



DAY 1 (13rd of September)

8:00-9:00	Registration	
9:00-9:20	Opening <i>Room: Auditorio</i>	
9:20-10:10	<p>KN – Prof. Juan Jose Alonso (Stanford University) <i>“Supersonic Low-Boom Aircraft Design Using the Open-Source SU2 Framework”.</i> Sponsored by ANSYS <i>Room: Auditorio</i></p>	
10:10-10:30	Coffee break <i>Room: Aula del Carmen</i>	
10:30-12:50	<p><u>STS on “Advanced Design Optimization and Control Challenges of new aircraft/engines configurations for future subsonic, transonic and supersonic transportation”</u> Supported by C-Aero2 project</p> <p><i>Organized by J. Periaux (CIMNE) and D. Redondo (Airbus)</i> <i>Room: Auditorio</i></p>  <p>C. Hirsch (NUMECA, Belgium). Multi-Disciplinary Multi-Point Robust Design Optimization of a Turbocharger Impeller N. Qin (Univ. Sheffield, UK). Interference Drag and its Control for a Strut-Braced Wing Aircraft. D. Quagliarella (CIRA, Italy). Robust Aerodynamic Design of a Supersonic Business Jet for Natural Laminar Flow. D. Redondo (AIRBUS, Spain). Definition and numerical simulation of a 3-D Strut wing test case for aircraft drag reduction using flow control devices and/or design optimization. T. Zhili (NUAA, China). 2D Multi- Disciplinary Shape Design Optimization of an Air-breathing Hypersonic Vehicle Problem solved with Cooperative Games and Evolutionary Algorithms. J. Cheeseman and J. Bes (AIRBUS). Modelling the Mass Properties for an Aircraft.</p>	<p><u>MS session – “Multi-disciplinary design optimization”</u></p> <p><i>Organized by A. Riccardi, E. Minisci and M. Vasile (University of Strathclyde)</i> <i>Room: Sala de conferencias</i></p> <p>014. Roman Denysiuk, Fernando Duarte, João Nunes and António Gaspar-Cunha. Evolving Neural Networks to Optimize Material Usage in Blow Molded Containers 018. Mohammad Abu-Zurayk, Caslav Ilic, Andreas Schuster and Rene Liepelt. Effect of gradient approximations on aero-structural gradient-based wing optimization. 023. Simon Extra, Michael Lockan, Dieter Bestle and Peter Flassig. Coupled Subsystem Optimization for Preliminary Core Engine Design 064. Marco E. Biancolini, Ubaldo Cella, Corrado Groth, Andrea Chiappa, Francesco Giorgetti and Fabrizio Nicolosi. Progresses in Fluid Structure Interaction Numerical Analysis Tools within the EU CS RIBES Project. 068. Imco Van Gent, Riccardo Lombardi, Gianfranco Larocca and Roberto D'Ippolito. A Fully Automated Chain from MDAO Problem Formulation to Workflow Execution. 075. Edmondo Minisci, Annalisa Riccardi, Massimiliano Vasile, Giulio Maddalena Christophe Ducamp, Alexis Diveu. Preliminary Design Optimization under Uncertainty of Conventional Launchers.</p>
12:50-14:00	Lunch <i>Room: Aula del Carmen</i>	
14:00-14:50	<p>KN – Prof. Sancho Salcedo (University of Alcalá) <i>“Machine Learning algorithms for prediction problems in energy applications”</i> <i>Room: Auditorio</i></p>	
14:50-15:10	Coffee break <i>Room: Aula del Carmen</i>	

<p>15:10-17:30</p>	<p><u>MS session – “Surrogate-assisted Optimization of Real World problems I/II”</u></p> <p><i>Organized by D. González (AIRBUS) and E. Iuliano (CIRA)</i> <i>Room: Auditorio</i></p> <p>003. Daniel González Juárez and Esther Andrés. Study of the influence of the initial a-priori training dataset size in the efficiency and convergence of surrogate-based evolutionary optimization 006. Dmitrij Ivanov, Dieter Bestle and Christian Janke. A Response Surface Based Strategy for Accelerated Compressor Map Computation 012. Jorge Munoz Paniagua and Javier Garcia. Surrogate-based optimization of the nose shape of a high-speed train for lateral stability. 