

Final version

Day 1: 9th June		
8.45-9.00 Welcome and orientation		
<p>9.00-9.45: Plenary paper 1</p> <p style="text-align: center;">I. Marusic, J. P. Monty, N. Hutchins and A. J. Smits. Spatial resolution and Reynolds number effects in wall-bounded turbulence</p> <p style="text-align: center;">(Chairman: J-P. Bonnet)</p>		
<p>9.45-10.30 Plenary paper 2</p> <p style="text-align: center;">J. Fröhlich, D. von Terzi, E. Séverac and R. Vaibar Hybrid LES/RANS simulations - state of the art and perspectives</p> <p style="text-align: center;">(Chairman: B.E. Launder)</p>		
10.30 – 10.50 Break		
10.50 - 12.30 Parallel sessions		
S1: LES Applications, 1 (Chairman: U. Piomelli)	S2: RANS Modelling, 1 (Chairman: H. Iacovides)	S3: Experiments, 1 (Chairman S. Obi)
<p>S. Jakirlić, B. Kniesner and G. Kadavelil A method for interface-turbulence forcing in hybrid LES/RANS simulations</p>	<p>F. Billard, D. Laurence and J. Uribe An improved dissipation rate equation for the v2f model to account for turbulent transport mechanism in a boundary layer</p>	<p>A. Sideridis, K. Yakinthos and A. Goulas Turbulence measurements in the wake of a low-pressure turbine blade</p>
<p>B. Roidl, D. König, M. Meinke and W. Schröder, In- and outflow conditions for a zonal RANS/LES method</p>	<p>R. Maduta and S. Jakirlić Scrutinizing scale-supplying equation towards an instability sensitive second moment closure model</p>	<p>M. Gibson, H-S. Kang, C. Meneveau and R. B. Cal Statistical analysis of the kinetic energy vertical entrainment characteristics in a 3 x 3 wind turbine array boundary layer</p>
<p>J.M. Ma, S.-H. Peng, L. Davidson and F. Wang A low-Reynolds-number PANS model for turbulence</p>	<p>A. Llor, N. Lardjane and O. Pujade 2SFK: a two-field RANS model for turbulent flows with high density contrasts; application to Rayleigh–Taylor type instabilities</p>	<p>A. Giannadakis, A. Romeos, K. Perrakis and T. Panidis Mixing characteristics of a coaxial swirling jet: An experimental study</p>
<p>M. Breuer A hybrid LES-URANS approach for non-equilibrium turbulent flows such as 3-D diffuser flows</p>	<p>M. Gampert, P. Schäfer and N. Peters Testing of a new model equation for the mean dissipation via Kolmogorov flows</p>	<p>D. Kurashima, Y. Naka, K. Fukagata and S. Obi Aerodynamics of a hard disk drive: Measurements of flow velocity, pressure fluctuation and disk vibration</p>
<p>R. Manceau, Ch. Friess and T. B. Gatski Of the interpretation of DES as a hybrid RANS/temporal LES method</p>	<p>S. Jakirlić and J. Jovanović On wall boundary conditions in RANS closures: ‘towards low-Reynolds number wall functions’</p>	<p>Y. Borisenkov, M. Kholmyansky, A. Liberzon and A. Tsinober Micro-machined super miniature multi hot-film probe</p>
12.30 - 2.10 Lunch		
2.10 - 3.50 Parallel sessions		
S4: LES Applications, 2 (Chairman: S. Jakirlic)	S5: RANS Modelling, 2 (Chairman: R. Manceau)	S6: Experiments, 2 (Chairman: L. Djenidi)
<p>E. Jeyapaul and P. Durbin Turbulent separation in a three-dimensional diffuser</p>	<p>H. Radhakrishnan, R. Pecnik, G. Iaccarino, and S. Kassinos Computation of turbulent flow for some benchmark cases using the ASBM RANS model</p>	<p>S. Torres-Nieves, J. Lebron, B. Brzek, H.S. Kang, R.B. Cal, C. Meneveau, and L. Castillo Effect of free-stream turbulence and surface roughness on the length scales of a turbulent boundary layer</p>

