdieter Pahlke	Simulation & Training II Antoni Kopyt	Safety I TBD	Dynamics IV Janusz Narkiewicz	Structures & Materials I TBD
16:00	114 A Panel Free-Wake Code with Boundary Layer Method for Helicopter Simulations <i>Mr Philipp Kunze (German Aerospace Center)</i>	162 The Final Phase of a Helicopter Automatic Landing on a Vessel Deck <i>MSc Sebastian Topczewski/MSc Sebastian Topczewski, Dr Przemyslaw Bibik, Prof Janusz Narkiewicz (Warsaw University of Technology)</i>	142 A Safety Prompt Method for Helicopter Formation Flight <i>Miss Shanxiao Huang (Nanjing University of Aeronautics and Astronautics)</i>	154 Generalized Measure Of Vibration Exposure For Helicopter Pilots <i>Dr Aykut Tamer/Dr Aykut Tamer, Dr Andrea Zanoni, MSc Alessandro Cocco, Prof Pierangelo Masarati (Politecnico di Milano)</i>	12 Performance analysis of inertial twist morphing concept in hovering flight <i>Mohammadreza Amoozgar, Dr Alexander Shaw, Dr Jiaying Zhang, Dr Chen Wang, Prof Michael Friswell (Swansea University)</i>
16:30	117 Unsteady Boundary-Layer Transition Measurements on a Rotating Blade at Cyclic Pitch using Differential Infrared Thermography <i>Dr Armin Weiss/Dr Armin Weiss, Dr C. Christian Wolf, MSc Johannes N. Braukmann, Dr James T. Heineck, Prof Markus Raffel (German Aerospace Center)</i>	172 Rotor Simulation Using Dynamic Inflow with Varying Number of States <i>Mr Ali Karakaya/Mr Ali Karakaya, Dr Ilkay Yavrucuk (Middle East Technical University)</i>	179 Analysis of Rotorcraft Pilot Couplings From Flight Control System Perspective <i>BSc Ying YU/BSc Ying YU, Dr Marilena Pavel, Dr Erik-Jan van Kampen (Delft University of Technology)</i>	165 Flight Simulator Testing to Enhance Comprehension and Modeling of Rotorcraft Pilot Couplings <i>Pierangelo Masarati/ Andrea Zanoni, Matteo Zago, Rita Paolini, Giuseppe Quaranta, Pierangelo Masarati, Manuela Galli, Giorgio Maisano, Andrea Ragazzi, Lorenzo Frigerio (Politecnico di Milano)</i>	74 Actuation Requirements of an Active Tendon Concept in Rotorcraft <i>Dr Vaclav Ondra/Dr Vaclav Ondra, Dr Brano Titurus, Dr Benjamin K. S. Woods (University of Bristol)</i>
17:00	121 Investigation of Rotor-Fuselage Interaction through Dual-Solver Hybrid Methods <i>Prof Marilyn Smith/Mr Shikhar Shah, Prof Marilyn Smith, Dr Glen Whitehouse, Dr Dan Wachspress (Georgia Institute of Technology)</i>		134 Performance Class 2 With Defined Limited Exposure For Offshore Operation: Use Case and Perspectives <i>Dr Olivier Voinchet/Dr Olivier Voinchet, Mr Andre Thomas (Airbus Helicopters)</i>	169 Resonant Frequency Tuning of a Helicopter Inceptor: A Sensitivity Analysis <i>Mr Edward Yap/Mr Edward Yap, Dr Djamel Rezgui, Prof Mark Lowenberg, Prof Simon Neild, Dr Khosru Rahman (University of Bristol)</i>	76 Simulation of Uncontrolled (Spontaneous) Rotation at a Helicopter Flight Simulator <i>Vladimir Krymsky/ Vladimir Krymsky, Vladimir Animitsa, Evgenij Borisov, Veniamin Leontyev, Mihail Rubinshtein (TsAGI)</i>
19:00 Conference dinner at the Palace of Culture and Science (Defilad Sq. 1, Warsaw)					
18-20 Viewing Tarrace XXX Floor of the Palace of Culture and Science					