015. Charlotte Beauthier, Paul Beaucaire and Caroline Sainvitu. Surrogate-based evolutionary algorithm for highly constrained design problems 027. Luca Miretti, Enrico Ribaldone, Laura Loreface, Giuseppe Scantamburlo and Renzo Arina. POD Based Reduced Order Model for CFD Optimization of Vehicle Aerodynamics. 038. Remo De Donno and Stefano Rebay. Surrogate-Based Shape Optimization of the ERCOFTAC Centrifugal Pump Impeller 041. Tobias Keßler, Christian Kunde, Nick Mertens, Dennis Michaels and Achim Kienle. Global Optimization of Distillation Columns using Surrogate Models.</p>	<p><u>MS session – “Adjoint Methods for Optimisation, Mesh Adaptation and Uncertainty Quantification I/III”</u></p> <p><i>Organized by J. Mueller (Queen Mary University), K. Giannakoglou (NTUA), T. Verstraete (VKI)</i> <i>Room: Sala de conferencias</i></p> <p>007. Pavlos Alexias and Eugene De Villiers. Gradient projection, constraints and surface regularization methods in adjoint shape optimization 010. Marios Damigos and Eugene de Villiers. Adjoint Shape Optimisation using model Boundary Representation 013. Ismael Sanchez Torreguitart, Tom Verstraete and Lasse Mueller. Multipoint optimization of the LS89 Axial Turbine profile using a CAD and adjoint based approach. 019. Marc Schwalbach, Tom Verstraete, Jens-Dominik Müller and Nicolas R. Gauger. A Comparative Study of Two Different CAD-Based Mesh Deformation Methods for Structural Shape Optimization 024. Giacomo Alessi, Lilla Koloszar, Tom Verstraete, Bert Blocken and Jeroen van Beeck. Node-based Adjoint Surface Optimization of U-bend duct for pressure loss reduction 031. Carlos Lozano. Boundary formulas for discrete adjoint gradients 032. Carlos Lozano. On the Properties of Solutions of the 2D Adjoint Euler Equations</p>	<p><u>MS session “Extension of fixed point PDE solvers for optimal design - Methods and Applications”</u></p> <p><i>Organised by N. Gauger and L. Kusch (TU Kaiserslautern)</i> <i>Room: Aula 10</i></p> <p>008. Andrea Walther, Lisa Kusch and Nicolas R. Gauger. Preconditioning Multiplier Updates for Additional Equality Constraints in One-Shot Optimization 017. Ruben Sanchez and Rafael Palacios. Optimal Design of Non-linear Structures Immersed in Viscous Flows Using Coupled Adjoint Methods Based on Fixed-Point Iterators. 058. Anna Engels-Putzka, Jan Backhaus and Christian Frey. Development of an Adjoint Harmonic Balance Solver for Turbomachinery Applications Using Algorithmic Differentiation Techniques. 065. Emre Özkaya, Lisa Kusch, Tim Albring and Nicolas Gauger. Robust Aerodynamic Shape Optimization Using Adjoint Assisted Surrogate Modeling 069. Lisa Kusch and Nicolas Gauger. First Steps towards Topology Optimization of Nonlinear Structures using the One-Shot Approach. 072. Tim Albring, Salvatore Vitale, Nicolas Gauger and Matteo Pini. Adjoint-based optimization of 3D turbomachinery blades using SU2. 022. Adriana Nastase. New Global Optimized Shapes of Supersonic Transport Aircraft Models.</p>
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<p>19:30-20:30</p>	<p>Welcome Drink Reception</p>
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DAY 2 (14th of September)



8:00-9:00	Registration		
9:00-9:50	KN – Adel Abbas ((Former) Airbus Head of the Aerodynamic Research and Technology) “Aircraft Design Optimization. An integrated and multidisciplinary design chain” <i>Room: Auditorio</i>		
9:50-10:10	Coffee break <i>Room: Aula del Carmen</i>		
