



*Eighth International Symposium
on Turbulence and Shear Flow Phenomena*

TSFP-8

27-30 AUGUST 2013

Poitiers-Futuroscope France

PROGRAM

TUESDAY AUGUST 27

17:00 - 20:00	Registration
18:00 - 20:00	Welcome Reception

WEDNESDAY AUGUST 28

08:00	Registration starts
08:50 - 9:20	Opening Session <i>Arne Johansson</i> <i>Jean Paul Bonnet</i> Official
09:20 - 10:00	Chair <i>Arne Johansson</i> Invited Lecture #1: <i>Sebastien Candel</i> Modeling combustion chemistry in large eddy simulation of turbulent flames
10:00 - 10:40	Chair: <i>Hyung Jin Sung</i> Invited Lecture #2: <i>Yukio Kaneda</i> Small scale universality and special characteristics in turbulent flows
10:40-11h00	Refreshment Break

WEDNESDAY AUGUST 28

Session 1A:

Session 1B:

Session 1C:

Session 1D:

Coherent Structures I

Jacques Borée room A11

Compressible Flows I

Abdellah Hadjadj room A12

Combustion I

Michel Champion room A14/A15

Environmental Flows I

Sutanu Sarkar room B11

11:00-11:20

Direct numerical simulation of turbulent pipe at high Reynolds numbers, velocity statistics and large scale motions

B. Boersma

Numerical investigation of the influence of upstream conditions on properties of shock noise in shock/mixing layer interaction

G. Daviller, G. Lehnasch, P. Jordan

Multi-scale high intensity turbulence generator applied to a high pressure turbulent burner

R. Fagner, N. Mazellier, F. Halter, C Chauveau, I. Gökalp

Direct numerical simulation of dilute suspension particle-laden gravity currents

L.F.R. Espath, L.C. Pinto, S. Laizet, J.H. Silvestrini

11:20-11:40

Very-large-scale motions in a turbulent channel flow

J. Lee, J.H. Lee, J. Choi, H.J. Sung

Investigation of a transonic axisymmetric backward-facing step flow by means of high resolution PIV

S. Scharnowski, C.J. Kähler

Analyzing self-ignition in rapidly compressed turbulence

G. Lodier, P. Domingo, L. Vervisch

Parameterisation of the eddy-eddy and eddy-meanfield interactions in the large eddy simulation of oceanic circulations

V. Kitsios, J.S. Frederiksen, M.J. Zidikheri

11:40-12:00

Time-resolved reconstruction of super-streaks in high Reynolds number turbulent boundary layer over a flat plate

S. Roux, F. Kerhervé, J.M. Foucault, M. Stanislas, J. Delville

Three-dimensional spectral analysis of an axisymmetric separating/reattaching flow

R. Pain, P.E. Weiss, S. Deck

Flame Holding Dynamics During Combustion Instability in a Shear-Coaxial Injector Combustor

N. Guezennec, T. Dawson, P. Sierra, S. Menon

Role of shear instabilities in the upper Equatorial Undercurrent

H.T. Pham, S. Sarkar, K.B. Winters

12:00-12:20

Merging and auto-generation of vortices in wall bounded flows

M.V. Goudar, W.P. Breugem, G.E. Elsinga

Large eddy simulation of the transition process from regular to irregular shock-wave/boundary-layer interaction

J. Matheis, B. Budich, S. Hickel

Modeling flame stabilization by heat losses using Filtered Tabulated Chemistry for LES

R. Mercier, P. Auzillon, N. Darabiha, O. Gicquel, D. Veynante, B. Fiorina, V. Moureau

Coupling a boundary layer wall shear-stress model with field experiments in a shallow tidal river

R. Mathis, I. Marusic

12:20-12:40

Wall pressure fluctuations induced by coherent structures in turbulent pipe flow

M. Luhar, A.S. Sharma, B.J. McKeon

A linear-nonlinear separation method for direct numerical simulation of shock-turbulence interaction

X.Y. Hu, N.A. Adams, B. Wang

Turbulent transports modeling in a hydrogen-air diffusion flame

S. Serra, V. Robin, A. Mura, M. Champion

Experimental investigation of inclined negatively buoyant jet

S. Ferrari, M. G. Badas, L. A. Bedalduch, G. Querzoli

12:40 - 14:00

Lunch Break

WEDNESDAY AUGUST 28

Session 2A:

Session 2B:

Session 2C:

Session 2D:

Coherent Structures II

Stavros Kassinos room A11

Compressible Flows II

Godfrey Mungal room A12

Combustion II

Luc Vervisch room A14/A15

Environmental Flows II

Ivan Marusic room B11

14:00-14:20

Physical Simulation Experiments of Momentum Transport Associated with the Evolution of Advecting Vortical Motions

J.R. Elsnab, J.C. Klewicki

Investigation of the mixing layer in a slightly underexpanded supersonic jet by particle image velocimetry

B. André, T. Castelain, C. Bailly

Numerical and modeling strategies for the simulation of the Cambridge Stratified Flame Series

R. Mercier, B. Florina, F. Proch, A.M. Kempf

Measurements of Turbulent Diffusion from a Point Source in Uniformly Sheared Flow