Day 3 - Thursday September 19th

08:00	Registration open				
	Lecture Room				
09:00	LPR presentation				
09:30					
10:00	Coffee break				
	Room 1	Room 2	Room 3	Room 4	Room 5
	Aerodynamics VI TBD 146	Crew Station & Human Factors Antoni Kopyt 33	HUMS Przemyslaw Bibik 35	Test & Evaluation III Luca Medici 69	Unmanned Rotorcraft II Przemyslaw Bibik 38
10:30	Lagrangian Particle Tracking in Sliding Mesh Applicable For Rotorcraft Icing Applications <i>Mr Myles Morelli (Politecnico di Milano)</i>	Pilot Model Development and Human Manual Control Considerations for Helicopter Hover Displays <i>MSc Daniel Friesen/MSc Daniel Friesen, Dr Marilena D. Pavel, Dr Clark Borst, Prof Pierangelo Masarati, Prof Max Mulder (Delft University of Technology)</i>	Helicopter Big Data Processing And Predictive Analytics: Feedback & Perspectives <i>Dr Ammar MECHOUCHE/Dr Ammar MECHOUCHE, Miss Nassia DAOUAYRY, Mr Valerio CAMERINI (Airbus Helicopters)</i>	Considerations in Building an SPR System for Rotor Blade Deformation Measurement <i>Dr Do-Hyung Kim/Dr Do-Hyung Kim, Dr Reinert H. G. Mueller (Korea Aerospace Research Institute)</i>	Rotor Wake and Inflow Characteristics of Multirotor Drone Configurations <i>Prof . Lakshmi Sankar /Prof Lakshmi Sankar, Mr Po-Wei Chen, Mr Dhwanil Shukla, Prof Narayanan Komerath, Prof JVR Prasad (Georgia Institute of Technology)</i>
11:00	Main Rotor Blade Tip Vortex Characterization <i>Mr Fabrizio De Gregorio/Mrs Manuela Coletta, Mr Fabrizio De Gregorio, Mr Antonio Visingardi, Prof Gaetano Iuso (Italian Aerospace Research Center - CIRA)</i>	Design Methodology of Force Feedback Laws Through Helicopter Control Loop Simulation <i>Gemma Prieto Aguilar/ Gemma Prieto Aguilar, Laurent Binet, Thomas Rakotomamonjy (Safran Electronics & Defense)</i>	The application of Continuous Integration and Test Methodologies to Rotorcraft HUMS <i>MSc Paul Dunning (GE Aviation Systems)</i>	Calculation and Experimental Studies of a Helicopter Rotor With Elastic Hub <i>Dr Ruslan Mirgazov (Central Aerohydrodynamic Institute named after prof. N.E. Zhukovsky)</i>	Development of Practical Drag Model for Multirotor-type Unmanned Aerial Vehicles and its Application <i>Mr Daejin Lim/Mr Daejin Lim, Mr Hyeongseok Kim, Prof Kwanjung Yee (Seoul National University)</i>
11:30	CFD Simulation Of Testing Environment Effects On Hovering Rotor Flowfield And Comparisons With Piv Measurements <i>Mr Alper Ezertas/Mr Alper Ezertas, Mr Taylan Çakıraglu (Turkish Aerospace)</i>	Multimodal Pilot Cueing for 360° Situation Awareness <i>Dr Martine Godfroy-Cooper/Dr Martine Godfroy-Cooper, Mr Joel Miller, Mr Zoltan Szoboszlay (SJSU NASA)</i>	Tool For Helicopter Advanced HUMS Data Analysis <i>Mr Valerio Prece (Leonardo Helicopter)</i>	Wind Tunnel Test of a Rotorcraft With Lift Compounding <i>Dr Andre Bauknecht/Dr Andre Bauknecht, Mr Xing Wang, Prof Inderjit Chopra (University of Maryland)</i>	Evaluation of UAV Configurations for Package Delivery Missions though Conceptual Design <i>Dr Bharath Govindarajan/Dr Bharath Govindarajan, Dr Ananth Sridharan (Indian Institute of Technology Madras)</i>
12:00	Numerical Study of Effect of Hangar Shape Modification on Ship-Airwake and Helicopter Downwash Interaction <i>Mr Sumit Kumar (Indian Institute of Technology Madras)</i>	A Tool for Pilot's Performance and Engagement Assessment in Helicopter Flight Simulator <i>Dr Antoni Kopyt (Warsaw University of Technology)</i>	Learning-Based Clustering For Flight Condition Recognition <i>MSc Ugur Kalkan/MSc Ugur Kalkan, MSc Murat Senipek (Turkish Aerospace)</i>	A Theoretical and Practical Examination of Pilot Cutoff Frequency as an Estimator of Crossover Frequency <i>Edward Bachelder/ Edward Bachelder, Mr Bimal Aponso (San Jose State University Research Foundation)</i>	The Development of Prop-Rotor System for 52kg MTOW Quad-Tilt Prop UAV <i>Dr Deog-Kwan Kim (Korea Aerospace Research Institute)</i>
12:30	Networking Lunch				