10:10-12:30	<p><u>MS session – “Surrogate-assisted Optimization of Real World problems II/II”</u></p> <p><i>Organized by D. González (AIRBUS) and E. Iuliano (CIRA)</i> <i>Room: Auditorio</i></p> <p>004. AG52 members. Garteur AD/AG52 Surrogate-based global optimization methods in preliminary aerodynamic design 051. Tomas Kratky, Lukas Zavadil and Jakub Kmec. Stochastic radial basis method for multi-objective pump stator optimization. 061. Barbara Arizmendi Gutiérrez, Edmondo Minisci and Greig Chisholm. CFD based Design Optimization of a Cabinet Nitrogen Generator 062. Emiliano Iuliano. A comparative evaluation of surrogate models for transonic wing shape optimization. 073. Shahrouz R. Alimo, Pooriya Beyhaghi and Thomas R. Bewley. Delaunay-based global optimization in nonconvex domains defined by hidden constraints. 078. Masahiro Kanazaki and Attaphone Ariyarit. Kriging Model Based Multi-Objective/ Multi-fidelity Global Optimization Applied to Aeronautical Design Problems</p>	<p><u>MS session – “Adjoint Methods for Optimisation, Mesh Adaptation and Uncertainty Quantification II/III”</u></p> <p><i>Organized by J. Mueller (Queen Mary University), K. Giannakoglou (NTUA), T. Verstraete (VKI)</i> <i>Room: Sala de conferencias</i></p> <p>033. James Koch, Evangelos Papoutsis-Kiachagias and Kyriakos Giannakoglou. Tandem Adjoint Level Set Topology and Shape Optimization for 2D and 3D Internal Flows 036. Athanasios G. Liatsikouras, Guillaume Pierrot, Gabriel Fougeron and George S. Eleftheriou. Finite Transformation Rigid Motion Mesh Morpher. 039. Seiji Kubo, Atsushi Koguchi, Kentaro Yaji, Takayuki Yamada, Kazuhiro Izui and Shinji Nishiwaki. A level-set based topology optimization method for incompressible flow incorporating with an immersed boundary method. 048. Dheeraj Agarwal, Christos Kapellos, Trevor Robinson and Cecil Armstrong. Using parametric effectiveness for efficient CAD-based automotive design driven by adjoint sensitivity maps. 053. Vasilis Papageorgiou, Konstantinos Samouchos and Kyriakos Giannakoglou. The Unsteady Continuous Adjoint Method Assisted by the Proper Generalized Decomposition Method. 054. Flavio Gagliardi, Konstantinos Tsiakas and Kyriakos Giannakoglou. A Two-Step Mesh Adaptation Tool Based on RBF applied to Turbomachinery Optimization Loops. 057. Mohammad Kouhi, Guillaume Houzeaux and Mariano Vázquez. A Turbulence Adjoint Method for Optimization of High-lift Configurations.</p>	<p><u>MS session – “Optimum design applications in structural and civil engineering”</u></p> <p><i>Organized by D. Greiner (ULPGC), J. Magalhaes-Mendes (Politécnico do Porto) and J. Periaux (CIMNE)</i> <i>Room: Aula 10</i></p> <p>005. Jorge Magalhães-Mendes. Multiobjective Optimization of Road Design Alternatives Using Evolutionary Algorithms 029. Masatoshi Shimoda and Kenichi Ikeya. Free-form Optimization of a Shell Structure with Curvature Constraint. 043. David Greiner, Jacques Periaux, Jose M. Emperador, Blas Galvan and Gabriel Winter. A Study of Nash Genetic Algorithms for the Minimization of Constrained Weight in Frame Structures</p> <p><u>MS session – “Sensitivity and adjoint methods for optimization in flow stability problems” + SSEMID special session (I/III)”</u></p> <p><i>Organized by E. Valero, A. Martinez-Cava and A. Rueda (UPM)</i> <i>Room: Aula 10</i></p> <p>052. Jack Brewster and Matthew Juniper. Shape optimization for linear stability. 063. Denis Busquet, Marquet Olivier, Francois Richez, Matthew Juniper and Denis Sipp Global Stability analysis of turbulent flow around an airfoil near stall 089. Eusebio Valero. Control of 2D wind turbine wake unsteadiness</p>