T. Nishino, S. Hahn and K. Shariff LES of high-Reynolds-number Coanda flow separating from a rounded trailing edge of a circulation control airfoil	T. Craft, H. Iacovides and B. Launder Computational modelling of Flettner-rotor performance with and without Thom fences	Z. Harun , V. Kulandaivelu, B. Nugroho, M. Khashehchi, J.P. Monty, I. Marusic Large scale structures in adverse and favourable pressure gradient turbulent boundary layer
H. Xia and P. G. Tucker Numerical simulation of single-stream jets from serrated nozzles	I. Vallet, S. Joly and M. Mallet RSM-RANS prediction of flow in S-shaped and double-S-shaped ducts	N. Rostamy, D. J. Bergstrom, D. Sumner and J. D. Bugg The turbulence structure of a plane wall jet over a smooth surface
T. T. Tran, R. Perrin, R. Manceau and J. Boree Simulation and analysis of the flow over a thick plate at high Reynolds number	F. Herbst, M. Biester, A. Fiala, K. Engel, and J. Seume Validation of RANS-modelling approaches for active flow control by vortex generating jets in a low pressure turbine cascade	K. Suga, M. Mori and M. Kaneda Vortex structure of turbulence over permeable walls
S. Lardeau and S. Laizet Effects of chevron partition on spatially-evolving mixing layers	S. Kenjeres, B. Ter Kuile and L. Tan Modelling and simulations of flow, turbulence and dispersion in urban areas with inhomogeneous vegetation	H. C. H. Ng, J. P. Monty, N. Hutchins, M. S. Chong and I. Marusic The conditional footprint of large and very-large scale motion in turbulent channel flows.
3.40 – 4.10 Break		
4.10-5.50 Parallel sessions		
S7: LES Applications, 3 (Chairman: P. Comte)	S8: Flow Control, 1 (Chairman: N. Kasagi)	S9: Heat and Mass Transfer, 1 (Chairman: Y. Nagano)
B. Chaouat and R. Schiestel Continuous hybrid non-zonal RANS/LES simulations of flows over periodic hills at different Reynolds numbers using the PITM method	M. A. Leschziner, S. Lardeau and G.M. Fishpool Large eddy simulation of the interaction between round synthetic jets and a separated boundary layer	J. G. Wissink and W. Rodi Heat transfer from the stagnation region of a circular cylinder at $Re = 140\,000$ affected by free-stream turbulence
K. Gavrilov, G. Accary, D. Morvan, D. Lyubimov, S. Méradji and O. Bessonov On large eddy simulation of coherent structures over plant canopy associated with concentration	L. Djenidi and S. F. Tardu Localized turbulence generated by low energy pulsed jets in a laminar flow	L.Venema, D. von Terzi, H.-J. Bauer and W. Rodi DNS of heat transfer increase in a cylinder stagnation region due to wake-induced turbulence
S. Kubacki and E. Dick Hybrid RANS/LES computation of round impinging jets	J.-P. Laval, G. Fournier, C. Braud, M. Stanislas and M. Marquillie Control of a turbulent separated channel flow using pulsed-jets actuators	D. Borello, K. Hanjalic, G. Delibra and F. Rispoli LES study of the effect of inflow conditions on heat transport in flow over a wall-bounded cylinder
U. Piomelli and B. J. Geurts A grid-independent length scale for large-eddy simulations of wall-bounded flows	G. T. K. Woo and A. Glezer Flow controlled stall on a dynamically pitched airfoil	H. Hattori, K. Hayakawa, M. Tagawa and Y. Nagano Turbulent structure and heat transfer in rotating square duct flow
J. Galpin and J. P. Simoneau Large Eddy Simulation of the flow inside a tee junction in order to predict the thermal fluctuations in the frame of the thermal fatigue	J. Huang, Z. Xiao, S. Fu and M. Zang Study of control effects of vortex generators on a supercritical wing	T. Czarnota, M. Kaczorowski and C. Wagner Turbulent convection in a Rayleigh-Bénard cell with solid horizontal plates of finite conductivity

Day 2: 10th June

9.00-9.45 Plenary paper 3

T. Poinso
Using LES to study reacting flows and instabilities
in annular combustion chambers

(Chairman: P. Bontoux)

9.45-10.15 **Poster-presentation session 1 :**

10-15 papers x 2 mins

(Chairman : M. Leschziner)