	Aerodynamics VII Klausdieter Pahlke	Avionics & Sensors Janusz Narkiewicz	Safety II TBD	Dynamics V TBD	Structures & Materials II TBD
13:30	131 The use of co-simulation methodology in the project of PZL SW-4 helicopter adaptation to maritime version <i>MSc Radoslaw Raczyński (PZL Świdnik S.A.)</i>	16 Increasing Helicopter Flight Safety in Maritime Operations with A Head Mounted Display <i>MSc Christian Walko/MSc Christian Walko, Dr Bianca I. Schuchardt (German Aerospace Center)</i>	24 Helicopter Forward-looking Warning Method Based on Image Matching for Urban Low-Altitude Flight <i>MSc Chao Zhou (Nanjing University of Aeronautics and Astronautics)</i>	170 Stability Analysis Of Whirl Flutter in a Rotor-Nacelle System With Freeplay Nonlinearity <i>Mr Chris Mair/Mr Chris Mair, Dr Djamel Rezgui, Dr Branislav Titurus (University of Bristol)</i>	19 High Performance Ferrium Steels for Next Generation Rotorcraft Transmissions and Applications <i>Mr Kerem Taskin (QuesTek Innovations LLC)</i>
14:00	136 Multi-objective industrial optimization of helicopter main rotor blades with dynamically-adapted structural properties <i>Dr Damien DESVIGNE/Dr Damien DESVIGNE, Mr Rémi COISNON, Mr Bernard-René MICHEL, Mr André THOMAS, Dr Enric ROCA-LEON (Airbus Helicopters)</i>	48 Integration and Test of a Degraded Visual Environment System on H145 <i>Mr Tim Waanders/Mr Tim Waanders, Mr Frank Roth, Dr Thomas Muensterer, Mr Bernhard Singer, Mrs Maya Shpak, Mr Omer Hasharani (Airbus Helicopters GmbH)</i>	67 Preventing Dynamic Rollover in Brownout <i>Mr Alexander Gatter (German Aerospace Center)</i>	173 Numerical And Experimental Analysis of the Helicopter's Flotation System <i>Dr Marek Kraskowski (Ship Design and Research Centre S.A.)</i>	34 Fatigue of Rotorcraft Gears: Overview and Prospects of Improvement <i>MSc Sara Rustici/MSc Sara Rustici, MSc Ugo Mariani, MSc Federico Montagna, MSc Nicoletta Motta (Leonardo- Helicopters Division)</i>
14:30	139 Rotor/Airframe Interactional Structural Loads of XV-15 Rotor in Airplane Mode <i>Dr Joon Lim/Dr Joon Lim, Dr Steven Tran (US Army ADD)</i>	95 IAS Estimation Filter <i>Mr Niccolo Olivo/Mr Niccolo Olivo, Mr Alessandro Salvetti, Mr Nicola Cortigiani, Mr Diego Del Gobbo (Alten Italia)</i>	3 Simulation investigation of safety limits of helicopter operations <i>Jarosław Stanisławski (Institute of Aviation)</i>	183 Precise Coupled Aeroelastic Analysis of Helicopter Rotor System <i>Dr Alexey Kononov (Russian Helicopters)</i>	53 Approaches for Numerical Analysis and Experimental Monitoring of Manufacturing Process and Damage Evolution in Carbon/Titanium Hybrid Structures <i>Sara Ghiasvand/ Sara Ghiasvand, Prof Alessandro Airoldi, Prof Paolo Bettini, Matteo stella, Giorgio Maria Capizzi, Paolo Bogotto (Politecnico di Milano)</i>
15:00	Coffee break				