12:30-13:40	Lunch <i>Room: Aula del Carmen</i>		

13:40-14:30	KN – Prof. Joaquim Martins (Univ. Michigan) <i>“Practical wing design via numerical optimization—Are we there yet?”</i> Sponsored by ESTECO Room: Auditorio		
14:30-14:50	Coffee break Room: Aula del Carmen		
14:50-17:10	<p><u>MS session – “Optimization under uncertainty (I/II)”</u></p> <p><i>Organized by D. Quagliarella (CIRA) and M. Vasile (University of Strathclyde)</i> Room: Auditorio</p> <p>016. Athanasios Poulos, Dirk Wunsch and Charles Hirsch. Multi-Disciplinary Multi-Point Robust Design Optimization of a Turbocharger Impeller</p> <p>037. Athanasios G. Liatsikouras, Varvara G. Asouti, Kyriakos C. Giannakoglou and Guillaume Pierrot. Aerodynamic Shape Optimization by Considering Geometrical Imperfections Using Polynomial Chaos Expansion and Evolutionary Algorithms</p> <p>040. Giulio Cassio, Alberto Clarich and Rosario Russo. Reliability-based Robust Design Optimization Using Polynomial Chaos Expansion for Aeronautics Applications</p> <p>045. Domenico Quagliarella, Emiliano Iuliano, Michele Pisaroni and Fabio Nobile. Exploratory Data Analysis and Statistical Hypothesis Testing in the Context of Robust Design Optimization</p> <p>046. Daniel González-Arribas, Manuel Sanjurjo-Rivo and Manuel Soler. Multiobjective Optimization of Aircraft Trajectories under Wind Uncertainty using GPU Paralellism and Genetic Algorithms</p> <p>047. Massimiliano Vasile, Gianluca Filippi, Carlos Ortega Absil and Annalisa Riccardi. Fast Belief Estimation in Evidence Network Models</p> <p>050. Carlos Ortega Absil, Gianluca Filippi, Annalisa Riccardi and Massimiliano Vasile. A Variance-Based Estimation of the Resilience Indexes in the Preliminary Design Optimisation of Engineering Systems Under Epistemic Uncertainty.</p>	<p><u>MS session – “Applications of optimization in engineering design automation (I/II)”</u></p> <p><i>Organized by D. Ertner and T. Prante (V-Research), M. Affenzeller (University of Applied Science Upper Austria), J. Johansson (Jönköping University) and W. J. C. Verhagen (Delft University of Technology)</i> Room: Sala de conferencias</p> <p>011. Manuel Acosta and Stratis Kanarachos. Optimized Vehicle Dynamics Virtual Sensing using Metaheuristic Optimization and Unscented Kalman Filter.</p> <p>020. Michael Hellwig, Doris Entner, Thorsten Prante, Alexandru-Ciprian Zavoianu, Martin Schwarz and Klara Fink. On the Optimization of Ascent Assembly Design based on a Combinatorial Problem Representation.</p> <p>021. Alexandru-Ciprian Zavoianu, Susanne Saminger-Platz, Doris Entner, Thorsten Prante, Michael Hellwig, Martin Schwarz and Klara Fink. On the Optimization of 2D Path Network Layouts in Engineering Designs via Evolutionary Computation Techniques</p> <p>042. Yuto Yamaki, Yuki Sato, Takayuki Yamada, Kazuhiro Izui, Shinji Nishiwaki, Yoshikazu Hirai and Osamu Tabata. Deformable mirror design based on current value optimization and actuator reduction</p> <p>049. Markus Schatz, Michael Jentsch, Christian Lausch and Werner Konrad. Verification of An Optimal 3D Printed Part Through Tests Including Acoustic Monitoring</p> <p>056. Ruth Fleisch, Doris Entner, Thorsten Prante and Reinhard Pfefferkorn. Interactive Optimization of a Path Planning Algorithm by Virtual Commissioning of the Robot.