10.15-10.45 **Break and poster-viewing session**

10.45 – 12.25 **Parallel sessions**

S10 : LES Applications, 4 (Chairman : L. Davidson)	S11 : Flow Control, 2 (Chairman : F. Thiele)	S12 : Combustion, 1 (Chairman : W.P. Jones)
M. Minguéz, C. Brun, R. Pasquetti and E. Serre Experimental and high order LES analysis of the near wall flow over a square cylinder	H. Kawamoto, T. Tsukahara, H. Kawamura and Y. Kawaguchi Proposal of k- ϵ model for viscoelastic fluid flow: toward prediction of drag-reducing turbulence	S. Tanaka, M. Shimura, T. Seo, M. Tanahashi and T. Miyauchi DNS of turbulent swirling premixed flame and heat transfer in micro gas turbine combustor
C. Merlin, G. Lodato, L. Vervisch and P. Domingo Immersed boundaries in Large-Eddy Simulation of fully compressible flows: Cylinder-wake test case and application to transonic cavity flow in perspective of flame stabilization behind obstacles.	A. Yakeno, Y. Hasegawa and N. Kasagi Interpretation of the optimal frequency for skin friction drag reduction with spanwise wall-oscillation control	S. V. Alekseenko, V. M. Dulin, Y. S. Kozorezov and D. M. Markovich Effect of acoustic forcing on premixed propane flames structure
G. Barbut, T. Marcel, M. Braza, E. Longatte, F. Baj, J.P. Magnaud and Y. Hoarau Simulation of fluid-structure interaction in a tube array under cross flow at high Reynolds number	B. Aupoix, G. Pailhas and R. Houdeville Modelling riblet effects	Y. Saiki, Y. Tomida, S. Shiga, Y. Ishino and N. Ohiwa Measurement of a local burning velocity of a turbulent premixed flame by simultaneous 3D-CT Reconstruction with 40-lens camera and stereoscopic PTV
O. Frederich and F. Thiele Flow dynamics caused by a truncated cylinder	S. Grundmann, E.L. Sayles and J. K. Eaton Separation control in an asymmetric 3D diffuser using plasma-actuators	P. Auzillon, N. Darabiha, O. Gicquel, D. Veynante and B. Fiorina A filtered tabulated chemistry model for LES: influence of the mesh conditions
D. B. Spalding PPAs and PPBs, facilitating the comparison of experimental and DNS-, LES-, PANS-, PDF-transport and MFM models of turbulence	S. Ishitsuka, M. Motozawa, K. Iwamoto, H. Ando, T. Senda and Y. Kawaguchi Experimental investigation of the near-wall turbulent structure of drag reducing channel flow with blowing polymer solution from the wall	R. Quist, F. Biagioli, F. Gütthe, S. Bernero and T. Sattelmayer Flame behavior of a gas turbine premix burner with conical swirl generator

12.25 - 2.10 **Lunch**

2.10-2.55 Plenary paper 4

C. Angelberger, O. Colin, O. Laget, L. Martinez, B. Réveillé, G. Staffelbach, K. Truffin and A. Vié
Applying LES to study flow and combustion in IC engines

(Chairman: W. Rodi)

2.55-3.35 Poster-presentation session 2:**10-15 papers x 2 mins**

(Chairman: M. Leschziner)

