

TECHNICAL PROGRAM

Monday, April 3rd, 2017

8:00-10:00 *Registration*

10:00-10:15 **OPENING CEREMONY**

10:15-11:15 **INVITED LECTURE**
ETC2017-IL1

Aerodynamic Design Methods and Problems of Uncooled Aeronautical Turbines - 20 Years of Evolution and Perspectives

Prof. R. Corral – *Industria de Turbopropulsores, Spain*

Chair: Raul Vazquez – *Rolls-Royce plc, United Kingdom*

	A-01 AXIAL TURBINES: SECONDARY, TIP CLEARANCE AND LEAKAGE FLOWS (I)	B-01 AXIAL COMPRESSORS (I)	C-01 DESIGN AND OPTIMIZATION (I)
	Chair: Claus Sieverding – <i>VKI, Belgium</i>	Chair: Jerome Boudet – <i>Ecole Centrale de Lyon, France</i>	Chair: Michele Ferlauto – <i>Politecnico di Torino, Italy</i>
11:30-12:00	ETC2017-176 Aerodynamic Interactions Between a High Pressure Turbine Stage and a Shroud Cavity E. Tang – <i>Turbomeca, France</i> I. Tré binjac; G. Ngo Boum – <i>LMFA, UMR CNRS 5509, Ecole Centrale de Lyon, UCB Lyon I, INSA, France</i> M. Philit – <i>Turbomeca, France</i>	ETC2017-096 Rotational Speed of a Damaged Fan Operating at Windmill B. Mohankumar; M. Wilson – <i>Rolls-Royce plc., United Kingdom</i>	ETC2017-087 Optimization of the LS89 Axial Turbine Profile Using a CAD and Adjoint Based Approach I. Sanchez Torreguitart – <i>Von Karman Institute For Fluid Dynamics, Belgium</i> T. Verstraete – <i>Queen Mary University of London, United Kingdom</i> L. Mueller – <i>Von Karman Institute For Fluid Dynamics, Belgium</i>
12:00-12:30	ETC2017-340 Experimental and Numerical Validation Study of the Labyrinth Seal Configurations A. Szymanski; S. Dykas; W. Wróblewski – <i>Silesian University of Technology, Poland</i>	ETC2017-320 Experimental Analysis of the Unsteady, Turbulent Flow Through the Fan Stage of a High-Bypass Turbofan in Windmilling Conditions A. Thacker; N. Garc�a Rosa; G. Dufour – <i>Universit� de Toulouse, ISAE-SUPAERO, France</i>	ETC2017-156 Automated 3D Design of Low Pressure Turbine Airfoils Using a GPU Accelerated Adjoint Method R. Puente – <i>Universidad Polit�cnica de Madrid, Spain</i> R. Corral – <i>ITP, S.A., Spain</i>
12:30-13:00	ETC2017-284 Numerical Studies of Turbine Rim Sealing Flows on a Chute Seal Configuration F. Gao; J. Chew; – <i>University of Surrey, United Kingdom</i> P. Beard – <i>University of Oxford, United Kingdom</i> D. Amirante; N. Hills – <i>University of Surrey, United Kingdom</i>	ETC2017-323 Numerical Analysis of Secondary Flow Topologies of Low-Speed Axial Fans from Compressor to Load-Controlled Windmill S.K. Courty-Audren; A. Ortolan; N. Binder; X. Carbonneau – <i>ISAE-SUPAERO, France</i>	ETC2017-293 Adjoint Based Design Optimization of an Internal Cooling Channel U-Bend for Minimized Pressure Losses T. Verstraete – <i>Queen Mary University of London, United Kingdom</i> L. Mueller – <i>Von Karman Institute, Belgium</i> J.D. Mueller – <i>Queen Mary University of London, United Kingdom</i>

Invited Lecture - Room GALAXEN (Level 4)
Session A - Room GALAXEN (Level 4)
Session B - Room COSMOS (Level 3)
Session C - Room STJ ARNRUMMET (Level 11)

13:00-14:30	Lunch	Lunch	Lunch
	A-02 AXIAL TURBINES: DESIGN, ANALYSIS AND PERFORMANCE	B-02 AERO-ACOUSTICS, NOISE GENERATION AND REDUCTION (I)	C-02 DESIGN AND OPTIMIZATION (II)
	Chair: Raul Vazquez – <i>Rolls-Royce plc, United Kingdom</i>	Chair: Lorenzo Pinelli –	Chair: Rodolfo Bontempo –
14:30-15:00	ETC2017-100 Effects of Hub Endwall Geometry and Rotor Leading Edge Shape on Performance of Supersonic Axial Impulse Turbine. Part I M. Smirnov; A. Sebelev; N. Zabelin; N. Kuklina – <i>Peter the Great Saint-Petersburg Polytechnic University, Russia</i>	ETC2017-037 Influence of Operational Geometry Changes on Turbine Acoustics S. Bauinger; S. Zerobin; A. Marn; E. Göttlich; F. Heitmeir – <i>Institute for Thermal Turbomachinery and Machine Dynamics, Austria</i>	ETC2017-266 Advanced Turbo Machinery Technology and Thermodynamic Aspects of a Highly Efficient and Compact MGT-SOFC-System H.P. Berg; M. Lehmann; N. Prechavut – <i>BTU Brandenburg, University of Technology, Germany</i> R. Dückerhoff – <i>THM, University of Applied Sciences, Germany</i>
15:00-15:30	ETC2017-150 Influence of Measurement Grid Resolution on Duct Loss Evaluation S. Zerobin; M. Steiner; S. Bauinger; A. Marn; E. Göttlich; F. Heitmeir – <i>Graz University of Technology, Austria</i>	ETC2017-121 Experimental Determination of the Effectiveness of Sound Absorbing Turbine Exit Casing M. Zenz; F. Schönleitner – <i>Institute for Thermal Turbomachinery and Machine Dynamics, Graz University of Technology, Austria</i> L. Simonassi – <i>DIMSET-University of Genova, Italy</i> S. Bauinger – <i>Institute for Thermal Turbomachinery and Machine Dynamics, Graz University of Technology, Austria</i> D. Broszat – <i>MTU Aero Engines, Germany</i> F. Heitmeir; A. Marn – <i>Institute for Thermal Turbomachinery and Machine Dynamics, Graz University of Technology, Austria</i>	ETC2017-326 A Novel Optimization-Based Design Method for Centrifugal Fans K. Bamberger; T. Carolus – <i>University of Siegen, Germany</i>
15:30-16:00	ETC2017-353 Gas Turbine Blade Geometry Variation Due to Fouling N. Casari; A. Suman; M. Pinelli – <i>EnDIF, Engineering Department in Ferrara, Italy</i> L. Di Mare; F. Montomoli – <i>Imperial College Of London, United Kingdom</i>	ETC2017-143 Numerical Characterization of Entropy Noise with a Density Based Solver S. Chandramouli; R. Gojon; J. Fridh; M. Mihaescu – <i>KTH Royal Institute of Technology, Sweden</i>	ETC2017-356 Efforts to Improve Aero Engine Performance Through the Optimal Design of Heat Recuperation Systems Targeting Fuel Consumption and Pollutant Emissions Reduction Z. Vlahostergios – <i>Laboratory of Fluid Mechanics & Turbomachinery, Department of Mechanical Engineering, Aristotle University of Thessaloniki, Thessaloniki, 54124, Greece</i> D. Misirlis – <i>Technological Educational Institute (TEI) of Central Macedonia, Serres, Greece</i> M. Flourous; S. Donnerhack – <i>MTU Aero Engines AG, Dachauer Strasse 665, Munich, Germany</i> K. Yakinthos – <i>Laboratory of Fluid Mechanics & Turbomachinery, Department of Mechanical Engineering, Aristotle University of Thessaloniki, Thessaloniki, 54124, Greece</i>