C. Vanderwel, S. Tavoularis

14:20-14:40

Experimental Study of Reproducibility of Instantaneous Structure of the Deterministic Wall Turbulence

V.I. Borodulin, Y.S. Kachanov

Density ratio and velocity ratio effects on the structure of transverse jets in supersonic crossflow

M. Gamba, V.A. Miller, M.G. Mungal

Flame wrinkling factor dynamic modeling for large eddy simulations of turbulent premixed combustion

T. Schmitt, M. Boileau, D. Veynante, V. Moureau

Characteristics and Structures of Turbulent Boundary Layer with Counter Diffusion Gradient Phenomenon

H. Hattori, K.Hotta, T. Houra, M. Tagawa

14:40-15:00

Direct numerical simulations of variable aspect-ratio turbulent duct flows at low to moderate Reynolds numbers

R. Vinuesa, A. Noorani, A. Lozano-Duran, G. El Khoury, P. Schlatter, P.F. Fischer, H.M. Nagib

Flapping motion of a supersonic rectangular jet, a reduced order model study

V. Jaunet, E. Collin, J. Delville

Reynolds number effects on statistics and structure of a reacting turbulent wall-jet

Z. Pouransari, A. Johansson

Numerical Study of Turbulent Submerged Bifurcated Jets Impinging and Interactions with a Free Surface

B.W. Righolt, S. Kenjeres, R. Kalter, M.J. Tummers, C.R. Kleijn

15:00-15:20

Turbulence and scalar transport in heated boundary layers with viscosity stratification

J. Lee, S.Y. Jung, H.J. Sung, T.A. Zaki

Large-eddy simulation of a pseudo-shock system in a Laval nozzle

J.F. Quatz, M. Gigjaier, S. Hickel, N.A. Adams

LES Investigation of the Hysteresis Regime in the Cold Model of a Swirl Burner

M. Hadziabdic, R. Mullyadzhinov, K. Hanjalic

Effects of a forest clearing: an experimental and numerical assessment

T. Nakamura, K. Fukagata, A. Segalini, P.H. Alfredson

15:20-15:40

Generalized phase averaging of experimental surface-mounted body wake measurements: 3D coherent structures & dynamical models

J.A. Bourgeois, B.R. Noack, R.J. Martinuzzi

A symmetry-preserving discretization and regularization model for compressible flow

W. Rozema, J.C. Kok, R.W.C.P. Vestappen, A.E.P. Veldman

Validation of a Fractal Dynamic SGS Combustion Model by DNS of Turbulent Premixed Flame in Strong Shear Flow

K. Hiraoka, I. Yoshikawa, N. Fukushima, M. Shimura, M. Tanahashi, T. Miyauchi

LES of Langmuir turbulence in stably stratified flow.

G. Martinat, A.E. Tejada-Martinez, C.E. Grosch

15:40 - 16:00

Refreshment Break

WEDNESDAY AUGUST 28

Session 3A:

Session 3B:

Session 3C:

Session 3D:

Turbulent Boundary Layers

John K Eaton room A11

Mixing Layers

Michael Srelets room A12

Shockwave Boundary

Neil D Sandham room A14/A15

Flow Separation

Andrew Pollard room B11

16:00-16:20

Mean flow measurements in very high Reynolds number turbulent boundary layer

M. Vallikivi, M. Hultmark, A.J. Smits

Statistics of the turbulent/non-turbulent interface in a spatially evolving mixing layer

A. Attili, J.C. Cristancho, F. Bisetti

Features of shock wave unsteadiness in shock wave boundary layer interaction

L. Agostini, L. Larchêveque, P. Dupont

Effects of roughness elements on the separation of laminar boundary layer

A. Vizard, K. Squires, E. Balaras

16:20-16:40

High Resolution Velocity Profile Measurements in turbulent boundary layers

C.J. Kähler, S. Scharnowski, C. Cierpka

Scale interactions in the far-field of a turbulent mixing layer

O.R.H. Buxton, B. Ganapathisubramani

PIV Investigation of Spanwise Variation in Incident Shock Boundary Layer Interactions

L.M. Campo, D.B. Helmer, J.K. Eaton

Characterization of the flow over periodic hills with advanced measurement and evaluation techniques

C. Cierpka, S. Scharnowski, C. Kähler, M. Manhart

16:40-17:00

High-resolution large field-of-view experimental investigation of turbulent convection velocities in a turbulent boundary layer

C. Atkinson, N.A. Buchmann, O. Amili, J. Soria

New results on the structure of turbulence in a mixing layer with and without swirl

S. Davoust, L. Jacquin, B. Leclaire

Eduction scheme for convective structures in turbulent compressible separated flow

T. Jiang, L. Larcheveque, P. Dupont

Direct numerical simulation and modeling of a turbulent boundary layer with separation and reattachment

H. Abe, Y. Mizobuchi, Y. Matsuo, P.R. Spalart

17:00-17:20

Characterizing Vortical Structures in the Lower Log Region of the Atmospheric Boundary Layer using Large-Scale Particle Tracking Velocimetry

G. Rosi, M. Sherry, M. Kinzel, D.E. Rival

Study of buoyancy effects on a thermal mixing layer using an X-wire probe operated sequentially at different overheats

