

# Monday

9:00–9:15 Conference opening (Auditorium)

9:15–10:00 Invited lecture by S. Elghobashi 'On turbulence modulation by dispersed inertial particles' (Auditorium), Chair: D. Lohse

**Mo1A**, room A, Chair: W. van de Water  
THE AXISYMMETRIC JET IN A ROTATING REFERENCE FRAME by Lawrie, A., Duran-Matute, M., Scott, J., Godeferd, F.S., Flor, J.-B., Cambon, C. and Danaïla, L.

EXPERIMENTAL INVESTIGATIONS ON SECONDARY STRUCTURES FEATURES IN A FULLY DEVELOPED TURBULENT JET by Capone, A. and Romano, G.

EXPERIMENTAL INVESTIGATION OF SMALL SCALE GEOMETRIES IN A TURBULENT ROUND JET by Gampert, M., Schaefer, P. and Peters, N.

GENERATION OF SELF-SUSTAINED COHERENT VORTICES IN ISOTHERMAL ROUND FREE JET by Bogustawski, A., Tyliczszak, A., Drobnik, S. and Asendrych, D.

INTERACTION OF A CONFINED JET WITH AN OBSTACLE CREATING VORTEX SEPARATION by Nowakowski, A. and Nicolleau, F.

**Mo1B**, room B, Chair: A. Pumir  
10:00 MAKING DROPLETS GLOW IN TURBULENCE: A NEW DIAGNOSTIC FOR PREFERENTIAL CONCENTRATION by Bocanegra Evans, H., Lamberts, T., Dam, N. and van de Water, W.

10:15 INERTIAL PARTICLES IN HOMOGENEOUS SHEAR TURBULENCE by Nicolai, C., Jacob, B., Gualtieri, P. and Piva, R.

10:30 DISPERSION OF BUBBLES IN FULLY DEVELOPED CHANNEL FLOW by Harleman, M., Delfos, R., van Terwisga, T.J.C. and Westerweel, J.

10:45 THE DYNAMICS OF FINITE SIZE NEUTRALLY-BUOYANT PARTICLES IN ISOTROPIC TURBULENCE by Elhimer, M., Praud, O., Bazile, R., Marshal, M. and Couteau, G.

11:00 POD-BASED STUDY OF PARTICLE DEPOSITION FROM TURBULENT CHANNEL FLOW by Pozorski, J., Béghein, C. and Allery, C.

**Mo1C**, room C, Chair: R. Kunnen  
SUBGRID-SCALE MODELING OF VELOCITY AND PASSIVE SCALAR FOR LARGE-EDDY SIMULATION OF NON-HOMOGENEOUS TURBULENT FLOWS by Favre, Y., Touil, H., Balarac, G. and Lévêque, E.

10:15 FLOW COHERENT STRUCTURES AND FREQUENTIAL SIGNATURE: APPLICATION OF THE DYNAMIC MODES DECOMPOSITION TO OPEN CAVITY FLOW by Lusseyran, F., Guéniat, F., Basley, J., Douay, C., Pastur, L., Faure, T. and Schmid, P.

10:30 SIMILARITY REDUCTION OF A THREE-DIMENSIONAL MODEL OF THE FAR TURBULENT WAKE BEHIND A TOWED BODY by Schmidt, A.

10:45 INVESTIGATION OF WALL-BOUNDED TURBULENT FLOW USING DYNAMIC MODE DECOMPOSITION by Mizuno, Y., Duke, D., Atkinson, C. and Soria, J.

11:00 UNDER-RESOLVED SIMULATIONS OF RAYLEIGH-BENARD CONVECTION: EFFECTS OF ANISOTROPIC VISCOSITY AND PRANDTL NUMBER by Piotrowski, Z. and Smolarkiewicz, P.

**Mo1D**, room D, Chair: F. Nicolleau  
10:00 ANALYSIS OF DISSIPATION-SCALE FLUCTUATIONS IN HIGHLY RESOLVED DNS OF TURBULENT CHANNEL FLOWS by Hamlington, P., Krasnov, D., Boeck, T. and Schumacher, J.

