

iTi CONFERENCE ON TURBULENCE VIII

September 5- 7, 2018 | Bertinoro, Italy

time	Tuesday (4 th of September)
19:00	Welcome buffet - Registration

time	Wednesday (5 th of September)
08.30	Registration and Introductory remarks
	Session 1 – Numerical Simulations and Modeling – Chair: M. Oberlack
9:00	Invited talk: Wall-attached structures of velocity fluctuations in wall-bounded turbulent flows. H. J. Sung <i>page 25</i>
9:30	Under-resolved simulation of the turbulent flow around a NACA0018 airfoil using a p-adaptive matrix-free DG method. G. Noventa , A. Colombo, G. Manzini, A. Ghidoni, M. Franciolini, A. Crivellini, F. Bassi <i>page 26</i>
9:50	Turbulence modeling close to criticality involving Kolmogorov's dissipation microscales. F.K.Ch. Samba, P.W. Egolf , K. Hutter <i>page 27</i>
10:10	Reduced description and modelling of small-scale turbulence by means of a tensorial turbulent viscosity. A. Cimarelli , A. Crivellini, A. Abbà, M. Germano <i>page 28</i>
10:30	Modeling the energy flux enhanced in rotating inhomogeneous turbulence. K. Inagaki , F. Hamba <i>page 29</i>
	Coffee break (10:50-11:20)

time	Wednesday (5 th of September)
	Session 2 – Numerical simulations – Chair: H.J. Sung
11:20	Anisotropy in Direct Numerical Simulations of Homogeneous Stratified Flows. J. Melvin , S. Haering, T. Oliver, R. D. Moser <i>page 31</i>
11:40	On the condensational growth of droplets in isotropic turbulence. M. Iovieno , M. Carbone <i>page 33</i>
12:00	An assessment of a mass flux closure for the ocean surface boundary layer using Large Eddy Simulation results. R. Robey , L. Van Roekel <i>page 35</i>
12:20	Buffer layer dynamics in a wall bounded flow. S. Tardu , F. Bauer, O. Doche <i>page 36</i>
12.40	The link between the Reynolds shear stress and the large structures of turbulent Couette-Poiseuille flow. S. Gandía-Barberá, S. Hoyas, M. Oberlack , S. Kraheberger <i>page 38</i>
	Lunch (13:00 – 14:00)
	Session 3 – Complex flows 1 – Chair: M. Wilczek
14:00	Invited talk: Shear/buoyancy interaction in wall bounded turbulent flows. R. Verzicco <i>page 39</i>
14:30	Rare back-flow events under the influence of secondary flows in toroidal pipes. R. Örlü , C. Chin, R. Vinuesa, P. Schlatter, M. Chong <i>page 41</i>
14:50	Velocity deficit recovery in the wake of a porous body. C. Nicolai , B. Ganapathisubramani <i>page 43</i>
15:10	Multiple-scale analysis of the strong compressibility effects on transport in magnetohydrodynamic turbulence. N. Yokoi <i>page 45</i>
15.30	Enstrophy dynamics near a turbulent/non-turbulent interface for a viscoelastic fluid. H. Abreu , F. T. Pinho, C. B. da Silva <i>page 47</i>
15:50 – 16:30	Poster short presentation 1 - Chair: R. Örlü

time	Wednesday (5 th of September)
	Coffee break (16:30-17:00)
	Session 4 – Roughness – Chair: R. Verzicco
17:00	Convection velocities in turbulent boundary layers over rough surfaces. K. Jurčáková , R. Kellnerová <i>page 49</i>
17:20	Effects of roughness size and virtual origin on the flow over rough-to-smooth and smooth-to-rough step changes using direct numerical simulation. A. Rouhi , D. Chung and N. Hutchins <i>page 51</i>
17:40	Flow dynamics in the roughness sublayer of atmospheric boundary layers. L. Perret , R. Mathis, J. Basley <i>page 54</i>
18:00	Prediction model for aerodynamic flow over roughness by means of stochastic techniques. F. Bernardoni , U. Ciri, B. Rocchio, M. V. Salvetti, S. Leonardi <i>Page 56</i>
18:20	Conditional structure of the boundary-layer over large cube roughness. M. A. Ferreira , B. Ganapathisubramani <i>page 58</i>
18:45	Possible Visit to CICLoPE