K. Sodjavi, Y. Carlier

Large-eddy simulation of passive shock-wave/boundary-layer interaction control

V. Pasquariello, J. Matheis, M. Grilli, S. Hickel

Sensitivity of an asymmetric, three-dimensional diffuser to inlet condition perturbations

E.L. Sayles, C.J. Elkins, J.K. Eaton

17:20-17:40

Spatio-temporal 3D correlations of fluctuating pressure and velocity in a high Reynolds number turbulent boundary layer

Y. Naka, S. Coudert, J.M. Foucault, M. Stanislas

Scalar Mixing at the Turbulent/Non-Turbulent Interface of a Turbulent Plane Jet

R.R. Taveira, C.B. da Silva

Wall-Modeled Large-Eddy Simulations of Shock/Turbulent Boundary Layer Interactions in a low Aspect-Ratio duct

I. Bermejo-Moreno, L. Campo, J. Larsson, J. Bodart, D. Helmer, J.K. Eaton

Alternative strategies for modelling flow over in-line tube banks

H. Iacovides, B.E. Launder, D. Laurence, A. West

19:00-20:00

City hall reception

THURSDAY AUGUST 29

08:00 Registration starts

08:30 - 9:10 Chair: *Stavros Tavoularis*
Invited Lecture #3: *Ugo Piomelli*
Large-eddy and direct simulations of sink flows over rough walls

Session 4A:

Session 4B:

Session 4C:

Session 4D:

Turbulent Boundary Layers II

Ellen Longmire room A11

Aerodynamic Flows and Acoustics I

Wolfgang Schroeder room A12

Heat Transfer

Yasutaka Nagano room A14/A15

Rotating Flows

Martin Oberlack room B11

09:15-9:35

Scaling and Correlation of Fluctuating Vorticity in Turbulent Wall Layers

R. L. Panton

Towards Realistic Simulation of Wake Vortex Evolution During Landing with Flat and Complex Terrain

A. Stephan, F. Holzäpfel, T. Misaka

Effects of radiative heat transfer on the turbulence structure in reacting and inert mixing layers

S. Ghosh, R. Friedrich, C. Stemmer, B. Cuenot, M. El Hafı

Turbulent mixing in a precessing sphere

S. Goto, M. Shimizu, G. Kawahara

9:35-9:55

Characteristics of Reynolds stresses in a turbulent boundary layer

R. de Kat, B. Ganapathisubramani

Experimental investigation of steady circulation control blowing over a rounded wingtip

A. M. Edstrand, L. N. Cattafesta III

Turbulent Rayleigh-Bénard convection under time-modulated rotation conditions

B. J. Geurts, R. Kunen

Effects of spanwise rotation on the structure of turbulent stripe in plane Poiseuille flow

T. Ishida, T. Tsukahara, Y. Kawaguchi

9:55-10:15

Reynolds-number Scaling of Turbulent Channel Flow

M. P. Schultz, K. A. Flack

Upstream turbulence effects in the spatio-temporal characteristics of a model A-pillar vortex

F. Affejee, C. Sicot, R. Perrin, J. Borée

ODTLES simulations of turbulent flows through heated channels and ducts

C. Glawe, F. T. Schulz, E. D. Gonzalez-Juez, H. Schmidt, A. R. Kerstein

Analysis of the effects of rotation on an axisymmetric wall jet

R. Manceau, R. Perrin, M. Hadžiabdić, S. Benhamadouche

10:15-10:35

Inner-scaled turbulent statistics of turbulent pipe flows

J. Ahn, J. H. Lee, H. J. Sung

Local forcing of laminar separation bubbles

E. Kaiser, A. Spohn, L. Cordier, B. R. Noack

Direct numerical simulation of a turbulent flow with a supercritical fluid in a heated pipe

H. Nematı, A. Patel, B. J. Boersma, R. Pecnik

On Multiscale Acceleration Statistics in Rotating and Sheared Homogeneous Turbulence

F. G. Jacobitz, K. Schneider, W. J. T. Bos, M. Farge

10:35-10:55

Scaling of small-scale motions in wall-bounded turbulent flows

L. Wei, G. E. Elsinga, G. Brethouwer, P. Schlatter, A. V. Johansson

Jet noise control by fluidic injection from a rotating plug: linear and non-linear sound source mechanisms