10:15 PAIR REVERSAL IN HOMOGENEOUS ISOTROPIC TURBULENCE by Devenish, B. and Thomson, D.

10:30 MULTIDIMENSIONAL TURBULENCE SPECTRA by Ghasempour, F., Andersson, R., Kevlahan, N. and Andersson, B.

10:45 A METHOD TO CORRECT STATISTICAL MOMENTS IN TURBULENT FLOWS by Talamelli, A., Segalini, A., Örlü, R., Schlatter, P. and Alfredsson, H.

11:00 APPLICATIONS OF THE NEW SYMMETRIES OF THE MULTI-POINT CORRELATION EQUATIONS by Avsarkisov, V., Oberlack, M. and Rosteck, A.

11:15–11:40 Coffee & MT Poster Session

**Mo2A**, room A, Chair: P. Schlatter  
EFFECT OF A K-TYPE ROUGHNESS ON THE BEHAVIOR OF TURBULENCE IN AN UNSTEADY CHANNEL FLOW by Seddiqhi, M., He, S., Vardy, A. and Orlandi, P.

ASPECTS OF A TURBULENT-NONTURBULENT INTERFACE by Narasimhamurthy, V.D., Andersson, H.I. and Pettersen, B.

ASSESSMENT OF THE TURBULENT ENERGY PATHS FROM THE ORIGIN TO DISSIPATION IN WALL-TURBULENCE by Cimarelli, A., De Angelis, E. and Casciola, C.M.

STRUCTURES AND TURBULENT STATISTICS IN ROTATING PLANE COUETTE FLOW by Tsukahara, T.

HIGH-SCHMIDT NUMBER MASS TRANSFER IN TURBULENT BOUNDARY LAYERS by Håkansson, L. and Andersson, B.

A NEW FORMULATION FOR THE STREAMWISE TURBULENCE INTENSITY DISTRIBUTION by Alfredsson, H., Örlü, R. and Segalini, A.

**Mo2B**, room B, Chair: W. Elsner  
11:40 TURBULENCE INDUCED LIFT EXPERIENCED BY LARGE PARTICLES IN A TURBULENT FLOW by Zimmermann, R., Gasteuil, Y., Volk, R., Bourgoïn, M., Pumir, A. and Pinton, J.-F.

11:55 TRANSPORT OF INERTIAL PARTICLES IN TURBULENT BOUNDARY LAYERS by Sardina, G., Brandt, L., Schlatter, P., Casciola, C.M. and Henningsson, D.S.

12:10 INERTIAL-PARTICLE DISPERSION AND DIFFUSION by Afonso, M.M., Mazzino, A. and Muratore-Ginanneschi, P.

12:25 STATISTICAL PROPERTIES OF PARTICLE SEGREGATION IN HOMOGENEOUS ISOTROPIC TURBULENCE by Meneguz, E. and Reeks, M.

12:40 PREFERENTIAL CONCENTRATION AND CLUSTERING OF HEAVY PARTICLES IN TURBULENT FLOWS by Obligado, M., Missaoui, M., Monchaux, R., Cartellier, A. and Bourgoïn, M.

12:55

**Mo2C**, room C, Chair: P. Frick  
FORCED MAGNETOHYDRODYNAMIC TURBULENCE IN LARGE EDDY SIMULATION OF COMPRESSIBLE FLUID by Chernyshov, A., Karelsky, K. and Petrosyan, A.

11:55 QUASI-STATIC MAGNETOHYDRODYNAMIC TURBULENCE AT HIGH REYNOLDS NUMBER by Delache, A., Favier, B., Godeferd, F.S., Cambon, C. and Bos, W.

12:10 ON THE DECAY OF SAFFMAN TURBULENCE SUBJECT TO ROTATION, STRATIFICATION OR A MAGNETIC FIELD. by Davidson, P.A.