</p>	<p><u>MS session – “Sensitivity and adjoint methods for optimization in flow stability problems” + ITN SSEMID special session (II/III)”</u></p> <p><i>Organized by E. Valero, A. Martinez-Cava and A. Rueda (UPM)</i> Room: Aula 10</p> <p>070. Yinzhu Wang and Alejandro Martinez-Cava. Eigenmode Optimization Based on Stability Analysis and Sensitivity Analysis.</p> <p>074. Petr V. Kungurtsev and Matthew P. Juniper. Shape optimization for viscous acoustic flows in an inkjet printhead.</p> <p>SSEMID-01: Ivan Padilla. BiGlobal stability analysis of the wake behind an isolated roughness element in hypersonic flow</p> <p>SSEMID-02: Julian Marcon. A variational approach to high-order r-adaptation</p> <p>SSEMID-03: Alejandro Martinez: Bifurcation phenomenon on supersonic blowing trailing edges</p> <p>SSEMID-04: Enrique Raposo: Compressible acoustic receptivity with random distributed roughness</p> <p>SSEMID-05: Fabio Naddei. Development of a p-adaptive discontinuous Galerkin method based on various refinement indicators</p>
20:00-22:00	Gala dinner		



DAY 3 (15th of September)

8:00-9:00	Registration		
9:00-9:50	KN – Prof. Shigeru Obayashi (Tohoku University) <i>“Multi-Objective Design Exploration - Fusion of Optimization and Data Mining”</i> Room: Auditorio		
9:50-10:10	Coffee break Room: Aula del Carmen		
10:10-12:30	<p><u>MS session – “Adjoint Methods for Optimisation, Mesh Adaptation and Uncertainty Quantification III/III”</u></p> <p><i>Organized by J. Mueller (Queen Mary University), K. Giannakoglou (NTUA), T. Verstraete (VKI)</i> Room: Auditorio</p> <p>083. Reza Nouri and Mehrdad Raisee. An Adjoint-based Enhanced Monte-Carlo Method for Uncertainty Quantification of Electroosmotic Flows.</p> <p>088. Morteza Hajati Gashti and Mehrdad Raisee. Efficient multi-fidelity approach for optimization of compact heat exchanger with multi-louvered fins</p> <p>076. Mladen Banovic, Salvatore Auriemma, Orest Mykhaskiv, Andrea Walther and Jens-Dominik Müller. TurboLab Stator Optimisation with Improved Reverse Automatic Differentiation of the Open CASCADE Technology CAD system.</p> <p>081. Salvatore Auriemma and Mladen Banovic. Geometric modeler involvement in design optimisation using a differentiated CAD kernel.</p> <p>082. Pavanakumar Mohanamurthy, Jan Hüchelheim and Jens-D Mueller. STAMPS: an Efficient Hybrid-Parallel Discrete-Adjoint CFD Solver for Aerodynamic Design.</p> <p>084. Xingchen Zhang, Rejish Jesudasan and Jens-Dominik Mueller. Adjoint-based Aerodynamic Optimisation of Wing Shape Using Non-Uniform Rational B-splines.</p> <p>085. Rejish Jesudasan, Orest Mykhaskiv and Jens-Dominik Mueller. Surface mesh adaptation methods for handling wing-fuselage intersections.</p>	<p><u>MS session – “Optimization under uncertainty (II/II)”</u></p> <p><i>Organized by D. Quagliarella (CIRA) and M. Vasile (University of Strathclyde)</i> Room: Sala de conferencias</p> <p>055. Mickaël Rivier and Pietro Marco Congedo. Surrogate-Assisted Bounding-Box Approach for Uncertainty-Based Multi-Objective Optimization Problems.</p> <p>059. Marco Evangelos Biancolini, Ubaldo Cella, Alberto Clarich, Giulio Cassio and Francesco Franchini Multi-objective Optimization of A-Class Catamaran Foils Adopting a Geometric Parameterization Based on RBF Mesh Morphing.</p> <p>080. André Torii, Rafael Lopez and Leandro Miguel. Reliability based design optimization using gradient based algorithm and polynomial chaos.</p> <p>086. Mohamad Sadeq Karimi, Saeed Salehi, Mehrdad Raisee and Seyed Ahmad Nourbakhsh. Conjugate Heat Transfer Simulation of a Cooled Turbine Vane under Uncertain Operational Condition.