3.35-4.10 Break and poster-viewing session**4.10-5.50 Parallel sessions**

S13: LES Applications, 5 (Chairman: C-A. Lin)	S14: Transition, 1 (Chairman: P. Durbin)	S15: Combustion, 2 (Chairman: T. Poinso)
L. Cheng, M Dianat, A Spencer and J. J. McGuirk SPIV/PLIF validation of LES predictions of scalar mixing in high-swirl fuel injector flows	L. Wang, S. Fu, A. Carnarius, C. Mockett and F. Thiele A modular RANS approach for modeling turbomachinery flow transition	O. Colin, J-B. Michel and P. Vervisch New tabulated approaches for predicting auto-ignition and pollutant emissions of non-premixed turbulent flames
F. Bottone, A. Kronenburg, A. D. Gosman and A. J. Marquis Towards the Large Eddy Simulation of diesel engine in-cylinder flow	S. Kenjeres, S. ten Cate and C. J. Voeselek Vortical structures behind magnetic obstacles in transitional flow regimes	N. Enjalbert, P. Domingo and L. Vervisch Flow-controlled detailed chemistry tabulation for Large-Eddy Simulation of non-premixed turbulent combustion
N. Sato, M. Kawakami, Y. Kato and M. Inagaki LES analysis of flows around a simplified car model in vertical motions	S. Lardeau and M. A. Leschziner Modelling and simulation of laminar separation, transition and turbulent reattachment	S. Ayache and E. Mastorakos Conditional Moment Closure / Large Eddy Simulation of the Delft-III natural gas non-premixed jet flame
S. Viazzo, A. Randriamampianina, S. Poncet, P. Bontoux and E. Serre High-order LES benchmarking of confined rotor-stator flows	N. J. Vaughan and T. A. Zaki The effect of unsteady streaks on boundary layer stability	L. Kuban, A. Tyliczszak and A. Bogusławski, LES modelling of methane ignition using Eulerian stochastic fields approach
S. Lardeau and T. A. Zaki Large-Eddy Simulation of transitional flow in a compressor cascade	N. Kanaris, X. Albets-Chico and S. Kassinos Transition to turbulence in the wake of a confined circular cylinder	W. P. Jones, C. Lettieri A. J. Marquis and S. Navarro-Martinez Large Eddy Simulation of the two-phase flow in an experimental swirl-stabilized burner

Day 3: 11th June

9.00-9.45 Plenary paper 5

K. Hishida , J. Lelouvetel and Y. Sato
Measurement of turbulence energy transport in upward/downward bubbly flows

(Chairman: C. Tropea)

9.45-10.30 Plenary paper 6

F.K. Chow and B. Zhou
Atmospheric turbulence modeling and implications for wind energy

(Chairman: B.J. Geurts)

10.30-10.50 **Break**

10.50 – 12.30 **Parallel sessions**

S16: DNS/LES Fundamentals (Chairman: K. Suga)	S17: Transition, 2 (Chairman: E. Dick)	S18: Multiphase Flows (Chairman: B.J. Boersma)
J. Cardillo, Y. Chen, G. Araya, K. Jansen and L. Castillo DNS of turbulent boundary layers with surface roughness	L. Djenidi and R. A. Antonia Shear layer instability in a low Reynolds number wake	P. Zeng, B. Binninger, N. Peters and M. Herrmann Numerical investigation of spray primary breakup with phase transition
B. Khanal, K. Knowles and A. J. Saddington Computation of automobile cavity tones using a new block interface treatment	D. Lengani, D. Simoni, M. Ubaldi, P. Zunino and F. Bertini An experimental study of the transition process of laminar separation bubbles on high lift turbine profiles	W-P. Breugem and B. J. Boersma Direct numerical simulation of turbulent flows laden with finite-size particles.
T. Kawase, T. Tsukahara, and Y. Kawaguchi DNS of viscoelastic turbulent channel flow with two-dimensional slits	J. Jovanovic, B. Frohnappfel, H. Lienhart and A. Delgado Experimental investigation of viscous drag reduction by flow control of laminar to turbulent transition using micro-groove surface pattern	M.R.G. Zoby, S. Navarro-Martinez, A. Kronenburg and A. J. Marquis Turbulent mixing in three-dimensional droplet arrays
J. Stiller, K. Koal, H. M. Blackburn, and E. Serre SVV kernels for LES in cylindrical coordinates	O. Poujade and M. Peybernes Growth rate of Rayleigh-Taylor turbulent mixing layers with the foliation approach	K. Matsui, M. Suzuki and M. Yamamoto Influence of particle diameter distribution on sand erosion phenomena in a square-section 90-degree bend
J. Ma and J. J. R. Williams Numerical simulation of turbulent flow over gravel particles	K. Naitoh, A. Noda, S. Kimura, H. Shimiya, and H. Maeguchi Transition to turbulence and laminarization clarified by stochastic determinism	T. Kempe and J. Fröhlich On Euler-Lagrange coupling and collision modelling for spherical particles