12:25 TURBULENCE ANISOTROPY AND COHERENT STRUCTURES IN ELECTROMAGNETICALLY GENERATED VORTEX PATTERNS by Kenjereš, S.

12:40 A TURBULENT RING AND DYNAMO IN A PRECESSING SPHERE by Kida, S. and Shimizu, M.

12:55 LOCAL STRUCTURES OF HOMOGENEOUS HALL MHD TURBULENCE by Miura, H. and Araki, K.

**Mo2D**, room D, Chair: G. Khujadze  
11:40 EXTENSION OF SCALING RANGES IN BURGERS EQUATION by Chakraborty, S., Frisch, U. and Ray, S.S.

11:55 ANISOTROPIC ENERGY TRANSFERS IN ROTATING TURBULENCE by Lamriben, C., Cortet, P.-P. and Moisy, F.

12:10 SMALL-SCALE TURBULENT FLUCTUATIONS BEYOND TAYLOR'S FROZEN-FLOW HYPOTHESIS by He, X., He, G. and Tong, P.

12:25 APPLICATION OF ARBITRARY-ORDER HILBERT SPECTRAL ANALYSIS TO PASSIVE SCALAR TURBULENCE by Huang, Y.X., Schmitt, F.G., Gagne, Y., Lu, Z. and Liu, Y.L.

12:40 TOWARDS A STOCHASTIC MULTI-POINT DESCRIPTION OF TURBULENCE by Stresing, R., Waechter, M. and Peinke, J.

12:55 RANDOM VECTORIAL FIELDS REPRESENTING THE LOCAL STRUCTURE OF TURBULENCE by Chevillard, L., Robert, R. and Vargas, V.

13:10–14:40 Lunch & MT Poster Session

14:40–15:25 Invited lecture by R. Shaw 'Turbulence in atmospheric clouds' (Auditorium), Chair: E. Bodenschatz