M. Koenig, A.V.G. Cavaliere, P. Jordan, Y. Gervais

Analysis of the turbulent forcing in particle-laden flow induced by radiation

R. Zamansky, F. Coletti, M. Massot, A. Mani

Effects of wall curvature on turbulent heat transfer in curved pipe flow

C. Kang, K.-S. Yang

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10:55 - 12:45

Poster Session Refreshment Break

<p>P01 Comparative Analysis of Relationship between Instantaneous and Statistical Properties of the Deterministic Turbulence</p> <p><i>V. I. Borodulin, Y. S. Kachanov, D. A. Mischenko</i></p>	<p>P02 Experimental study on rod-like particles suspensions in a backward-facing step channel flow</p> <p><i>A. Capone, G. P. Romano</i></p>	<p>P03 Application of Kalman Filtering and partial least square regression to low order modeling of unsteady flows</p> <p><i>R. Leroux, L. Chatellier, L. David</i></p>	<p>P04 4D-Variational Data assimilation for POD Reduced-Order Models</p> <p><i>G. Tissot, L. Cordier, N. Benard, B. R. Noack</i></p>
<p>P05 Evolution of turbulent flow structures generated by fractal grids.</p> <p><i>R. Gomes Fernandes, B. Ganapathisubramani, J. C. Vassilicos</i></p>	<p>P06 Modification of Drag-reduced Flow by dosing water from the wall -Investigation of Turbulent Structure by PIV-</p> <p><i>Y. Iwaki, M. Motozawa, T. Tsukahara, Y. Kawaguchi</i></p>	<p>P07 Navier-Stokes simulation with fluid particles location uncertainty</p> <p><i>S. Kadri Harouna, E. Mémin</i></p>	<p>P08 Numerical modeling of fouling processes on structured surfaces</p> <p><i>J. Klunker, J. Turnow, N. Kornev</i></p>
<p>P09 Large-eddy simulation of scalar mixing in the turbulent wake of a square cylinder</p> <p><i>G. Lodato, R. Rossi</i></p>	<p>P10 Vortex structures in circular plate heat exchangers</p> <p><i>T. Norden, J. Turnow, N. Kornev</i></p>	<p>P11 Flukeprints of cetaceans and the corresponding shear flow phenomenon.</p> <p><i>G. Rousseaux, D. Uminsky, R. Levy</i></p>	<p>P12 DNS of swirling flow in a rotating pipe</p> <p><i>B. Sahoo, F. Nygård, H. I. Andersson</i></p>
<p>P13 Vortex Shedding in a Varicose Mode Behind a Rising Bubble</p> <p><i>M.-R. Pivello, M. M. Villar Valle, A. M. Roma, A. da Silveira-Neto</i></p>	<p>P14 Multiscale k-e modelling of turbulence for porous medium flows</p> <p><i>Y. Kuwata1, K. Suga</i></p>		<p>P16 Effect of turbulent to laminar flow transition on surface reaction and particle deposition in a square duct</p> <p><i>K. Tanno, H. Makino, R. Kurose, S. Komori, T. Michioka</i></p>
<p>P17 A Novel Dynamic Forcing Scheme Incorporating Backscatter for Hybrid RANS/LES</p> <p><i>Q.-Q. Xun, B.-C. Wang</i></p>	<p>P18 Characterization of structures associated with low- and high-shear regions in experimental and numerical turbulent channel flows</p> <p><i>O. Amili, Y. Mizuno, N. Buchmann, C. Atkinson, J. Soria</i></p>	<p>P19 Estimating the friction velocity in a turbulent plane wall jet over a transitionally rough surface</p> <p><i>N. Rostamy, D. J. Bergstrom, D. Sumner, J. D. Bugg</i></p>	<p>P20 PIV characterisation of a flow separation induced by a 22° flap</p> <p><i>C. Cuvier, J.M. Foucaut, C. Braud, M. Stanislas</i></p>
<p>P21 Flow physics of active control with counter-rotating continuous jets on a ramp</p> <p><i>C. Cuvier, J.M. Foucaut, C. Braud, M. Stanislas</i></p>	<p>P22 On the ergodicity of grid turbulence</p> <p><i>L. Djenidi, S. Tardu, R. A. Antonia</i></p>	<p>P23 One-equation subgrid scale model for large eddy simulation of weakly compressible flow</p> <p><i>C. Han, T. Kajishima</i></p>	<p>P24 A parametrized non-equilibrium wall-model for large-eddy simulation</p> <p><i>S. Hickel, E. Touber, J. Bodart, J. Larsson</i></p>
<p>P25 Simultaneous measurement of fluctuating velocity and pressure using time-resolved PIV and miniature static-pressure probes</p> <p><i>T. Kawata, S. Obi</i></p>	<p>P26 Characteristics of turbulent flow in a T-junction</p> <p><i>J. Kim, J.-S. Kim, J.-H. Lee</i></p>	<p>P27 Effects of a turbulent wall jet over a non-confined backward-facing step</p> <p><i>N. Lancial, F. Beaubert, S. Harmand, T. D. Nguyen, G. Rolland</i></p>	<p>P28 Particle-turbulence interaction in near-wall turbulence</p> <p><i>J. Lee, C. Lee</i></p>