time	Thursday (6 th of September)
	Session 5 – Theory – Chair: P. Luchini
8:30	Invited talk: Turbulence-flow interaction in two and three dimensions. G. Falkovich <i>page 60</i>
9:00	Computational studies of heat transfer in turbulent wavy-channel flows. A. Dzubur, H. M. Nagib , A. Vidal <i>page 61</i>
9:20	Non-linear energy transfers in the urban boundary layer. K. Blackman , L. Perret, I. Calmet <i>page 63</i>
9:40	Complex network analysis of wind tunnel experiments on the passive scalar dispersion in a turbulent boundary layer. G. Iacobello , L. Ridolfi, M. Marro, P. Salizzoni, S. Scarsoglio <i>page 65</i>
10:00	High-Atwood number effects on variable-density turbulence. D. Aslangil , D. Livescu, A. Banerjee <i>page 67</i>
	Coffee break (10:20-10:50)
	Session 6 – Coherent structures – Chair: G. Falkovich
10:50	Wall signature of large-scale motions in turbulent channel. A. G. Jiménez , A. V. Garía, O. F. Arias, S. Discetti, A. Ianiro <i>page 69</i>
11:10	Vortex merging in the wake of a surface-mounted low aspect ratio cone. R. J. Martinuzzi , Z. Chen <i>page 71</i>
11:30	Production, transport and dissipation of turbulent stresses across scales and space in channels. D. Gatti , A. Chiarini, A. Cimarelli, B. Frohnäpfel, M. Quadrio <i>page 73</i>
11:50	Large-scale flow states in generalized turbulent Kolmogorov flow. C. C. Lalescu, M. Wilczek <i>page 75</i>
12:10	Inter-scale energy transfer in a multi-scale flow. O. R. H. Buxton , P. Baj <i>page 76</i>
	Lunch (12:30-13:30)

time	Thursday (6 th of September)
	Session 7 – Experimental methods – Chair: J. Fransson
13:30	Invited talk: Ultra high-resolution anemometer for turbulence: the Hanging Micro-hot-Films (HMOF). P. Roche <i>page 78</i>
14:00	Scaling laws and intermittency in cryogenic turbulence using SHREK experiment. S. Kharche , M. Bon-Mardion, J.P. Moro, J. Peinke, B. Rousset, A. Girard <i>page 80</i>
14:20	Pressure and velocity measurements of a compressible jet interacting with a flat plate. E. de Paola, A. Di Marco, S. Meloni , R. Camussi <i>page 81</i>
14:40	Separation control by plasma actuation – Comparison between steady and pulsed momentum injection, J. A. Vernet, R. Örlü, P. H. Alfredsson <i>page 83</i>
15:00	Turbulence generation by active grids. L. Kröger , L. Neuhaus, J. Peinke, G. Gülker, M. Hölling <i>page 85</i>
15:20 – 16:00	Poster short presentation 2 - Chair: A. Talamelli
	Coffee break (16:00 – 16:30)
	Session 8 – Transition – Chair: H. Alfredsson
16:30	Free-stream turbulence boundary-layer transition. J. H. M. Fransson <i>page 87</i>
16:50	Uncovering Aerodynamics by means of Percolation: Transition and Flow Separation on Airfoils. D. Traphan , B. Espenhahn, T. T. B. Wester, P. G. Lind, J. Peinke, G. Gülker <i>page 88</i>
17:10	Role of inlet perturbations in the wall heat transfer in a turbulent channel. V. Pulletikurthi , S. Dharmarathne, F. Hussain, L. Castillo <i>page 90</i>
17:30	Investigating the transition from axisymmetric to 3D turbulence. Z. Qin , A. Naso, W. J.T. Bos <i>page 92</i>
17:50	Three-dimensional global stability on Stuart vortex of free shear layer. A. Yakeno , M. Hirota <i>page 94</i>
18:30	Conference dinner

time	Friday (7 th of September)
Session 9 – Pipe flows – Chair: H. Nagib	
8:30	Invited talk: Tailoring turbulence in experimental facilities. J. Hearst <i>page 96</i>
9:00	Analysis of the Energy Budget of the Largest Scales in Turbulent Pipe Flow. C. Bauer , C. Wagner <i>page 98</i>
9:20	One-Dimensional Flow Spectra and Cumulative Energy from Two Pipe Facilities. E.-S. Zanoun , E. Öngüner, C. Egbers, G. Bellani, A. Talamelli <i>page 100</i>
9:40	Dynamic estimation of Very Large Scale Motions in pipe flows. S. Discetti, C. Sanmiguel Vila, M. Raiola , J. Serpieri, R. Örlü, X. Zheng, L. Mascotelli, G. Bellani, A. Talamelli, A. Ianiro <i>page 101</i>
10:00	Two-point correlations from simultaneous hot-wire measurements in pipe flow at high-Reynolds number. X. Zheng, G. Bellani , C. Sanmiguel Vila, M. Raiola, S. Discetti, A. Ianiro, J. Serpieri, R. Örlü, L. Mascotelli, A. Talamelli <i>page 103</i>
10:20	Uncertainty analysis of the Von Kármán constant for the mean centerline velocity in CICLoPE. H. M. Nagib, P. A. Monkewitz, L. Mascotelli , G. Bellani, A. Talamelli <i>page 105</i>
Coffee break (10:40-11:10)	
Session 10 – Wall bounded flows – Chair: J. Hearst	
11:10	Law of the wall and law of the wake in turbulent parallel flow. P. Luchini <i>page 107</i>
11:30	Large-scale energy in turbulent boundary layers: Reynolds-number and pressure-gradient effects. C. Sanmiguel Vila , R. Örlü, R. Vinuesa, S. Discetti, A. Ianiro, P. Schlatter <i>page 108</i>
11:50	Turbulence production in the low polymer drag reduction regime. J. R. Elsnaab , C. M. White, J. C. Klewicki <i>page 110</i>
12.10	Shark-inspired coating for flow separation control. L. Castillo , H. B. Evans, B. Aksak, L. P. Chamorro <i>page 112</i>
Lunch (12:30-13:30)	