<p><b>Mo3A</b>, room A, Chair: S. Elghobashi INVESTIGATION OF TURBULENT SEPARATION IN A FORWARD-FACING STEP FLOW by <u>Pearson, D., Goulart, P. and Ganapathisubramani, B.</u> FORMATION OF LOW-SPEED RIBBONS IN TURBULENT CHANNEL FLOW by <u>Huang, L.-P., Choi, K.-S. and Fan, B.-C.</u></p>	15:25	<p><b>Mo3B</b>, room B, Chair: Y. Kaneda BUBBLE-TURBULENCE INTERACTION IN BINARY FLUIDS by <u>Battista, F., Froio, M., Picano, F., Gualtieri, P. and Casciola, C.M.</u> 15:40 TWO-DIMENSIONAL HOMOGENEOUS, ISOTROPIC FLUID TURBULENCE WITH POLYMER ADDITIVES by <u>Gupta, A., Perlekar, P. and Pandit, R.</u></p>	<p><b>Mo3C</b>, room C, Chair: G. Bewley THE ROLE OF JETS AS TRANSPORT BARRIERS IN THE EARTH'S STRATOSPHERE by <u>Beron-Vera, F.J.</u> 15:40 MODELING OF SUBGRID-SCALE CLOUD-CLEAR AIR TURBULENT MIXING IN LARGE EDDY SIMULATION OF CLOUD FIELDS by <u>Jarecka, D., Grabowski, W.W., Pawlowska, H. and Wyszogrodzki, A.A.</u> 15:55 TURBULENCE AND WIND TURBINES by <u>Brand, A., Peinke, J. and Mann, J.</u></p>	<p><b>Mo3D</b>, room D, Chair: N. Peters 15:25 ANALYSIS AND MODELLING OF THE EFFECTIVE REACTION RATE IN A DEVELOPING MIXING LAYER by <u>Wędotowski, K., Kwiatkowski, K. and Bajer, K.</u> 15:40 PULSATILE TURBULENT FLOW THROUGH PIPE BENDS AT HIGH DEAN AND WOMERSLEY NUMBERS by <u>Kalpaklı, A., Örlü, R., Tillmark, N. and Alfredsson, H.</u> 15:55 REACTIVE RAYLEIGH-TAYLOR SYSTEMS: FLAME PROPAGATION AND NON-STATIONARITY by <u>Scagliarini, A., Biferale, L., Mantovani, F., Pivanti, M., Pozzati, F., Sbragaglia, M., Schifano, S.F., Toschi, F. and Tripiccone, R.</u> 16:10 LIFE AT HIGH REYNOLDS NUMBER by <u>Perlekar, P., Benzi, R., Nelson, D.R. and Toschi, F.</u></p>
<p>DRAG REDUCTION BY STREAMWISE TRAVELING WAVE-LIKE LORENZ FORCE IN CHANNEL FLOW by <u>Mamori, H. and Fukagata, K.</u></p>	15:55	<p>16:10 CONTROL OF THE FLOW PAST A CYLINDER WITH DILUTE POLYMER IN SOLUTIONS by <u>Xiong, Y., Bruneau, C.H. and Kellay, H.</u></p>	<p>16:10 THE NATURE OF ZONAL JETS IN GEOSTROPHIC TURBULENCE by <u>Dritschel, D. and Scott, R.</u></p>	
<p>MODELLING VORTEX GENERATOR JETS FOR TURBULENT FLOW SEPARATION CONTROL by <u>von Stillfried, F., Kékesi, T., Wallin, S. and Johansson, A.V.</u> TURBULENT BOUNDARY-LAYER CONTROL WITH SPANWISE TRAVELLING WAVES by <u>Whalley, R. and Choi, K.-S.</u></p>	16:10	<p>16:25 SIMULATING THE FULL-SCALE EXPERIMENTS WITH MARINE VEHICLES IN THE TOWING TANKS USING POLYMER DRAG REDUCTION by <u>Elyukhina, I. and Khomyakov, A.</u></p>	<p>16:25 SMALL-SCALE TURBULENT MIXING AT THE STRATOCUMULUS TOP OBSERVED BY MEANS OF HIGH RESOLUTION AIRBORNE TEMPERATURE MEASUREMENTS by <u>Malinowski, S.P., Haman, K., Kopeć, M., Kumala, W. and Gerber, H.</u></p>	<p>16:25 A TURBULENT EULERIAN MULTI-FLUID REACTIVE FLOW MODEL AND ITS APPLICATION IN MODELLING SORPTION ENHANCED STEAM METHANE REFORMING by <u>Chao, Z., Wang, Y., Jakobsen, J.P., Fermandino, M. and Jakobsen, H.A.</u></p>
16:40–17:00 Coffee & MT Poster Session				