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<p>P29 Modeling of turbulence effect on radar reflectivity factor in clouds</p> <p><i>K. Matsuda, R. Onishi, M. Hirahara, K. Takahashi, R. Kurose, S. Komori</i></p>	<p>P30 Investigation of the turbulent near-wake square cylinder by means of the Empirical Mode Decomposition.</p> <p><i>N. Mazellier, S. Loyer, A. Kourta</i></p>	<p>P31 Decay of multiple scale turbulence</p> <p><i>P. D'Addio, P. Orlandi</i></p>	<p>P32 Active flow control for drag reduction of vehicles using large eddy simulation, experimental investigations and reduced-order modeling</p> <p><i>J. Östh, S. Krajnović, D. Barros, L. Cordier, B. R. Noack, J. Borée, T. Ruiz</i></p>
<p>P33 Control of three-dimensional flow over a turret with a flat aperture</p> <p><i>M. R. Palaviccini, L. N. Cattafesta III</i></p>	<p>P34 Flow sources of wall pressure fluctuations resolved by DDES in a reattaching flow region</p> <p><i>T. Tran T, R. Perrin, R. Manceau, J. Borée, P. Jordan</i></p>	<p>P35 Spectral Eddy Viscosity of Stratified Turbulence</p> <p><i>P. D'Addio, P. Orlandi</i></p>	<p>P36 Scaling Exponents of Velocity Spectra and Structure Functions in the Moderate Range of Taylor Reynolds Numbers in a Turbulent Jet</p> <p><i>H. Sadeghi, P. Lavoie, A. Pollard</i></p>
<p>P37 On the role of inflow turbulence for mixing in a T-junction</p> <p><i>E. Séverac, R. Schadwill, J. Fröhlich</i></p>	<p>P38 Influence of Angle of Attack on Synthetic Jet Effectiveness as found with Coefficient of Momentum</p> <p><i>M. A. Feero, S. D. Goodfellow, P. Lavoie, P. E. Sullivan</i></p>	<p>P39 Flow structures and heat transfer enhancement on asymmetric dimples</p> <p><i>J. Turnow, N. Kornev, E. Hassel</i></p>	<p>P40 Numerical simulations of turbulent reactive flows using a hybrid LES / PDF methodology</p> <p><i>J. M. Vedovoto, A. da Silveira Neto, L. F. Figueira da Silva, A. Mura</i></p>
<p>P41 Application of URANS turbulence closure models to complex flows subjected to electromagnetic and other body forces</p> <p><i>D. R. Wilson, T. J. Craft, H. Iacovides</i></p>	<p>P42 One mechanism of hairpin vortex generation based on streak sinuous instability</p> <p><i>Y. S. Wang, C. X. Xu, W. X. Huang, G. X. Cui</i></p>	<p>P43 Slip velocity of rigid fibers in a turbulent channel flow</p> <p><i>L. Zhao, C. Marchioli, H. I. Andersson</i></p>	

12:45 –14:00

Lunch Break

THURSDAY AUGUST 29

Session 5A:

Session 5B:

Session 5C:

Session 5D:

Turbulent Boundary Layers III
Kazuhiko Suga room A11

Flow Control I
Haechon Choi room A12

Passive Scalar Transport
Bendik J Boersma room A14/A15

Aerodynamic Flows and Acoustics II
Julian Andrzej Domaradzki room B11

14:00-14:20

On the fundamental fluctuating wall shear-stress

O. Cabrit, R. Mathis, I. Marusic

Spanwise oscillatory wall motion in channel flow: drag-reduction mechanisms inferred from DNS-predicted phase-wise property variations at $Re\tau = 1000$

L. Agostini, E. Toubert, M. A. Leschziner

Scalar-field Probability Density Functions and conditional expectations in uniformly sheared turbulence

A. Behnamian, S. Tavoularis

Comparison of near field events and their far-field acoustic signatures in experimental and numerical high speed jets

P. Kan, J. Lewalle, G. Daviller

14:20-14:40

Large eddy simulations of turbulent Couette-Poiseuille and Couette flows inside a square duct

H.-W. Hsu, J.-B. Hsu, W. Lo, C.-A. Lin

Turbulence control by induced spanwise reflection symmetry breaking

G. Khujadze, G. Chagelishvili, M. Oberlack

Characteristics extraction of a turbulent diffusion state for quick trace-back estimation of the diffusion source

Kana Oyagi, T. Tsukahara, Y. Kawaguchi

Flow and sound fields of heated subsonic turbulent jets

C. Bogey, O. Marsden

14:40-15:00

On geometrically self-similar modes in wall-bounded turbulent flows

R. Moarref, A. S. Sharma, J. A. Tropp, B. J. McKeon

DNS of turbulent drag reduction by spanwise wall forcing: The Reynolds number effect

Y. M. Chung, E. Hurst, Q. O. Yang

Implementing Schmidt number dependence in a stochastic Lagrangian model for the scalar gradient

M. Gonzalez

True sources of linear sound in plane Couette flow

J.-N. Hau, M. Oberlack, G. Chagelishvili, G. Khujadze, A. Tevzadze

15:00-15:20

Extension of Lysak approach to evaluate the wall pressure spectrum for boundary layer flows

B. Aupoix

Perturbing Spanwise Modes in Turbulent Boundary Layers

S. Zheng, E. K. Longmire

Numerical investigation of turbulent flow and scalar transport in an inclined jet in crossflow

J. Bodart, F. Coletti, I. Bermejo Moreno, J. K. Eaton

Inverse Magnus effect on a rotating sphere

J. Kim, H. Park, H. Choi, J. Y. Yoo

15:20-15:40

Investigation of the law-of-the-wall for a turbulent boundary layer flow at adverse pressure gradient at $Re\text{-}\theta$ up to 10000 using large-scale PIV

T. Knopp, D. Schanz, A. Schröder, R. Hain, C. J. Kühler

Spectral Properties of the Turbulent Flow of a Viscoelastic Fluid for Reduced Drag

L. Thais, T. B. Gatski, G. Mompean

Transport mechanisms in porous fins

F. Coletti, K. Muramatsu, D. Schiavazzi, C. J. Elkins, J. K. Eaton

LES of separated flows at moderate Reynolds numbers appropriate for turbine blades and unmanned aero vehicles