time	Friday (7 th of September)
	Session 11 – Theory – Chair: J. Klewicki
13:30	Inter-component energy transfer by rapid- and slow-pressure strain mechanisms. M. Lee , R. D. Moser <i>page 114</i>
13:50	Symmetry-Based Turbulence Modeling. D. Klingenberg , M. Oberlack, D. Pluemacher <i>page 116</i>
14:10	Turbulence in a localized puff in a pipe. A. Yakhot , Y. Feldman, D. Moxey, S. Sherwin, G. E. Karniadakis <i>page 118</i>
14:30	Multiscale correlations in highly resolved Large Eddy Simulations. M. Linkmann , M. Buzzicotti, L. Biferale <i>page 119</i>
14:50	Closing remarks

Poster short presentation 1

1. Further Details of an Alternative Perspective on the Reynolds Stress - **T.-W. Lee**
page 123
2. Influence of surface geometry on secondary flows in turbulent boundary layers -
T. Medjnoun, C. Vanderwel, B. Ganapathisubramani
page 125
3. Anomalous transport at the transition to dynamical chaos in a quasi-two-
dimensional horizontal shear flow - **G. Rybushkina**, V. Reutovd
page 127
4. Heterogeneous turbulent jet of immiscible liquids - **I.V. Kazachkov**
page 129
5. Large-eddy simulation of helium and argon supersonic jets in supersonic air
co-flow - **A. Troshin**, A. Shiryayeva, V. Vlasenko, V. Sabelnikov
page 131
6. Estimating turbulent kinetic energy dissipation rate in atmospheric flows: a priori
study - **E. O. Akinlabi**, M. Waclawczyk, J. P. Mellado, S. P. Malinowski
page 132
7. Measuring 1D Turbulent Particle Clustering - **D.O. Mora**, M. Obligado, A. Aliseda, A.
Cartellier
page 133
8. Dynamic unified RANS-LES turbulence model for the simulation of Atmospheric
Boundary Layers - **G. Ahmadi**, H. Wurps, H. Kassem, B. Stoevesandt, J. Peinke, S.
Heinz
page 135
9. A multi-scale model of turbulent interface between the two immiscible fluids –
T. Waclawczyk
page 136
10. The influence of a non-linear equation of state on the non-local vertical turbulent
flux of heat - **L. Van Roekel**, R. Robey
page 137
11. Non-Gaussian passive scalar statistics using a novel reaction analogy based forc-
ing - **D. Daniel**, D. Livescu
page 138

12. Assessment and control of wall vibrations – the case for CICLoPE - **B. E. G. Fallenius**, L. Mascotelli, R. Örlü, G. Bellani, J. H. M. Fransson, A. Talamelli, P. H. Alfredsson
page 140
13. On the fine structure of turbulence determined by the rigorous integral fluctuation theorem - A. Fuchs, N. Reinke, D. Nickelsen, S. Kharche, A. Girard, M. Waechter, **J. Peinke**, P. Diribarne, J. Moropage
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Poster short presentation 2

1. Tests and development of improved $k - \epsilon$ models by comparison with recent channel flow DNS - **E. Plaut**, M. Gisselbrecht, A. Machrafi, O. Botella, S. Heinz
page 144
2. Modification of fluid temperature fluctuations by inertial particles in turbulence – **M. Carbone**, A. D. Bragg, M. Iovieno
page 146
3. Gas ejector flow as an oscillator. The simulation problem using turbulence empirical models - **A. Tsipenko**, E. Larina
page 148
4. Density measurements of a compressible jet flow interacting with a tangential flat plate using Background-Oriented Schlieren – **E. de Paola**, A. Di Marco, E. de Paola, R. Camussi
page 150
5. Non-modal analysis of buoyancy-driven instabilities in porous media for a two-layer miscible solution in the presence of differential diffusion - **S. Bourcy**, A. De Wit, B. Knaepen
page 152
6. Mixing efficiency of a stratified forced plume using simultaneous velocity-density measurements - **H. N. Mirajkar**, G. Varun, S. Balasubramanian
page 154
7. Jet and Homogeneous Shear Flows Simulations using a Three- parameter Turbulence Model - **E.V. Larina**, I.A. Kryukov, I.E. Ivanov
page 155
8. Development and Validation of a High-order Fully-implicit LES Algorithm for Transitional and Turbulent Buoyant Flows with Heat Transfer - **I. Yilmaz**
page 157
9. Particle-phase topology of a gas-particle flow inside a bubbling fluidized bed – **M. R. Haghgoo**, D. J. Bergstrom, R. J. Spiteri
page 159
10. Conservation laws, DNS and statistical invariants of helically invariant turbulence - **D. Dierkes**, M. Oberlack
page 161
11. Development of a linear mode in a turbulent boundary layer - **K. Hirose**, J. Takahashi, M. Matsubara
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12. Gravitational settling of inertial particles through a density turbulent/not-turbulent interface - **L. Verso**, M. van Reeuwijk, A. Liberzon
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