<p><b>Mo4A</b>, room A, Chair: Ö. Ertuğ TRANSITIONAL FLOW OVER A PLATE AT <math>Re = 10.000</math> AND SMALL INCLINATION by <u>Baars, A.</u></p>	17:00	<p><b>Mo4B</b>, room B, Chair: L.-P. Wang WATER DROPLETS CONDENSATION/EVAPORATION MODELING IN DNS OF TURBULENT CHANNEL FLOW by <u>Russo, E., Kuerten, H., van der Geld, C.W.M. and Geurts, B.J.</u></p>	<p><b>Mo4C</b>, room C, Chair: S. Malinowski SCALING OF TURBULENCE IN THE ATMOSPHERIC SURFACE-LAYER: WHICH ANISOTROPY? by <u>Fitton, G., Tchiguirinskaia, I., Schertzer, D. and Lovejoy, S.</u></p>	<p><b>Mo4D</b>, room D, Chair: M. La Mantia 17:00 VORTEX DYNAMICS IN THE TURBULENT WAKE OF A CURVED CIRCULAR CYLINDER by <u>Gallardo, J.P., Pettersen, B. and Andersson, H.I.</u></p>
<p>TURBULENCE, INSTABILITIES AND PASSIVE SCALARS IN ROTATING CHANNEL FLOW by <u>Brethouwer, G., Schlatter, P. and Johansson, A.V.</u></p>	17:15	<p>17:15 CONSTRAINED DYNAMICS OF AN INERTIAL PARTICLE IN A TURBULENT FLUX. by <u>Obligado, M., Baudet, C., Gagne, Y. and Bourgoin, M.</u></p>	<p>17:15 DNS OF A STABLY STRATIFIED TURBULENT EKMAN LAYER WITH A CAPPING INVERSION by <u>Flores, O. and Riley, J.J.</u></p>	<p>17:15 RECONNECTION OF A LAMINAR VORTEX RING WITH A FREE SURFACE LEADING TO TURBULENCE by <u>Balakrishnan, S.K., Thomas, G. and Coleman, G.</u></p>
<p>STOCHASTIC MOTION OF A LAMINAR/TURBULENT INTERFACE IN A SHEAR FLOW by <u>Duquet, Y. and Schlatter, P.</u></p>	17:30	<p>17:30 TWO-PHASE FLOW PREDICTIONS OF THE TURBULENT FLOW IN A COMBUSTION CHAMBER INCLUDING PARTICLE-PARTICLE INTERACTIONS by <u>Breuer, M. and Alletto, M.</u></p>	<p>17:30 MICRO-MACHINED SUPER MINIATURE MULTI HOT-FILM PROBE by <u>Borisenkov, Y., Kholmiansky, M., Krylov, S., Liberzon, A. and Tsinober, A.</u></p>	<p>17:30 THE TURBULENT WAKE BEHIND SIDE-BY-SIDE PLATES by <u>Hoseini Dadmarzi, F., Narasimhamurthy, V.D., Andersson, H.I. and Pettersen, B.</u></p>
<p>LOW-SPEED STREAKS INSTABILITY IN NEAR WALL TURBULENCE WITH ADVERSE PRESSURE GRADIENT by <u>Ehrenstein, U., Marquillie, M. and Laval, J.-P.</u></p>	17:45	<p>17:45 DROPLET BREAKUP IN TURBULENCE by <u>Biferale, L., Perlekar, P., Sbragaglia, M., Srivastava, S. and Toschi, F.</u></p>	<p>17:45 ON SELF-MAINTENANCE OF CLEAR-AIR TURBULENCE by <u>Haman, K.</u></p>	<p>17:45 TIME-RESOLVED EVOLUTION OF THE WALL-BOUNDED VORTICITY CASCADE by <u>Lozano-Durán, A. and Jiménez, J.</u></p>
<p>ON EXCITATION OF GÖRTLER VORTICES DUE TO SCATTERING OF FREE-STREAM VORTICES ON SURFACE NON-UNIFORMITIES by <u>Ivanov, A.V., Kachanov, Y. and Mischenko, D.</u></p>	18:00	<p>18:00 A PRIORI RECONSTRUCTION OF IDEAL STOCHASTIC FORCING FOR THE MOTION OF INERTIAL PARTICLES IN TURBULENT FLOW by <u>Geurts, B.J., Kuerten, J.G.M., Pozorski, J. and Knorps, M.</u></p>	<p>18:00 PREDICTION OF CLEAR-AIR TURBULENCE INDUCED BY SHORT GRAVITY WAVES by <u>Kopeć, J., Haman, K. and Bajer, K.</u></p>	<p>18:00 THE HAIRPIN VORTEX ILLUSION by <u>Bernard, P.</u></p>
<p>EXPERIMENTAL STUDY OF THE SUBCRITICAL TRANSITION TO TURBULENCE IN A CHANNEL FLOW by <u>Lemoult, G., Aider, J.-A. and Wesfreid, J.-E.</u></p>	18:15	18:15	<p>18:15 HELICAL SCENARIO OF TROPICAL CYCLONE GENESIS AND INTENSIFICATION by <u>Levina, G. and Montgomery, M.</u></p>	<p>18:15 TURBULENT CASCADE OF KELVIN WAVES ON A VORTEX FILAMENT by <u>Baggaley, A. and Barenghi, C.F.</u></p>
18:30	18:30			<p>18:30 VORTEX RING BREAKDOWN INDUCED BY TOPOGRAPHIC FORCING by <u>Geiser, J. and Kiger, K.</u></p>