F. Cadiuex, G. Castiglioni, J. A. Domaradzki, T. Sayadi, S. Bose, M. Grilli, S. Hickel

15:40 - 16:00

Refreshment Break

THURSDAY AUGUST 29

	Session 6A:	Session 6B:	Session 6C:	Session 6D:
	Turbulent Boundary Layers IV <i>Suad Jakirlic</i> room A11	Flow Control II <i>Yoshimichi Hagiwara</i> room A12	Multiphase Flows <i>Suresh Menon</i> room A14/A15	Biofluidynamics <i>Michael W Plesniak</i> room B11
16:00-16:20	DNS of turbulent channel flow over engineering rough surfaces Dr Angela Busse <i>A. Busse, C. J. Tyson, N. D. Sandham, M. Lützner</i>	Modification of global properties of a mixing layer by open/closed loop actuation <i>V. Parezanović, J.-C. Larentie, C. Fourment, L. Cordier, B. R. Noack</i>	Hybrid RANS/LES simulations of cavitating flow in Venturi <i>J. Decaix, E. Goncalves</i>	Three-dimensional Lagrangian Coherent Structures in the left ventricle model <i>M. Grazia Badas, S. Espa, S. Fortini, G. Querzoli</i>
16:20-16:40	Modal analysis of roughness induced crossflow vortices in a Falkner-Skan-Cooke boundary layer <i>M. Brynjell-Rahkola, P. Schlatter, A. Hanifi, D. S. Henningson</i>	Relaminarization Mechanism in Turbulent Channel Flow by Streamwise Traveling Wave Like Blowing and Suction <i>H. Mamori, K. Iwamoto, A. Murata</i>	High-speed imaging and PIV measurements in turbulent cavitating flows around 2D hydrofoils <i>A. Yu. Kravtsova, D. M. Markovich, K. S. Pervunin, M. V. Timoshevskiy</i>	Multi-cycle large eddy simulations in a realistic human left heart <i>C. Chnafa, S. Mendez, F. Nicoud</i>
16:40-17:00	Off-wall boundary conditions for turbulent simulations from minimal flow units in transitional boundary layers <i>R. García-Mayoral, B. Pierce, J. M. Wallace</i>	Output feedback control of flow past a flat plate with a leading edge using plasma actuators <i>R. Dadfar, A. Hanifi, D. S. Henningson</i>	Particle dispersion in flows over rough surfaces <i>D. Sassun, P. Orlandi, M. Bernardini, S. Pirozzoli</i>	Effects of perturbations induced by fractured stent on secondary flow structures in a curved artery model <i>K. V. Bulusu, C. Popma, M. W. Plesniak</i>
17:00-17:20	A DNS study of effects of Reynolds number on unsteady channel flow <i>S. He, M. Seddighi</i>	Aerodynamic control of a pitching airfoil using distributed active bleed <i>J. M. Kearney, A. Glezer</i>	Turbulence modification by particles in a horizontal channel flow <i>G. F. K. Tay, D. C. S. Kuhn, M. F. Tachie</i>	Large Eddy Simulations and Particle Image Velocimetry Experiments within a BiMHV Flow Near Peak Systole <i>A. Blackmore, P. Sullivan</i>
17:20-17:40	New scaling laws for turbulent Poiseuille flow with wall transpiration <i>V.S. Avsarkisov, M. Oberlack, S. Hoyas</i>	Unsteady separation control using spatially-compact pulsed actuation <i>G. T. K. Woo, A. Glezer</i>	DNS of aerosol evolution in a turbulent mixing layer <i>K. Zhou, A. Attili, A. Alshaarawi, F. Bisetti</i>	Multiphase blood flow modelling in intracranial aneurysms considering possible transition to turbulence <i>P. Berg, A. Abdelsamie, G. Janiga, D. Thévenin</i>
20:00-23:00	Banquet			