16:00-16:30	Coffee break	Coffee break	Coffee break
	A-03 HEAT TRANSFER AND BLADE COOLING (I)	B-03 DIFFUSERS	C-03 TRANSITION AND TURBULENCE MODELING (I)
	Chair: Francesco Montomoli – <i>Imperial College of London, United Kingdom</i>	Chair: Alexander Wiedermann – <i>MAN Diesel & Turbo SE, Germany</i>	Chair: Gerard Bois – <i>ENSAM, France</i>
16:30-17:00	ETC2017-042 Gas Turbine Blade Internal Cooling: Design, Development, and Validation of a New Rig for Heat Transfer Measurements Under Rotation. F. Pagnacco; L. Furlani; A. Armellini; L. Casarsa – <i>University of Udine, Italy</i>	ETC2017-085 Investigation of the Performance of Short Diffusers Configurations for Different Inflow Profiles J. Walter – <i>Karlsruhe Institute Of Technology, Germany</i> D. Wurz – <i>Emissionsmesstechnik und Strömungsmechanik (ESG), Germany</i> M. Gabi – <i>Karlsruhe Institute Of Technology, Germany</i>	ETC2017-092 Measurement and Simulation of a Turbulent Boundary Layer Exposed to Acceleration Along a Flat Plate P. Bader; W. Sanz – <i>Institute for Thermal Turbomachinery and Machine Dynamics, Graz University of Technology, Austria</i>
17:00-17:30	ETC2017-259 Heat Transfer Analysis of a Rotating Ribbed Channel by Means of Large Eddy Simulations I. Mayo; T. Arts – <i>Von Karman Institute, Belgium</i> L.Y.M. Gicquel – <i>CERFACS, France</i>	ETC2017-110 Aerodynamic Performance Comparison of High Power Turboprop S-Duct Intake on Channel Wing at Varying Azimuth C. Atalayer; J. Friedrichs; D. Wulff – <i>IFAS, TU Braunschweig, Germany</i>	ETC2017-113 Budget Analysis of Turbulent Kinetic Energy in a Tip-Leakage Flow of a Single Blade: RANS vs Zonal LES J.F. Monier – <i>Laboratoire de Mécanique des Fluides et d'Acoustique (LMFA), École Centrale Lyon / SNECMA, France</i> J. Boudet; J. Caro; L. Shao – <i>Laboratoire de Mécanique des Fluides et d'Acoustique (LMFA), École Centrale Lyon, France</i>
17:30-18:00	ETC2017-357 Numerical Study of Effect of Wall Heating Conditions on Heat Transfer Performance of Rotating Internal Cooling Channels Z. Wang – <i>Universidad Politécnica de Madrid, Spain</i> R. Corral – <i>Industria de Turbo Propulsores, Spain</i>	ETC2017-036 Influence of Varying Free-Stream Turbulence on S-Duct Aerodynamics R.P.M. Rademakers; A. Pohl; S. Brehm; R. Niehuis – <i>Institute of Jet Propulsion, Germany</i>	ETC2017-159 LES of the LS89 Cascade: Influence of Inflow Turbulence on the Flow Predictions L.M. Segui; L. Gicquel; F. Duchaine; J. De Laborderie – <i>CERFACS, France</i>
18:00-21:00	WELCOME RECEPTION		

Tuesday, April 4th, 2017

8:30-9:30	INVITED LECTURE ETC2017-IL2 Progress of Film Cooling in Industrial Gas Turbine Vanes and Blades Prof. K. Takeishi – <i>Tokushima Bunri University, Japan</i> Chair: Joerg Seume – <i>Leibniz Universitaet Hannover, Germany</i>		
9:30-10:00	<i>Coffee break</i>	<i>Coffee break</i>	<i>Coffee break</i>
	A-04 HEAT TRANSFER AND BLADE COOLING (II) Chair: Giovanna Barigozzi – <i>UNIVERSITA' DI BERGAMO, Italy</i>	B-04 AXIAL COMPRESSORS (II) Chair: Isabelle Trebinjac – <i>LMFA - Ecole Centrale de Lyon, France</i>	C-04 ACTIVE AND PASSIVE FLOW CONTROL Chair: Francesco Martelli – <i>Industrial Engineering Departement, University of Florence, Italy</i>
10:00-10:30	ETC2017-090 Film Cooling Effectiveness Downstream of Optimised Cross Corrugated Slot Geometry with Exit Shaping T.H. Wong; P.T. Ireland – <i>University of Oxford, United Kingdom</i> K.P. Self – <i>Rolls-Royce, United Kingdom</i>	ETC2017-211 Full Annulus Simulations of a Transonic Axial Compressor Stage with Distorted Inflow at Transonic and Subsonic Blade Tip Speed J.P. Haug; R. Niehuis – <i>Institute of Jet Propulsion, Universität der Bundeswehr München, Germany</i>	ETC2017-244 Design and Testing of an Ejector Tip Injection System for Active Compressor Stabilization F. Kern; S. Brehm; R. Niehuis – <i>University of the German Federal Armed Forces, Germany</i>
10:30-11:00	ETC2017-155 Influence of Cooling on the Transition Location in a Straight High Pressure Turbine Cascade A. Petersen – <i>German Aerospace Center (DLR), Germany</i>	ETC2017-073 Local and Global Analysis of a Variable Pitch Fan Turbofan A. Joksimovic; S. Duplaa; Y. Bousquet; X. Carbonneau – <i>ISAE, France</i>	ETC2017-138 CFD Analysis of an Ejector Tip Injection System for Active Aerodynamic Compressor Stabilization S. Brehm; F. Kern; J. Raub; R. Niehuis – <i>University of the German Federal Armed Forces Munich, Germany</i>
11:00-11:30	ETC2017-128 Prediction and Augmentation of Nozzle Guide Vane Film Cooling Hole Pressure Margin N.E. Holgate; I. Cresci; P.T. Ireland – <i>Department of Engineering Science, University of Oxford, United Kingdom</i> A.J. Rawlinson – <i>Rolls-Royce plc, United Kingdom</i>	ETC2017-146 Computational Investigation of Aerodynamic and Acoustic Characteristics of Counter-Rotating Fan with Ultra High Bypass Ratio I. Druzhinin; A. Rossikhin; V. Mileshin – <i>Central Institute of Aviation Motors, Russia</i>	ETC2017-191 Active Boundary Layer Control on a Highly Loaded Turbine Exit Case Profile J. Kurz; R. Niehuis – <i>University of the German Armed Forces, Munich, Germany</i> M. Hoeger – <i>MTU Aero Engines AG, Germany</i>
11:30-12:00	ETC2017-130 High Resolution Experimental and Computational Methods for Modelling Multiple Row Effusion Cooling Performance A.V. Murray; P.T. Ireland; T.H. Wong; S.W. Tang – <i>Department of Engineering Science, University of Oxford, United Kingdom</i> A.J. Rawlinson – <i>Rolls-Royce plc, United Kingdom</i>	ETC2017-371 The Effect of Stiffening Tabs on the Performance of Lobed Mixers at Off-Design Conditions A. Wright – <i>Dalhousie University, Canada</i> A. Mahallati – <i>APG Neuros, Canada</i> M. Conlon – <i>National Research Council Canada, Canada</i> J. Militzer – <i>Dalhousie University, Canada</i>	ETC2017-168 The Boundary Layer Separation from Streamlined Surfaces and New Ways of its Prevention in Diffusers A. Zaryankin; A. Rogalev; I. Komarov; V. Kindra; S. Osipov – <i>Moscow Power Engineering Institute, Russia</i>
12:00-12:30	ETC2017-253 Numerical Investigation of Turbine Platform Cooling with Generalized Gradient Diffusion Modelling for the Turbulent Heat Flux S. Rochhausen; M. Stubert; E. Kügeler – <i>German Aerospace Center DLR Cologne, Germany</i>	ETC2017-126 Comparison of LES and RANS Predictions with Experimental Results of the Fan of a Turbofan N. Odier; F. Duchaine; L. Gicquel – <i>CERFACS, France</i> G. Dufour; N. Garcia Rosa – <i>ISAE, France</i>	ETC2017-107 Study Relating to the Improvement of Centrifugal Fan Performance with the Use of Steady Air Injection at the Impeller Inlet V. Cyrus; P. Wurst – <i>AHT Energetika Ltd, Czech Republic</i> J. Cyrus – <i>AHT Energetika Ltd., Czech Republic</i>