19:30–22:30 Drinks (Copernicus Science Centre)

# Tuesday

9:00–9:45 Invited lecture by G. Falkovich 'Interaction of turbulence and mean flow in fluid layers' (Auditorium), Chair: Y. Kachanov

<p><b>Tu1A</b>, room A, Chair: P. Manneville MODELING THE TRANSITION TO TURBULENCE IN PIPE FLOW by <u>Barkley, D.</u></p>	09:45	<p><b>Tu1B</b>, room B, Chair: H. Andersson TUMBLING AND ORIENTATION OF ELONGATED PARTICLES IN A TURBULENT FLOW by <u>Wilkinson, M.</u> and <u>Pumir, A.</u></p>	<p><b>Tu1C</b>, room C, Chair: D. Dritschel AN EXPERIMENTAL ANALYSIS OF CANOPY FLOWS by <u>Segalini, A.</u>, <u>Fransson, J.</u> and <u>Alfredsson, H.</u></p>	09:45	<p><b>Tu1D</b>, room D, Chair: B. Andersson CLOSURE PROPOSALS FOR THE TRACKING OF TURBULENCE-AGITATED GAS-LIQUID INTERFACES by <u>Wactawczyk, M.</u> and <u>Oberlack, M.</u></p>
<p>INSTABILITIES IN THE WAKE OF CIRCULAR DISK by <u>Bobiński, T.</u>, <u>Goujon-Durand, S.</u> and <u>Wes-freid, J.E.</u></p>	10:00	<p>ESTIMATING THE COLLISION RATE OF INERTIAL PARTICLES IN A TURBULENT FLOW: LIMITATIONS OF THE GHOST COLLISION APPROXIMATION by <u>Voškuhle, M.</u>, <u>Pumir, A.</u> and <u>Lévêque, E.</u></p>	<p>TOWARDS AN INTEGRATED MULTISCALE SIMULATION OF TURBULENT CLOUDS ON PETASCALE COMPUTERS by <u>Wang, L.-P.</u>, <u>Ayala, O.</u>, <u>Parishani, H.</u>, <u>Grabowski, W.W.</u>, <u>Wyszogrodzki, A.A.</u>, <u>Piotrowski, Z.</u>, <u>Gao, G.R.</u>, <u>Kambhamettu, C.</u>, <u>Li, X.</u>, <u>Rossi, L.</u>, <u>Orozco, D.</u> and <u>Torres, C.</u></p>	10:00	<p>A STATISTICAL THEORY FOR INHOMOGENEOUS TURBULENT FLOW FORMULATED IN THE MEAN-LAGRANGIAN COORDINATES by <u>Ariki, T.</u> and <u>Hamba, F.</u></p>
<p>EXPERIMENTS ON THE WAVE TRAIN DEVELOPMENT IN 3D BOUNDARY LAYER AT MACH 2 by <u>Kosinov, A.</u>, <u>Semionov, N.V.</u> and <u>Yermolaev, Y.G.</u></p>	10:15	<p>RESUSPENSION OF PARTICLES IN TURBULENT FLOWS WITH AND WITHOUT MEAN-SHEAR USING PIV AND 3D-PTV by <u>Traugott, H.</u>, <u>Hayse, T.</u> and <u>Liberzon, A.</u></p>	<p>SECOND- AND THIRD-ORDER MOMENT BUDGETS IN A TURBULENT PATCH RESULTING FROM INTERNAL GRAVITY WAVE BREAKING by <u>Yakovenko, S.</u></p>	10:15	<p>CROSS-INDEPENDENCE CLOSURE FOR STATISTICAL THEORY OF TURBULENCE by <u>Tatsumi, T.</u></p>
<p>A PHASE TRANSITION IN A CLOSED TURBULENT FLOW by <u>Herbert, E.</u>, <u>Chiffaudel, A.</u>, <u>Cortet, P.-P.</u>, <u>Daviaud, F.</u> and <u>Dubrulle, B.</u></p>	10:30	<p>ORIENTATION OF NON-SPHERICAL PARTICLES IN AN AXISYMMETRIC RANDOM FLOW by <u>Vincenzi, D.</u></p>		10:30	<p>RIGOROUS RESULTS FOR STOCHASTIC SHELL MODELS OF TURBULENCE by <u>Jaroszewska, J.Z.</u></p>
<p>CHAOS CONTROL APPLIED TO COHERENT STATES IN TRANSITIONAL FLOWS by <u>Pausch, M.</u> and <u>Eckhardt, B.</u></p>	10:45	<p>INTERMITTENCY REDUCTION OF FINITE-SIZED PARTICLES ACCELERATION IN TURBULENCE by <u>Volk, R.</u>, <u>Calzavarini, E.</u>, <u>Lévêque, E.</u> and <u>Pinton, J.-F.</u></p>		10:45	<p>NON EQUILIBRIUM STATISTICAL MECHANICS OF LARGE SCALE STRUCTURES OF TURBULENT FLOWS by <u>Bouchet, F.</u>, <u>Laurie, J.</u> and <u>Zaboronski, O.</u></p>