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08:30	Registration starts			
9:00 - 9:40	Chair: <i>Alexander Smits</i> Invited Lecture #4: <i>Eberhard Bodenschatz</i> The Lagrangian properties of turbulence			
09:40 - 10:20	Chair: <i>Rainer Friedrich</i> Invited Lecture #5: <i>Giancarlo Iaccorino</i> Quantifying uncertainties in turbulent flow simulations			
10:20 - 10:40	Refreshment Break			
	Session 7A:	Session 7B:	Session 7C:	Session 7D:
	Hybrid Methods and LES <i>Rémi Manceau</i> room A11	Flow Control III <i>Maurizio Quadrio</i> room A12	Wakes I <i>Robert J Martinuzzi</i> room A14/A15	Rough Walls <i>Lyazid Djenidi</i> room B11
10:40-11:00	Large-eddy simulation using the explicit algebraic subgrid model in complex geometries <i>A. Rasam, S. Wallin, G. Brethouwer, A. V. Johansson</i>	Plasma-based manipulation of secondary flow towards pressure recovery enhancement in a 3D diffuser <i>I. Maden, R. Maduta, S. Jakirlić, S. Grundmann, C. Tropea, J.K. Eaton</i>	Characteristics of flow over a circular cylinder at $Re=140,000$ <i>H. Kim, J. Lee, J. Kim, H. Choi</i>	Investigation of wall-bounded turbulence over regularly distributed roughness <i>M. Placidi, B. Ganapathisubramani</i>
11:00-11:20	A-priori validation of eddy viscosity subgrid-scale models for wall bounded turbulence with pressure gradient <i>C. Li, J.P. Laval, M. Stanislas</i>	Streamwise Variation of Turbulent Dynamics in Boundary Layer Flow with Drag-Reducing Surfactant Injection <i>S. Tamano, T. Kitao, Y. Morinishi</i>	Large eddy simulation of the near wake of a heated sphere at $Re=10000$ <i>M. B. de Stadler, S. Sarkar</i>	Roughness Effects on Turbulent Shear Flow Downstream of a Backward Facing Step <i>E. E. Essel, G. F. K. Tay, M. F. Tachie</i>
11:20-11:40	Swirling flow in a tube with variably-shaped outlet orifices : an LES and VLES study <i>C.Y. Chang, K. Dietrich, S. Jakirlić, F. Wassermann, S. Grundmann, C. Tropea, B. Basara</i>	Active flow control for high speed jets using advanced modeling coupled with PIV <i>Z. P. Berger, M. G. Berry, P. R. Shea, M. N. Glauser, B. R. Noack, S. Gogineni</i>	Coherence and Reynolds stresses in the turbulent wake behind a curved circular cylinder <i>J. P. Gallardo, B. Pettersen, H. I. Andersson</i>	DNS of a transitionally rough channel flow with a 3-D roughness <i>M. Seddighi, S. He, A. E. Vardy, T. O'Donoghue, D. Pokrajac</i>
11:40-12:00	Taylor-Couette-Poiseuille flows : from RANS to LES <i>C. Friess, S. Poncet, S. Viazzo</i>	Suboptimal control of wall turbulence with moving dimples <i>W. X. Huang, W. Y. Zhang, M. W. Ge, G. Yang, C. X. Xu</i>	Turbulent vortex shedding from a dual step cylinder: influence of diameter ratio and aspect ratio <i>C. Morton, S. Yarusevych</i>	Dynamics of a turbulent boundary layer over cubical roughness elements: insight from PIV measurements and POD analysis <i>L. Perret, C. Rivet</i>
12:00-12:20	Backscatter from a scale-similarity model: embedded LES of channel flow, developing boundary layer flow and backstep flow <i>L. Davidson</i>	Stabilization of subcritical bypass transition in the leading-edge boundary layer by suction <i>M. O. John, D. Obrist, L. Kleiser</i>	The turbulent wake of a submarine model in pitch and yaw <i>A. Ashok, A.J. Smits</i>	Direct numerical simulation of turbulent boundary layer over sparsely spaced rod roughened wall <i>M. Nadeem, J. H. Lee, H. J. Sung</i>
12:20 - 13:40	Lunch Break			

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	Session 8A:	Session 8B:	Session 8C:	Session 8D:
	Homogeneous Turbulence I <i>Per Åge Krogstad</i> room A11	Flow Control IV <i>Holger Foysi</i> room A12	Wakes II <i>J. Christos Vassilicos</i> room A14/A15	Turbulent Shear Flow Phenomena <i>Philippe R Spalart</i> room B11
13:40-14:00	A comparative, Structure Function-based analysis of velocity field forcing techniques <i>P. L. Carroll, G. Blanquart</i>	Turbulent skin-friction drag reduction by spanwise wall oscillation with generic temporal waveform <i>A. Cimarelli, B. Frohnapfel, Y. Hasegawa, E. De Angelis, M. Quadrio</i>	LES-VMS simulations of thermally stratified turbulent wakes behind towed and auto-propelled axisymmetrical body <i>B. Sainte-Rose, X. Lenhardt, O. Allain, M. Berton, A. Dervieux</i>	Uncertainty quantification for RANS simulation of dispersion over a wavy wall <i>C. Górlé, G. Iaccarino</i>
14:00-14:20	Is it possible to determine self similarity in isotropic turbulence by the observation of the decay regime characteristics? <i>M. Meldi, P. Sagaut</i>	Modifications of the shear layer downstream a backward-facing-step by dielectric barrier discharge plasma actuator <i>P. Sujar-Garrido, N. Benard, E. Moreau, J.P. Bonnet</i>	A note on local isotopy criteria in shear flows with coherent motion <i>F. Thiesset, L. Danaila, R. Antonia</i>	Particle-turbulence interactions in the presence of a rough wall <i>G. F. K. Tay, D. C. S. Kuhn, M. F. Tachie</i>
14:20-14:40	Finite Reynolds number effects on the pressure spectrum in isotropic turbulence free decay <i>M. Meldi, P. Sagaut</i>	Passive flow control of shock-wave/turbulent-boundary-layer-interactions by micro vortex generators <i>B. Budich, V. Pasquariello, M. Grilli, S. Hickel</i>	Dynamical modeling of large scale coherent structures in the wake of a wall mounted finite cylinder <i>Z. Hosseini, Z. Chen, R. J. Martinuzzi</i>	Experimental investigation of blowing effects on turbulent flow over a rough surface <i>M. A. Miller, A. Martin, S. C. C. Bailey</i>
14:40-15:00	Long-time evolution of the incompressible three-dimensional Taylor-Green vortex at very high Reynolds numbers <i>F. S. Schrammer, X. Hu, N. A. Adams</i>	Secondary motion in turbulent flows over superhydrophobic surfaces <i>Y. Hasegawa, S. Tuerk, A. Stroh, G. Daschiel, B. Frohnapfel</i>	Decay of the turbulent wake from the supersonic micro ramp <i>Z. Sun, F. F. J. Schrijer, B. W. van Oudheusden, F. Scarano</i>	The role of the hairpin vortex solution on laminar-turbulent transition of plane Couette flow at moderate Reynolds number <i>T. Itano, S. C. Generalis, T. Ninomiya, T. Akinaga, M. Sugihara-Seki</i>
15:00-15:20	DNS on multiscale-generated grid turbulence using a classical grid <i>H. Suzuki, K. Nagata, Y. Sakai, T. Hayase, Y. Hasegawa, T. Ushijima</i>	Investigation of wing stall delay effect due to an undulating leading edge: An LES study. <i>A. Skillen, A. Revell, J. Favier, A. Pinelli, U. Piomelli</i>	Dynamic Mode Decomposition of PIV measurements for cylinder wake flow in turbulent regime <i>G. Tissot, L. Cordier, N. Benard, B. R. Noack</i>	RANS solutions in Couette flow with streamwise vortices <i>P. R. Spalart, A. Garbaruk, M. Strelets</i>
15:20 – 15.40	Refreshment Break			