12:30-14:00	Lunch	Lunch	Lunch
	A-05 AXIAL TURBINES: SECONDARY, TIP CLEARANCE AND LEAKAGE FLOWS (II)	B-05 AXIAL COMPRESSORS: DESIGN ANALYSIS AND PERFORMANCE	C-05 MODELING OF PHYSICAL PHENOMENA
	Chair: Emil Goettlich – <i>Graz University of Technology, Austria</i>	Chair: Joerg Seume – <i>Leibniz Universitaet Hannover, Germany</i>	Chair: Marcello Manna – <i>Università di Napoli Federico II, Italy</i>
14:00-14:30	ETC2017-117 Impact of Different Shroud Configurations on Leakage Flow of a LP Rotor S. Bauinger; B. Lindenthaler – <i>Institute for Thermal Turbomachinery and Machine Dynamics, Austria</i> R. Willinger – <i>Institute for Energy Systems and Thermodynamics, Austria</i> A. Marn; F. Heitmeir – <i>Institute for Thermal Turbomachinery and Machine Dynamics, Austria</i>	ETC2017-106 A Numerical Concept Study on Internal Blade Cooling in Axial Compressors T. Willeke; M. Hellberg; J.R. Seume – <i>Institute of Turbomachinery and Fluid Dynamics, Leibniz Universität Hannover, Germany</i>	ETC2017-104 Thermo-Fluid Dynamics of the Effects of Water Spray on Air Compression Process A. Mohan – <i>Andong National University, South Korea</i> A. Suryan – <i>College of Engineering Trivandrum, India</i> D.H. Doh – <i>Korea Maritime and Ocean University, South Korea</i> H.D. Kim – <i>Andong National University, South Korea</i>
14:30-15:00	ETC2017-158 Reduction Methods of Secondary Flow Losses in Stator Blades: Numerical and Experimental Study A. Zaryankin; A. Rogalev; V. Kindra; V. Khudyakova; N. Bychkov – <i>Moscow Power Engineering Institute, Russia</i>	ETC2017-134 The Design of a Family of Process Compressor Stages H. Hazby; M. Casey; C. Robinson; R. Spataro – <i>PCA Engineers Ltd., United Kingdom</i> O. Lunacek – <i>Howden Ā KD Compressors s.r.o., Czech Republic</i>	ETC2017-178 Study on the Equation of State for Supercritical CO ₂ Flow Through a Convergent and Divergent Nozzle S.K. Raman – <i>Andong National University, South Korea</i> A. Suryan – <i>College of Engineering Trivandrum, India</i> D.H. Doh – <i>Korea Maritime and Ocean University, South Korea</i> H.D. Kim – <i>Andong National University, South Korea</i>
15:00-15:30	ETC2017-300 Tip Clearance Influence on Aerodynamic Damping Maps M.A. Malta Teixeira; R. E. Kielb – <i>Duke University, United States</i>	ETC2017-343 Rotor Blade Tip Stall from a Designer's Perspective A. Schneider; A. Silingardi; P. Astrua; E. Puppo; S. Depalo – <i>Ansaldo Sviluppo Energia, Ansaldo Energia Group, Italy</i>	ETC2017-283 Interphase Processes Analysis in Moist Air Transonic Flows in Nozzles S. Dykas; M. Majkut; K. SmoÅ ka; M. Strozik; A. SzymaÅ ski – <i>Silesian University of Technology, Poland</i>
15:30-16:00	ETC2017-362 An Investigation of Groove Type Casing Treatment on Aerodynamic Performance of a Linear Turbine Cascade C.B. Senel; H. Maral; L. Kavurmacioglu – <i>Istanbul Technical University, Turkey</i> C. Camci – <i>Pennsylvania State University, United States</i>	ETC2017-350 A Comparison of Performance Predictions Between 1D Models and Numerical Data for a Turbocharger Compressor B. Kerres; S. Sanz – <i>KTH Royal Institute of Technology - Department of Machine Design, Sweden</i> E. Sundström; M. Mihaescu – <i>KTH Royal Institute of Technology - Department of Mechanics, Sweden</i>	ETC2017-336 Implementation of an Adjoint Thermal Solver for Inverse Problems P. Jaksch – <i>Siemens Industrial Turbomachinery AB, Sweden</i>