11:00–11:25 Coffee & MT Poster Session

<p><b>Tu2A</b>, room A, Chair: G. Brethouwer ON TURBULENCE IN HYDRODYNAMIC LUBRICATION by <u>Scheichl, B.</u> and <u>Kluwick, A.</u></p>	11:25	<p><b>Tu2B</b>, room B, Chair: J. Kalda SHORT TIME EVOLUTION OF LAGRANGIAN TETRADS: COMPARISON BETWEEN EXPERIMENTS AND MODEL by <u>Pumir, A.</u>, <u>Xu, H.</u>, <u>Bodenschatz, E.</u> and <u>Alain, P.</u></p>	<p><b>Tu2C</b>, room C, Chair: V. Uruba LENGTH SCALES IN ANISOTROPIC TURBULENCE by <u>Chang, K.</u>, <u>Bewley, G.P.</u> and <u>Bodenschatz, E.</u></p>	11:25	<p><b>Tu2D</b>, room D, Chair: C. Tenaud DRAG REDUCTION BY SURFACE TREATMENT IN TURBULENT TAYLOR-COUETTE FLOW by <u>Greidanus, A.</u>, <u>Delfos, R.</u> and <u>Westerweel, J.</u></p>
<p>TURBULENT SPOTS IN STOKES BOUNDARY LAYER by <u>Mazzuoli, M.</u>, <u>Vittori, G.</u> and <u>Blondeaux, P.</u></p>	11:40	<p>TURBULENCE VISUALIZATION USING REFLECTIVE FLAKES by <u>Goto, S.</u> and <u>Kida, S.</u></p>	<p>ARE OCEANIC RINGS AND JETS STATISTICAL EQUILIBRIUM STATES? by <u>Venaille, A.</u> and <u>Bouchet, F.</u></p>	11:40	<p>EXPERIMENTAL INVESTIGATION OF TORQUE SCALING AND COHERENT STRUCTURES IN TURBULENT TAYLOR-COUETTE FLOW by <u>Tokgoz, S.</u>, <u>Elsinga, G.E.</u>, <u>Delfos, R.</u> and <u>Westerweel, J.</u></p>
<p>FROM TRAVELLING WAVES TO MILD CHAOS IN PIPE FLOW by <u>Mellibovsky, F.</u> and <u>Eckhardt, B.</u></p>	11:55	<p>A LAGRANGIAN APPROACH TO TURBULENT PUFFS IN PIPE FLOW by <u>Holzner, M.</u>, <u>Avila, M.</u>, <u>de Lozar, A.</u> and <u>Hof, B.</u></p>	<p>CONTINUOUS AND DISCONTINUOUS TRANSITIONS IN GEOPHYSICAL TURBULENCE by <u>Corvellec, M.</u> and <u>Bouchet, F.</u></p>	11:55	<p>VELOCITY PROFILE IN TURBULENT TAYLOR-COUETTE FLOW by <u>Huisman, S.</u>, <u>van Gils, D.P.M.</u>, <u>Sun, C.</u> and <u>Lohse, D.</u></p>