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Session 9A:

Session 9B:

Session 9C:

Session 9D:

	Homogeneous Turbulence II <i>Carlos B. Da Silva</i> room A11	Flow Control V <i>Pierre E. Sullivan</i> room A12	Jets <i>Don Bergstrom</i> room A14/A15	Laminar Turbulent Transition <i>Chunxiao Xu</i> room B11
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15:40-16:00	Development of turbulence statistics in the near field behind multi-scale grids <i>P. A. Krogstad</i>	Investigation of the continuous and discrete adjoint in the control of plane jets <i>D. Marinc, H. Foysi</i>	Characteristics of the turbulent/non-turbulent interface and viscous superlayer in turbulent planar jets <i>C. B. da Silva, R. R. Taveira</i>	Osborne Reynolds pipe flow: direct computation from laminar to fully-developed turbulence <i>X. Wu, P. Moin, R. J. Adrian, J. B. Baltzer, J. P. Hickey</i>
16:00-16:20	Coexistence of regions of equilibrium and non equilibrium two-point turbulence dynamics in grid-generated turbulence, both with $-5/3$ spectra but different underlying physics <i>J. C. Vassilicos, S. Laizet</i>	Reductions of pressure-drag-increase and friction-drag due to turbulent water flow over a slightly slippery wavy surface <i>R. Yamasaki, K. Maeda, A. Kitagawa, Y. Hagiwara</i>	Gradient trajectory analysis of the scalar superlayer in a jet flow <i>M. Gampert, P. Schaefer, J. Boschung, N. Peters</i>	Transition experiments with streamwise vortices in subcritical boundary layers <i>K. V. Manu, J. Dey, J. Mathew</i>
16:20-16:40	Stirring and mixing by grid-generated turbulence in the presence of a mean scalar gradient <i>S. Laizet, J. C. Vassilicos</i>	Direct numerical simulation of turbulent mixing layers with periodic forcing induced inflow <i>Y. Kametani, M. Kawagoe, K. Fukagata</i>	Amplitude and frequency modulation of the small scales in a turbulent jet. <i>D. Fiscaletti, G. E. Elsinga, B. Ganapathisubramani, J. Westerweel</i>	A new intermittency transport equation for bypass transition <i>E. Juntasaro, K. Ngiamsoongnirn, V. Juntasaro</i>
16:40-17:00	Square fractal element grid generated turbulence <i>R. J. Hearst, P. Lavoie</i>	Dynamics of elasto-inertial turbulence in flows with polymer additives <i>V. E. Terrapon, Y. Dubief, J. Soria</i>	DNS and LES of excited rectangular jets <i>A. Tyliczszak, B. J. Geurts</i>	Numerical investigation of the laminar-turbulent transition in a $M=4.6$ flat-plate boundary layer forced by wall injection <i>E. Orlik, I. Fedioun, N. Lardjane</i>
17:00-17:20	Volumetric measurements by tomographic PIV of grid generated turbulence in an open channel flow <i>T. A. Earl, L. Thomas, S. Cochard, R. Ben Salah, B. Tremblais, L. David</i>	Effect of active control on optimal structures in wall turbulence <i>B.Q. Deng, C.X. Xu, W.X. Huang, G.X. Cui</i>	A dedicated LES experimental database for the assessment of LES SGS models: the pulsative jet impingement in turbulent cross flow <i>H. Baya Toda, O. Cabrit, K. Truffin, G. Bruneaux, F. Nicoud</i>	Turbulence transition in the asymptotic suction boundary layer, <i>T. Kreilos, T. Khapko, T. M. Schneider, G. Veble, Y. Duguet, P. Schlatter, D. S. Henningson, B. Eckhardt</i>

17:20 – 17:40 Closing Session

17:40 - 19:00 Closing Reception