16:00-16:30	<i>Coffee break</i>	<i>Coffee break</i>	<i>Coffee break</i>
	A-06 STEAM TURBINES (I)	B-06 EXPERIMENTAL AND MEASURING TECHNIQUES (I)	C-06 DESIGN AND OPTIMIZATION (III)
	Chair: Jiri Polansky – <i>University of Leeds, United Kingdom</i>	Chair: Paolo Gaetani – <i>Politecnico di Milano, Italy</i>	Chair: Michele Pinelli – <i>University Of Ferrara, Italy</i>
16:30-17:00	ETC2017-093 Experimental and Numeric Investigations on a Steam Turbine Test Rig in Part Load Operation O. Brunn; K. Deckers; T. Polklas; K. Behnke; M.A. Schwarz – <i>MAN Diesel & Turbo SE, Germany</i>	ETC2017-115 Development and Commissioning of a Purge Flow System in a Two Spool Test Facility M. Steiner; S. Zerobin; S. Bauinger; F. Heitmeir; E. Göttlich – <i>Institute for Thermal Turbomachinery and Machine Dynamics, Graz University of Technology, Austria</i>	ETC2017-164 Multi-Fidelity Surrogate Models for Predicting the Aerodynamic Performance of Turbine Airfoils B. Poethke; S. Völker – <i>Siemens AG, Germany</i> K. Vogeler – <i>Dresden University of Technology, Germany</i>
17:00-17:30	ETC2017-025 Unsteady Aerodynamics and Forces Characteristics of Dual Row Control Stage with Partial Admission Condition J. Li; Z. Li; K. Du; K. We; X. Yan; L. Song – <i>Institute of Turbomachinery, Xi'an Jiaotong University, China</i>	ETC2017-287 Measurements of Ingress in Upstream and Downstream Turbine Wheel-Spaces M. Patinios; J. Scobie; S. Carl; G. Lock – <i>University of Bath, United Kingdom</i>	ETC2017-243 High Efficient Steam Turbine Design Based on Automated Design Space Exploration and Optimization Techniques K. Weidtmann; P. Bühler; E. Braining; A. Haj Ayed; G. Lin – <i>B&B-AGEMA GmbH, Germany</i>
17:30-18:00	ETC2017-239 Investigation of Transonic and Supersonic Flow in the Blade Cascades Representing Rotor Tip Sections of the Last LP Steam Turbine Stage at Different Turbulence Intensities M. Bobcik – <i>Doosan Skoda Power, Ltd., Czech Republic</i> J. Fort; J. Furst; J. Halama; V. Hric; P. Louda – <i>CTU Prague, Faculty of Mechanical Engineering, Czech Republic</i> M. Luxa – <i>Institute of Thermomechanics, CAS, v.v.i., Czech Republic</i> B. Rudas – <i>Doosan Skoda Power, Ltd., Czech Republic</i> J. Synac – <i>University of West Bohemia, Faculty of Mechanical Engineering, Czech Republic</i> D. Simurda – <i>Institute of Thermomechanics, CAS, v.v.i., Czech Republic</i>	ETC2017-375 Thermodynamic Analysis of the HAT-Process for Micro Gas Turbines G. Hartfuss; M. Schatz – <i>ITSM University of Stuttgart, Germany</i>	

Wednesday, April 5th, 2017

8:30-9:30	INVITED LECTURE ETC2017-IL3 Turbomachinery Aeroacoustics Prof. M.Abom – <i>KTH Royal Institute of Technology, Sweden</i> Chair: Torsten Fransson – <i>KTH, Sweden</i>		
9:30-10:00	<i>Coffee break</i>	<i>Coffee break</i>	<i>Coffee break</i>
	A-07 AXIAL TURBINES: NUMERICAL CALCULATIONS Chair: Koen Hillewaert – <i>Cenaero, Belgium</i>	B-07 COMPRESSORS AERODYNAMICS Chair: Shahrokh Shahpar – <i>Rolls-Royce,</i>	C-07 EXPERIMENTAL AND MEASURING TECHNIQUES (II) Chair: Ralf Obertacke – <i>Siemens AG, Germany</i>
10:00-10:30	ETC2017-153 Stochastic Variation of the Aero-Thermal Flow Field in a Cooled High-Pressure Transonic Vane Configuration S. Salvadori – <i>University of Florence, Italy</i> M. Carnevale; R. Ahlfeld; F. Montomoli – <i>Imperial College of London, United Kingdom</i> F. Martelli – <i>University of Florence, Italy</i>	ETC2017-228 Analysis of the Aerodynamic and Structural Performance of a Cooling Fan with Morphing Blade A. Suman; A. Fortini; N. Aldi; M. Pinelli; M. Merlin – <i>University of Ferrara, Italy</i>	ETC2017-217 High Temperature Eddy Current Sensor System for Turbine Blade Tip Clearance Measurements V. Sridhar; K. Chana – <i>University of Oxford, United Kingdom</i> M. Pekris – <i>University of Surrey, United Kingdom</i>
10:30-11:00	ETC2017-160 Speed-Up Methods for the Modeling of Transient Temperatures with Regard to Thermal and Thermomechanical Fatigue M. Diefenthal; P. Luczynski; M. Wirsum – <i>IKDG, RWTH Aachen University, Aachen, Germany, Germany</i>	ETC2017-205 Advanced Stereo High-Speed PIV in an Annular Cascade without Clearance: Evidences of Rotating Instability J. Peter – <i>Technische Universität Berlin, Germany</i> B. Pardowitz – <i>German Aerospace Center (DLR), Berlin, Germany</i> M. Eck – <i>Technische Universität Berlin, Germany</i> L. Enghardt – <i>German Aerospace Center (DLR), Berlin, Germany</i> D. Peitsch; P.U. Thamsen – <i>Technische Universität Berlin, Germany</i>	ETC2017-290 Development and Implementation of a Technique for Fast Five-Hole Probe Measurements Downstream of a Linear Cascade R. Gomes; J. Kurz; R. Niehuis – <i>Federal Armed Forces University Munich, Germany</i>
11:00-11:30	ETC2017-329 A CFD Based Throughflow Method with Three-Dimensional Flow Features Modelling R. Pacciani; M. Marconcini; A. Arnone – <i>University of Florence, Italy</i>	ETC2017-241 Challenges of Creating Realistic Periodical Unsteady Inflow Conditions in a Linear Compressor Cascade A. Krug; P. Busse; M. Lange; R. Mailach; K. Vogeler – <i>Technische Universität Dresden, Chair of Turbomachinery and Flight Propulsion, Germany</i>	ETC2017-298 Experimental Investigation of Transmission Loss in an Automotive Turbocharger Compressor Under Ideal and Real Engine Operating Conditions Y. El Nemr; R. Veloso; J. Girstmair – <i>Virtual Vehicle, Graz Austria, Austria</i> R. Kabral; M. Å bom – <i>KTH-CCGEx, Stockholm, Sweden, Sweden</i> E. Schutting; O. Dumböck – <i>IVT, TU, Graz, Austria, Austria</i> C. Ludwig; R. Mirlach – <i>BMW, Munich, Germany, Germany</i> P. Koutsovasilis; A. Masrane – <i>BorgWarner, Kirchheimbolanden, Germany, Germany</i>