12.30-2.10 **Lunch**

2.10-3.50 **Parallel sessions**

S19: Turbulence Fundamentals (Chairman: B. Aupoix)	S20: Compressible Flows / Aerodynamics, 1 (Chairman: T. Gatski)	S21: Heat and Mass Transfer, 2 (Chairman: K. Hanjalic)
J. Araya, R. B. Cal and L. Castillo Energy budget analysis for favorable pressure gradient turbulent boundary layers using direct numerical simulations	A. Bosco, B. Reinartz and R. Boyce Experimental and numerical analysis of a hypersonic compression corner for testing the prediction capability of a Reynolds Stress Model	E. Motheau, T. Lederlin and P. Bruel LES investigation of the flow through an effusion-cooled aeronautical combustor model

H. Abe and R. A. Antonia Normalized mean energy and scalar dissipation rates in a turbulent channel flow	L. Agostini, L. Larchevêque, P. Dupont and J.-P. Dussauge Numerical study of a shock-turbulent boundary layer interaction with incipient separation	E. Tuluszka-Sznitko and W. Majchrowski Turbulent heat and momentum transport in rotating cavity
A. Llor Landau's large scale invariants in free turbulence decay: old ideas revisited, new ideas for □ modelling	G. Lehnasch, M. F. Shahab, P. Comte and T. B. Gatski Assessment of compressible turbulence models for large-eddy simulation of shock wave/boundary layer interaction	A. Rasam, L. Marstorp, G. Brethouwer and A. V. Johansson An explicit algebraic subgrid-scale scalar flux model for Large Eddy Simulation
R. Mathis, N. Hutchins and I. Marusic A model for velocity spectra in the inner layer of turbulent boundary layers	M. F. Shahab, G. Lehnasch, T. B. Gatski and P. Comte Influence of wall cooling on the statistics of a supersonic turbulent boundary layer flow	K. Koal and J. Stiller Analysis of scalar transport in electromagnetic driven flows using a multi-scale mixing measure
C. Chin, N. Hutchins, A. Ooi and I. Marusic Modeling of spatial resolution effects using DNS of turbulent channel flow	H. Zare-Behtash, K. Kontis, and N. Gongora-Orozco Effect of primary jet geometry on ejector performance: A cold-flow investigation	I. B. Palymskiy Numerical simulation of turbulent convection
3.50-4.15 Break		
4.15-5.35 Parallel sessions		
S22: Experiments, 3 (Chairman: I. Marusic)	S23: Compressible Flows / Aerodynamics, 2 (Chairman: R. Friedrich)	S24: Heat and Mass Transfer, 3 (Chairman: J. Fröhlich)
J. Dannemann, M. Klaas, and W. Schröder Comparison of PIV and LDA measurements within the cylinder of a four-valve combustion engine	G.A. Gerolymos and D. Senechal Time-series, statistics and scaling of pressure, temperature and density fluctuations in compressible wall-turbulence	H. Schneider, D. von Terzi and H-J. Bauer Investigating large coherent structures, mixing and heat transfer in trailing-edge cutback film cooling
T.M. Faure, C.L. Douay, S. Mochki, F. Lusseyran and G.M. Quénot Stereoscopic PIV using optical flow: investigation of a recirculating cavity flow	C. Cartes and M. E. Brachet Eulerian-Lagrangian formulation for a viscous compressible fluid	Q-Q. Xun and B-C. Wang Spanwise variation of the drag coefficient and Nusselt number induced by Taylor-Görtler vortices
D.S. Pearson, M.G. Hyde, P.J. Goulart and B. Ganapathisubramani Characterisation of a boundary layer flow past a forward-facing step	S. Ghosh, and R. Friedrich Effects of deceleration and mean dilatation on turbulence production and redistribution in an axisymmetric supersonic diffuser.	F. Dehoux, S. Benhamadouche, and R. Manceau Modelling of the turbulent heat fluxes using elliptic blending
K. Shirai, M. Neumann, S. Heitkam, L. Büttner and J. Czarske Measurements of two-point velocity correlations in turbulent jet using extended laser doppler velocity profile sensor		M. Popovac Conjugate heat transfer simulations using zero wall boundary condition eddy viscosity turbulence model with elliptic relaxation
5.35 – 5.50 Closing session		