</p> <p>087. Saeed Salehi and Mehrdad Raisee. Development of An Efficient Non-Intrusive Uncertainty Quantification Method.</p>	<p><u>MS session – “Applications of optimization in engineering design automation (II/II)”</u></p> <p><i>Organized by D. Ertner and T. Prante (V-Research), M. Affenzeller (University of Applied Science Upper Austria), J. Johansson (Jönköping University) and W. J. C. Verhagen (Delft University of Technology)</i> Room: Aula 10</p> <p>060. Philipp Fleck, Doris Entner, Clemens Münzer, Michael Kommenda, Thorsten Prante, Michael Affenzeller, Martin Schwarz and Martin Hächl A Box-Type Boom Optimization Use Case with Surrogate Modeling towards an Experimental Environment for Algorithm Comparison.</p> <p>071. Joel Johansson and Fredrik Elgh. Knowledge Objects Enables Mass-Individualization.</p> <p><u>MS session – “Strategic interaction: theoretical and computational questions of Optimization and Game Theory”</u></p> <p><i>Organized by C. de Nicola and L. Mallozzi (University of Naples Federico II)</i> Room: Aula 10</p> <p>009. Egidio D'Amato, Elia Daniele and Lina Mallozzi. On the computation of Nash equilibria.</p> <p>028. Pierluigi Della Vecchia, Luca Stingo, Fabrizio Nicolosi, Agostino De Marco, Elia Daniele and Egidio D'Amato. Application of game theory and evolutionary algorithm to the regional turboprop aircraft wing optimization</p> <p>035. Martí Coma, Jordi Pons-Prats and Gabriel Bugeđa. Programming strategies for high performance Genetic Algorithms for demanding applications, Nash and Hybrid games revisited</p> <p>090. Onesimo Hernandez Lerma. Recent Advances on Potential Dynamic Games</p>

12:30-13:40	<p>Lunch Room: Aula del Carmen</p>	
13:40-14:30	<p>KN – Prof. Johan Meyers (KU Leuven) “Adjoint-based optimization of wind-farm control in large-eddy simulations” Sponsored by CCS (Center for Computational Simulation) Room: Auditorio</p>	
14:30-14:50	<p>Coffee break Room: Aula del Carmen</p>	
14:50-16:50	<p><u>MS – Miscellaneous of applications of Evolutionary Algorithms in Energy and Fall prediction</u></p> <p>Organized by: A. Brunete, M. Hernando and E. Gambaio (UPM) and Diego Oliva (Tecnológico de Monterrey) Room: Auditorio</p> <p>034. Jordi Pons-Prats, Martí Coma, Jaume Betran, Xavier Roca and Gabriel Bugeda. Industrial Application of Genetic Algorithms to cost reduction of a Wind Turbine equipped with a Tuned Mass Damper 025. Markus Bajones, Michael Zillich and Markus Vincze. Fall Prevention and Detection on a Mobile Robot in Domestic Environments 066. Alberto Brunete, Ernesto Gambaio and Miguel Hernando. Fall prediction environment for elderly people based on gait analysis.</p>	<p><u>MS session – “Sensitivity and adjoint methods for optimization in flow stability problems” + ITN SSeMID special session (III/III)”</u></p> <p>Organized by E. Valero, A. Martinez-Cava and A. Rueda (UPM) Room: Sala de conferencias</p> <p>SSEMID-06: Luigi Criscuolo. Prediction of the onset of aeroacoustic instabilities in Helmholtz resonators using a scatter matrix approach. SSEMID-07: Guilayme Chauvat. Global stability of a jet in a cross-flow: effects of jet inflow SSEMID-08: Francesco Tocci. Status of surface marching 3D PSE code development. SSEMID-09: Thibaut Appel. Global instability of 3D boundary layers with surface features. SSEMID-10: Andres Rueda. Error estimation and mesh adaptation algorithms in p-multigrid Discontinuous Galerkin methods.</p> 
16:50-17:00	<p>Closing Room: Auditorio</p>	