11:30-12:00	<p>ETC2017-185 Linear Stability Prediction of Vortex Structures on High Pressure Turbine Blades</p> <p>M. Zauner; N. Sandham – <i>University of Southampton, United Kingdom</i> A. Wheeler – <i>University of Cambridge, United Kingdom</i> R. Sandberg – <i>University of Melbourne, Australia</i></p>	<p>ETC2017-268 Multi-Disciplinary Optimisation of a Transonic Compressor Rotor Subjected to Ice Impact</p> <p>R. Schlaps – <i>Queen Mary University of London, United Kingdom</i> S. Shahpar – <i>Rolls-Royce plc, United Kingdom</i> V.V. Toropov – <i>Queen Mary University of London, United Kingdom</i></p>	<p>ETC2017-303 Surface Temperature Measurements in an Industrial Gas Turbine Using Thermal History Paints</p> <p>C. Pilgrim; A. Yañez Gonzalez; R. Saggese – <i>Sensor Coating Systems Ltd., United Kingdom</i> R. Krewinkel; M. Blaswich – <i>MAN Diesel and Turbo SE, Germany</i> J. Feist – <i>Sensor Coating Systems Ltd., United Kingdom</i> U. Orth; M. Rabs; D. Frank – <i>MAN Diesel and Turbo SE, Germany</i> S. Araguas – <i>Sensor Coating Systems Ltd. / Imperial College London, United Kingdom</i></p>
12:00-12:30	<p>ETC2017-313 Hybrid Large Eddy Simulations of an Uncooled High Pressure Turbine Stator-Rotor Stage</p> <p>J. Kopriva; G. Laskowski – <i>GE Aviation, United States</i></p>	<p>ETC2017-277 Reynolds Number Effects on the Aerodynamics of Compact Axial Compressors</p> <p>K. Pantelidis; C. Hall – <i>University of Cambridge, The Whittle Laboratory, United Kingdom</i></p>	<p>ETC2017-325 Influence of Pressure Fluctuations on the Mean Value of Different Pneumatic Probes</p> <p>S. Bauinger; A. Marn; E. Göttlich; F. Heitmeir – <i>Graz University of Technology, Austria</i></p>
12:30-14:00	Lunch	Lunch	Lunch
	<p>A-08 AXIAL TURBINES AERODYNAMICS</p> <p>Chair: Reinhard Niehuis – <i>Universitaet der Bundeswehr Muenchen, Germany</i></p>	<p>B-08 STALL AND SURGE</p> <p>Chair: Silvia Ravelli – <i>University of Bergamo, Italy</i></p>	<p>C-08 RADIAL COMPRESSORS</p> <p>Chair: Antoine Dazin – <i>ENSAM, France</i></p>
14:00-14:30	<p>ETC2017-089 Experimental and Numerical Study of the Transonic Cooled Turbine Blades</p> <p>A. Granovskiy; V. Gribin; N. Lomakin – <i>Moscow Power Institut (National Research University), Russia</i></p>	<p>ETC2017-040 Experimental Characterization of the Surge Onset in a Turbo-Compressor for Fuel Cell Application</p> <p>A. Godard; I. Trebinjac – <i>Laboratoire de Mécanique des Fluides et d'Acoustique - Ecole Centrale de Lyon, France</i> M. Roumeas – <i>Liebherr-Aerospace Toulouse, France</i></p>	<p>ETC2017-041 Influence of Reynolds Number Variation Method on Centrifugal Compressor Loss Generation</p> <p>J. Ttinen; A. Jaatinen-Värrä; A. Grönman; J. Backman – <i>Lappeenranta University of Technology, Finland</i></p>
14:30-15:00	<p>ETC2017-182 Hot Streak Evolution in an Axial HP Turbine Stage</p> <p>P. Gaetani; G. Persico – <i>Politecnico di Milano, Italy</i></p>	<p>ETC2017-157 Centrifugal Compressor Diffuser Rotating Stall: Vaned vs. Vaneless</p> <p>M. Giachi; E. Belardini – <i>GE Oil&Gas, Italy</i> G. Lombardi – <i>University of Pisa, Italy</i> M. Maganzi – <i>CUBIT scar, Italy</i> A. Berti – <i>University of Pisa, Italy</i></p>	<p>ETC2017-072 Influence of Volute Channel Position Onto Centrifugal Compressor Performance</p> <p>M. Heinrich; R. Schwarze – <i>Technical University Bergakademie Freiberg, Germany</i></p>
15:00-15:30	<p>ETC2017-213 The Influence of Different Wake Profiles on Losses in a Low Pressure Turbine Cascade</p> <p>F. Hammer – <i>University of Southampton, United Kingdom</i> R.D. Sandberg – <i>University of Melbourne, Australia</i> N.D. Sandham – <i>University of Southampton, United Kingdom</i></p>	<p>ETC2017-175 Analysis of Vaneless Diffuser Stall Instability in a Centrifugal Compressor</p> <p>E. Sundström; M. Mihaescu – <i>KTH Mechanics, Sweden</i> M. Giachi; E. Belardini; V. Michelassi – <i>GE Oil&Gas, Florence, Italy</i></p>	<p>ETC2017-171 Technical and Aerodynamical Aspects of a High Pressure Synthesis Gas Turbocompressor Modernization</p> <p>W. Kryllowicz – <i>Lodz University of Technology, Poland</i> P. Swider – <i>Neo-Tec Sp. z. o. o., Poland</i> Z. Kozanecki; K. Kabalyk – <i>Lodz University of Technology, Poland</i> Z. Kozanecki Jr – <i>Neo-Tec Sp. z. o. o., Poland</i></p>