	Aircraft Systems Przemyslaw Bibik		Engines & Propulsion/Manufacturing TBD	Operational Aspects Klausdieter Pahlke	Structures & Materials III TBD
15:30	1 Autopilot Design for the Erica Tilt-Rotorcraft <i>Dr Adolfo Sollazzo/Dr Adolfo Sollazzo, Dr Luigi Federico, Dr Mariana Poderico (Italian Aerospace Research Centre - CIRA)</i>		37 Reduced-Order Modelling of Mineral Dust Deposition in Turboshaft Engine Hot Sections <i>Mr Matthew Ellis/Mr Matthew Ellis, Dr Nicholas Bojdo, Dr Antonio Filippone, Dr Merren Jones, Dr Alison Pawley (The University of Manchester)</i>	17 The Myth of Losing Tail Rotor Effectiveness <i>Mr Andre-Michel Dequin (Airbus Helicopters)</i>	103 Propagation of Material and Manufacturing Uncertainties in Composite Helicopter Rotor Blades <i>MSc Tobias Pflumm/MSc Tobias Pflumm, MSc Willem Rex, Prof Manfred Hajek (Technical University of Munich)</i>
16:00	176 Electric, Swashplate-less Individual Blade Control System to Be Wind Tunnel Tested in Full-Scale <i>Dr Uwe T. P. Arnold/Dr Uwe T. P. Arnold, Dr Thomas Auspitzer, Mr Jan Haar, Mr Christopher Sutton, Mr Preston Bates (ZF Luftfahrttechnik GmbH)</i>		54 Mass Optimisation fo variable Rotor Speed Compound Split Drivetrains for Rotorcraft <i>Dr Hanns Amri/Dr Hanns Amri, MSc Florian Donner, MSc Felix Huber, Prof Michael Weigand (TU Wien)</i>	153 Flight evaluation of Advanced SBAS Point-in-Space helicopter procedures facilitating IFR access in difficult terrain and dense airspaces <i>Dr Thomas Lueken/Dr Thomas Lueken, Dr Sven Schmerwitz, Omkar Halbe, Mario Hamers, Roland Bonel, Thierry Ganille (German Aerospace Center)</i>	132 How Artificial Intelligence Supports us to Develop and Certify Faster <i>Mr Guillaume Masse (Airbus Helicopters)</i>
16:30			87 (Manufacturing) Experimental And Numerical Investigations Of Electromagnetic Crimping Process For Joining Of Helicopter Structures <i>Dr Ahmet Guezel (Airbus Helicopters Deutschland GmbH)</i>	163 GNSS Solution for Increased GA and Rotorcraft Airport Accessibility Demonstration <i>Dr Sven Schmerwitz/Dr Sven Schmerwitz, Dr Thomas Dautermann, Mr Helge Lenz, Dr Thomas Lueken (German Aerospace Center)</i>	

Day 4 - Friday September 20th (optional)

Technical tour to Institute of Aviation, Warsaw

- 09:00 Assemble at the Conference Centre registration desk
- 09:15 Departure of the bus
- 10:00 Start of the tour
- 13:15 Lunch
- 13:45 Departure from Institute of Aviation
- 14:00 Stop at Chopin Airport
- 14:30 Return at Warsaw University of Technology

Technical tour to PZL Świdnik Leonardo Company Helicopters

- 07:00 Assemble at the Conference Centre registration desk
- 07:15 Departure of the bus
- 10:30 Start of the tour
- 13:00 Lunch
- 13:45 Departure from PZL Świdnik Leonardo Company Helicopters
- 17:15 Stop at Chopin Airport
- 17:45 Return at Warsaw University of Technology



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