15:30-16:00	<p>ETC2017-237 Experimental and Numerical Investigations of a Low Aspect Ratio Transonic Linear Turbine Cascade</p> <p>A. Beschorner; M. Lange; R. Mailach; K. Vogeler – <i>Technische Universität Dresden, Germany</i></p>	<p>ETC2017-301 Theoretical Analysis of the Rotating Stall in a Vaneless Diffuser</p> <p>Y.G. Heng – <i>Arts et Métiers Paristech, China</i> A. Dazin – <i>Arts et Métiers Paristech, France</i> M.N. Ouarzazi – <i>Université Lille 1, France</i></p>	<p>ETC2017-260 Prediction and Validation of High-Performance Centrifugal Compressor Impeller Forced Response</p> <p>L. Toni; F. Moyroud – <i>GE Oil & Gas, Italy</i> K. Ramakrishnan – <i>GE Global Research, United States</i> V. Michelassi – <i>GE Oil & Gas, Italy</i> E. Schurr – <i>GE Oil & Gas, United States</i></p>
16:00-16:30	<i>Coffee break</i>	<i>Coffee break</i>	<i>Coffee break</i>
	<p>A-09 STEAM TURBINES (II)</p> <p>Chair: Claus Sieverding – <i>VKI, Belgium</i></p>	<p>B-09 HYDRAULIC MACHINERY (I)</p> <p>Chair: Giorgio Pavesi – <i>University Of Padova, Italy</i></p>	<p>C-09 TRANSITION AND TURBULENCE MODELING (II)</p> <p>Chair: Marcello Manna – <i>Università di Napoli Federico II, Italy</i></p>
16:30-17:00	<p>ETC2017-312 Performance of a Wet-Steam Turbine Stator Blade with Heating Steam Injection</p> <p>V. Gribin; A. Tishchenko; S. Khomyakov; I. Gavrilov; V. Tishchenko; V. Popov; I. Sorokin; R. Alekseev – <i>Moscow Power Engineering Institute, National Research University, Russia</i></p>	<p>ETC2017-097 Investigation on the Flow in a Rotor-Stator Cavity with Centripetal Through-Flow</p> <p>B. Hu; D. Brillert; H.J. Dohmen; F.K. Benra – <i>Chair of Turbomachinery, University of Duisburg-Essen, Germany</i></p>	<p>ETC2017-133 Using Automated Optimisation to Calibrate a Correlation-Based Transition Model</p> <p>C. Morsbach; M. Aulich – <i>German Aerospace Center (DLR), Germany</i> F. Klingenberg – <i>MTU Aero Engines AG, Germany</i></p>
17:00-17:30	<p>ETC2017-314 Experience in Numerical Simulation of Turbulent Wet-Steam Flow in the Last Stage of a High-Power Condensing Turbine Under Conditions Defined by Full-Scale Experiments at a Power Plant</p> <p>S. Galaev; V. Ris; E. Smirnov – <i>Peter the Great Saint-Petersburg Polytechnic University, Russia</i></p>	<p>ETC2017-054 Air-Water Two-Phase Flow Experimental and Numerical Analysis in a Low Specific Speed Centrifugal Pump</p> <p>Q. Si – <i>Jiangsu University, China</i> G. Bois – <i>ENSAM, France</i> K. Zhang; J. Yuan – <i>Jiangsu University, China</i></p>	<p>ETC2017-196 Optimal Perturbations in Transitional and Turbulent Flows at Moderate Reynolds Numbers</p> <p>M. Farano; S. Cherubini – <i>Politecnico di Bari, Italy</i> J.C. Robinet – <i>Arts et Métiers ParisTech, France</i> P. De Palma – <i>Politecnico di Bari, Italy</i></p>
17:30-18:00	<p>ETC2017-349 Study on Water Extraction of Hollow Stationary Blade Under Wet Steam Flow Conditions</p> <p>X. Wu; J. Yang – <i>Shanghai Turbine Works Co., Ltd., China</i> L. Li – <i>Institute of Turbomachinery, Xi'an Jiaotong University, China</i></p>	<p>ETC2017-060 Performance Analysis of Compact Multistage Pumps Manufactured from Sheet Metal</p> <p>F. Fontana – <i>University of Padua, Italy</i></p>	<p>ETC2017-328 On the Capability of the $\hat{\lambda}^3$-$Re_{\hat{\lambda}}$ Transition Model to Predict Relaminarization</p> <p>P. Bader – <i>Institute for Thermal Turbomachinery and Machine Dynamics, Graz University of Technology, Austria</i> P. Pieringer – <i>Springer und Pieringer EDV Dienstleistungen OG, Austria</i> W. Sanz – <i>Institute for Thermal Turbomachinery and Machine Dynamics, Graz University of Technology, Austria</i></p>

Thursday, April 6th, 2017

8:30-9:30	INVITED LECTURE ETC2017-IL4 Uncertainty Quantification and Robust Design in Turbomachinery Prof. C.Hirsch – NUMECA Chair: Francesco Martelli – <i>Industrial Engineering Department, University of Florence, Italy</i>		
9:30-10:00	<i>Coffee break</i>	<i>Coffee break</i>	<i>Coffee break</i>
	A-10 RADIAL TURBINES Chair: Thomas Biesinger – <i>BorgWarner Turbo Systems Engineering GmbH, Germany</i>	B-10 FANS Chair: Mauro Carnevale – <i>Imperial College of London, United Kingdom</i>	C-10 JOINT SESSION (ERCOFTAC-ECCOMAS) UNCERTAINTY QUANTIFICATION AND ROBUST DESIGN IN TURBOMACHINERY Chair: Charles Hirsch – NUMECA
10:00-10:30	ETC2017-039 Loss Generation in Radial Outflow Steam Turbine Cascades A. Grönman; A. Uusitalo; J. Backman – <i>Lappeenranta University of Technology, Finland</i>	ETC2017-055 Preliminary Experimental Assessment of the Performance of Rotor-Only Axial Fans Designed with Different Vortex Criteria S. Castegnaro; M. Masi; A. Lazzaretto – <i>University of Padova, Italy</i>	ETC2017-411 Manufacturing Uncertainties on a Compressor Blade R.Nigro – <i>NUMECA, Univ. Mons</i>
10:30-11:00	ETC2017-267 Exergy Analysis on Turbocharger Radial Turbine with Heat Transfer S.M. Lim; A. Dahlkild; M. Mihaescu – <i>Royal Institute of Technology (KTH), Competence Center for Gas Exchange (CCGEx), Sweden</i>	ETC2017-059 Remarks on the Meridional Design of Mixed Flow Fans A. Treder; J. Karras; P.U. Thamsen – <i>Technical University of Berlin, Germany</i>	ETC2017-412 Robust Optimization of a Compressor Stage D.Wunsch – NUMECA
11:00-11:30	ETC2017-129 Preliminary Design Considerations for Variable Geometry Radial Turbines with Multi-Points Specifications P.T. Lauriau – <i>ISAE SUPAERO, Université de Toulouse / Liebherr Aerospace Toulouse (LTS), France</i> N. Binder; X. Carbonneau – <i>ISAE SUPAERO, Université de Toulouse, France</i> M. Roumeas; S. Cros – <i>Liebherr Aerospace Toulouse (LTS), France</i>	ETC2017-069 Smith Diagram for Low Reynolds Number Axial Fan Rotors R. Corralejo; P. Harley – <i>Dyson Ltd, United Kingdom</i>	ETC2017-413 Application of UQ Techniques to Turbomachinery Test Cases S.Shahrokh – <i>Rolls-Royce</i>
11:30-12:00	ETC2017-258 New Phenomenological and Power-Based Approach for Determining the Heat Flows of a Turbocharger Directly from Hot Gas Test Data B. Savic; R. Zimmermann; B. Jander; R. Baar – <i>Technical University of Berlin, Germany</i>	ETC2017-119 Beamforming Studies on Basic Models of Low-Speed Axial Fan Blade Sections E. Balla; J. Vad – <i>Department of Fluid Mechanics, Faculty of Mechanical Engineering, Budapest University of Technology and Economics, Hungary</i>	ETC2017-414 Experience on Uncertainty Quantification Didier Lucor – <i>CNRS-LIMS1</i>
12:00-12:30	ETC2017-360 Influence of Secondary Flow Phenomena on Boundary Layer Thickness and Wall Heat Flux in Scalloped Radial Turbines C. Rakut; M. Diefenthal; M. Wirsum – <i>Institute for Power Plant Technology, Steam and Gas Turbines, RWTH Aachen University, Germany</i>	ETC2017-250 Understanding Fan Blade Tip Aerodynamics A. John – <i>University of Sheffield, United Kingdom</i> S. Shahpar – <i>Rolls-Royce, United Kingdom</i> N. Qin – <i>University of Sheffield, United Kingdom</i>	

12:30-14:00	Lunch	Lunch	Lunch
	A-11 COMBUSTOR TURBINES INTERACTION	B-11 AXIAL COMPRESSORS: UNSTEADY FLOWS AND INTERACTIONS	C-11 HYDRAULIC MACHINERY (II)
	Chair: Simone Salvadori – <i>University of Florence, Italy</i>	Chair: Friedrich-Karl Benra – <i>University of Duisburg-Essen, Germany</i>	Chair: Gerard Bois – <i>ENSAM, France</i>
14:00-14:30	ETC2017-024 Parameterised Model of 2D Combustor Exit Flow Conditions for HPT Simulations M. Schneider; H.P. Schiffer – <i>Technische Universität Darmstadt Institute of Gas Turbines and Aerospace Propulsion, Germany</i> K. Lehmann – <i>Turbine Aerodynamics and Cooling Rolls-Royce Deutschland Ltd & Co KG, Germany</i>	ETC2017-135 Simulation of Indexing and Clocking with Harmonic Balance C. Frey; G. Ashcroft – <i>German Aerospace Center (DLR), Germany</i> H.P. Kersken – <i>German Aerospace Center, Germany</i>	ETC2017-248 Centrifugal Pumps Performance Estimation with Non-Newtonian Fluids: Review and Critical Analysis C. Buratto; M. Occari; N. Aldi; N. Casari; M. Pinelli; P.R. Spina; A. Suman – <i>University of Ferrara, Italy</i>
14:30-15:00	ETC2017-139 The Influence of Combustor Swirl on Pressure Losses and the Propagation of Coolant Flows at the Large Scale Turbine Rig (LSTR) H. Werschnik; J. Herrmann; H.P. Schiffer – <i>Technische Universität Darmstadt, Institute of Gas Turbines and Aerospace Propulsion, Germany</i> C. Lyko – <i>Rolls-Royce Deutschland, Turbine Aerodynamics & Cooling, Germany</i>	ETC2017-125 Analysis of a High-Pressure Multistage Axial Compressor at Off-Design Conditions with Coarse Large Eddy Simulations J. De Laborderie; F. Duchaine; L. Gicquel – <i>CERFACS, France</i>	ETC2017-141 Numerical Investigation on the Influence of Secondary Flows on the Axial Thrust of a Liquid Oxygen Radial Pump P. Beck – <i>TUM, Institute of Flight Propulsion, Germany</i> B. Wagner – <i>DLR, Institute of Space Propulsion, Germany</i> O. Haidn – <i>TUM, Institute of Flight Propulsion, Germany</i>
15:00-15:30	ETC2017-247 Experimental and Numerical Investigation of the Effect of Compressor OGV Profile on Combustor Exit Measurements Using an Isothermal, Non-Reacting Tracer P. Dhopade – <i>University of Oxford, United Kingdom</i> P. Denman – <i>Loughborough University, United Kingdom</i> P. Ireland – <i>University of Oxford, United Kingdom</i> M. Ravikanti – <i>Rolls-Royce PLC, United Kingdom</i>	ETC2017-358 The Efficient Numerical Simulation of Unsteady Flow in a Centrifugal Compressor Stage Equipped with a Vaned Diffuser M. Younsi; A. Baldacci – <i>ANSYS, Inc., France</i> C. Corneloup; F. Moyroud – <i>GE Oil&Gas, France</i>	ETC2017-122 The Optimal Vortex Pump Impeller à an Experimental Study on Clogging Behaviour A. Gerlach; S. Wulff; D. Perlitz – <i>Technische Universität Berlin, Germany</i> F. Lykhold-Ustrup – <i>Grundfos Holding A/S, Denmark</i> P.U. Thamsen – <i>Technische Universität Berlin, Germany</i>



15:30-16:00	<p>ETC2017-044 The Effect of Hot Streaks on a High Pressure Turbine Vane Cascade with Showerhead Film Cooling</p> <p>G. Barigozzi; S. Mosconi; A. Perdichizzi; S. Ravelli – <i>University of Bergamo, Italy</i></p>	<p>ETC2017-318 Large Eddy Simulation of a Lowpressure Compressor Cascade at High Incidence</p> <p>J.S. Cagnone; M. Rasquin; K. Hillewaert – <i>Cenaero, Gosselies, Belgium</i> S. Hiernaux – <i>Safran Aero Boosters, Belgium</i></p>	<p>ETC2017-101 Numerical Investigation on Transient Flow of a High Head Pump-Turbine in Pump Mode During Rapid Closure of Guide Vanes</p> <p>G. Pavesi – <i>Department of Industrial Engineering, University of Padova, Italy</i> W. Wang – <i>National Research Center of Pumps, Jiangsu University, China</i></p>
16:00-16:30	Coffee break	Coffee break	Coffee break
	<p>A-12 STEAM TURBINES (III)</p> <p>Chair: Aki Grönman – <i>Lappeenranta University of Technology, Finland</i></p>	<p>B-12 WIND TURBINES</p> <p>Chair: Francesco Martelli – <i>Industrial Engineering Departement, University of Florence, Italy</i></p>	<p>C-12 VIBRATION, FLUTTER, AERO-ELASTICITY (I)</p> <p>Chair: Torsten Fransson – <i>KTH, Sweden</i></p>
16:30-17:00	<p>ETC2017-190 Experimental and Numerical Analysis of Supersonic Blade Profiles Developed for Highly Loaded Impulse Type Steam Turbine Stages</p> <p>R. Ghio; C. Raffaelli; A. Sabattini – <i>Fincantieri S.p.A., Italy</i> V. Dossena; A. Fusetti; A. Spinelli; C. Osnaghi; F. Cozzi – <i>Politecnico di Milano, Italy</i></p>	<p>ETC2017-295 On the Effects of the Approximations Embodied in the Momentum Theory as Applied to the NREL Phase VI Wind Turbine</p> <p>R. Bontempo; M. Manna – <i>Università degli Studi di Napoli Federico II, Italy</i></p>	<p>ETC2017-057 Identification of Coupled Natural Frequencies in a Rotor-Stator Test-Rig for Different Gas Properties</p> <p>B. Barabas; D. Brillert; H.J. Dohmen; F.K. Benra – <i>University of Duisburg-Essen, Germany</i></p>
17:00-17:30	<p>ETC2017-280 Combined Optimisation of the Last Stage and Diffuser in a Steam Turbine Using Metamodels</p> <p>C. Musch – <i>Siemens AG, Germany</i> K. Cremanns – <i>Niederrhein University of Applied Sciences, Germany</i> S. Hecker; A. Penkner – <i>Siemens AG, Germany</i></p>	<p>ETC2017-365 A Validation Study Using NREL Phase VI Experiments, Part I: Low Computational Resource Scenario</p> <p>A. Aksenov – <i>Tesis Ltd. (1) - Institute of High Temperatures of Russian Academy of Sciences (2), Russia</i> U. Ozturk – <i>UPC, Universitat Politecnica de Catalunya, Spain</i> C. Yu – <i>Samwell Testing Inc., Taiwan</i> P. Byvaltsev – <i>Tesis Ltd., Russia</i> S. Soganci – <i>CapVidia NV, Belgium</i> O. Tutkun – <i>Akana, Turkey</i></p>	<p>ETC2017-083 Modelling of Turbine Blade Vibrations Via Computational Intelligence Methods</p> <p>S. Norton; T. Ramsay; K. Karatzas – <i>Department of Mechanical Engineering, Aristotle University of Thessaloniki, Greece</i> J. Fridh; P. Petrie-Repar – <i>Department of Energy Technology, KTH Royal Institute of Technology, Sweden</i></p>
17:30-18:00	<p>ETC2017-195 Turbine Blade Profile Design Method Using Bezier Curves</p> <p>V. Gribin; A. Tishchenko; V. Tishchenko; I. Gavrilov; I. Sorokin; R. Alexeev – <i>National Research University "MPEI", Russia</i></p>		<p>ETC2017-180 Potential of Aeroelastic Tailoring to Improve Flutter Stability of Turbomachinery Compressor Blades</p> <p>C. Reiber; M. Blocher – <i>German Aerospace Center (DLR), Germany</i></p>
20:00-23:00	GALA DINNER		

Friday, April 7th, 2017

8:30-9:30

INVITED LECTURE**ETC2017-IL5**

Some Challenges in Turbomachinery for Propulsion

Mr. H.MÅrtensson – *GKN Aerospace*Chair: Paul Petrie-Repar – *KTH, Sweden*

9:30-10:00

*Coffee break**Coffee break**Coffee break***A-13**
AXIAL TURBINES: UNSTEADY FLOWS AND
BLADE ROW INTERACTION

Chair: Jens Friedrichs –

B-13
AERO-ACOUSTICS, NOISE GENERATION
AND REDUCTION (II)Chair: Tom Verstraete – *Von Karman Institute,
Belgium***C-13**
VIBRATION, FLUTTER, AERO-ELASTICITY
(II)Chair: Michel Dumas – *Safran-Snecma, France*

10:00-10:30

ETC2017-094Application of the Time Transformation
Method for a Detailed Analysis of
Multistage Blade Row Interactions in a
Shrouded TurbineB. Winhart; D. Micallef; D. Engelmann – *Ruhr-
Universität Bochum, Germany***ETC2017-067**Impact of Turbulence Models on RANS-
Informed Prediction of Fan Broadband
Interaction NoiseR. Jaron; H. Herthum; M. Franke; A. Moreau;
S. Gué rin – *German Aerospace Center (DLR),
Germany***ETC2017-238**Flutter Analysis of an Embedded Blade
Row with a Harmonic Balance SolverH.P. Kersken; C. Frey; G. Ashcroft – *German
Aerospace Center (DLR), Germany*
H. Schönenborn – *MTU, Germany*

10:30-11:00

ETC2017-305A Comparative Study of Transient
Blade Row and Blade Count Scaling
Approaches for Numerical Forced
Response Analysis in a Transonic TurbineA.D. Naidu; K. Vogel; M. Fischer – *ABB Turbo
Systems Ltd, Switzerland***ETC2017-279**Towards a Holistic Prediction of Fan
Stage Tone Noise MechanismsP. Sureshkumar; M. Vahdati – *Imperial
College, United Kingdom*
A. Parry; S. Bianchi – *Rolls-Royce Plc, United
Kingdom***ETC2017-161**Adjoint Process Chain for Forced
Response Analysis Using a Harmonic
Balance MethodA. Engels-Putzka; C. Frey – *German Aerospace
Center (DLR), Institute of Propulsion
Technology, Germany*

11:00-11:30

ETC2017-324Time Resolved PIV Measurements of the
Unsteady Wake Migration in a LPT Blade
Passage: Effect of the Wake Passing
FrequencyD. Lengani; D. Simoni; M. Ubaldi; P. Zunino – *Università di Genova, Italy*
F. Bertini – *GE AvioAero, Italy***ETC2017-201**Impact of Inlet Distortion on Fan Tonal
NoiseM. Daroukh – *Safran Aircraft Engines -
CERFACS, France*
S. Moreau – *Université de Sherbrooke,
Canada*
N. Gourdain – *ISAE, France*
J.F. Bousuge – *CERFACS, France*
C. Sensiau – *Safran Aircraft Engines, France***ETC2017-242**Reduced Order Modeling of Mistuned
Bladed Disks Considering Aerodynamic
Coupling and Mode Family InteractionS. Willeke – *Institute of Dynamics and
Vibration Research, Leibniz Universität
Hannover, Germany*
C. Keller – *Institute of Turbomachinery and
Fluid Dynamics, Leibniz Universität Hannover,
Germany*
L. Panning-Von Scheidt – *Institute of
Dynamics and Vibration Research, Leibniz
Universität Hannover, Germany*
J.R. Seume – *Institute of Turbomachinery and
Fluid Dynamics, Leibniz Universität Hannover,
Germany*
J. Wallaschek – *Institute of Dynamics and
Vibration Research, Leibniz Universität
Hannover, Germany*

11:30-12:00	<p>ETC2017-379 Impact of Vane Clocking on the TEC Loss in Rig</p> <p>M. Hoeger; R.D. Baier – <i>MTU Aero Engines AG, Germany</i> A. Marn; T. Selic – <i>Graz University of Technology, Austria</i> R. Niehuis; R. Gomes – <i>Universität der Bundeswehr München, Germany</i> C. Bode; J. Friedrichs – <i>Technische Universität Braunschweig, Germany</i></p>	<p>ETC2017-148 Toward a Near-Field CAA-CFD Coupling Approach: Application to a Centrifugal Blower</p> <p>B. Sy – <i>Arts et Mé tiers ParisTech, DynFluid Laboratory, France</i> C. Foulquié – <i>Safran Aircraft Engines, France</i> S. Khelladi; M. Deligant – <i>Arts et Mé tiers ParisTech, DynFluid Laboratory, France</i> M. Henner – <i>Valeo Engine Cooling, France</i> F. Bakir – <i>Arts et Mé tiers ParisTech, DynFluid Laboratory, France</i></p>	<p>ETC2017-144 Aeroelastic Investigation of Turbine Blade Assemblies: Cluster Systems and Mistuned Rows</p> <p>F. Vanti; L. Pinelli; F. Poli; A. Arnone – <i>University of Florence, Italy</i></p>
12:00-12:30	<p>ETC2017-335 Numerical Investigation of Secondary Flow and Loss Development in a Low Pressure Turbine Cascade with Divergent Endwalls</p> <p>R. Ciorciari; T. Schubert; R. Niehuis – <i>Institute of Jet Propulsion, Universitaet der Bundeswehr Muenchen, Germany</i></p>	<p>ETC2017-363 Experimental Acoustic Characterization of Automotive Twin-Scroll Turbine</p> <p>R. Kabral – <i>KTH Royal Institute of Technology, Sweden</i> Y.A. El Nemr – <i>VIRTUAL VEHICLE Research Center, Austria</i> C. Ludwig; R. Mirlach – <i>BMW, Germany</i> P. Koutsovasilis; A. Masrane – <i>BorgWarner, Germany</i> M. Å bom – <i>KTH Royal Institute of Technology, Sweden</i></p>	<p>ETC2017-315 Establishment of an Open 3D Steam Turbine Flutter Test Case</p> <p>D. Qi; P. Petrie-Repar; T. Gezork; T. Sun – <i>Royal Institute of Technology Department of Energy Technology, Sweden</i></p>
12:30-12:45	CLOSING CEREMONY		



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