<p>TURBULENCE BUDGET IN TRANSITIONAL PLANE COUETTE FLOW WITH TURBULENT STRIPE by <u>Ohnishi, K.</u>, <u>Tsukahara, T.</u> and <u>Kawaguchi, Y.</u></p>	12:10	<p>INFLUENCE OF FLOW TOPOLOGY ON LAGRANGIAN STATISTICS IN TWO-DIMENSIONAL TURBULENCE by <u>Kadoch, B.</u>, <u>del-Castillo-Negrete, D.</u>, <u>Bos, W.</u> and <u>Schneider, K.</u></p>	<p>MARKED DRAG REDUCTION IN NON-AFFINE VISCOELASTIC TURBULENCE IN HOMOGENEOUS ISOTROPIC AND PIPE FLOWS by <u>Horiti, K.</u>, <u>Matsumoto, K.</u> and <u>Adati, M.</u></p>	12:10	<p>DRAG REDUCTION, BUBBLE DISTRIBUTION AND MOMENTUM PROFILES IN BUBBLY TURBULENT TAYLOR-COUETTE FLOW by <u>van Gils, D.P.M.</u>, <u>Guzman, D.N.</u>, <u>Sun, C.</u> and <u>Lohse, D.</u></p>
<p>TURBULENT PATTERN FORMATION IN PLANE COUETTE FLOW: MODELING AND INVESTIGATIONS OF MECHANISMS by <u>Rolland, J.</u> and <u>Manneville, P.</u></p>	12:25	<p>LONG TIME MEMORY OF LAGRANGIAN ACCELERATION STATISTICS IN 2D AND 3D TURBULENCE by <u>Kamps, O.</u> and <u>Wilczek, M.</u></p>	<p>STATISTICAL INVESTIGATION ON COHERENT VORTEX STRUCTURE IN TURBULENT DRAG REDUCING CHANNEL FLOW WITH BLOWN POLYMER SOLUTION by <u>Ishitsuka, S.</u>, <u>Motozawa, M.</u>, <u>Iwamoto, K.</u>, <u>Ando, H.</u>, <u>Senda, T.</u> and <u>Kawaguchi, Y.</u></p>	12:25	<p>TORQUE SCALING IN TAYLOR-COUETTE-FLOW - AN EXPERIMENTAL INVESTIGATION by <u>Merbald, S.</u>, <u>Fischer, S.</u> and <u>Egbers, C.</u></p>
<p>BY-PASS TRANSITION OF FLAT PLATE BOUNDARY LAYERS ON THE SURFACES NEAR THE LIMIT OF ADMISSIBLE ROUGHNESS by <u>Jonáš, P.</u>, <u>Hladík, O.</u>, <u>Mazur, O.</u> and <u>Uruba, V.</u></p>	12:40	<p>ACCELERATION MEASUREMENT WITH A LASER DOPPLER SYSTEM by <u>Nobach, H.</u>, <u>Bodenschatz, E.</u> and <u>Tatsumi, T.</u></p>	<p>EXPERIMENTAL INVESTIGATION OF PARTICLE DEAGGLOMERATION USING TURBULENCE by <u>Köksay, C.</u>, <u>Ertunç, Ö.</u>, <u>Huttner, S.</u>, <u>Wachtel, H.</u> and <u>Delgado, A.</u></p>	12:40	<p>NUMERICAL BENCHMARKING OF TURBULENT TAYLOR-COUETTE FLOWS by <u>Guillem, R.</u>, <u>Da Saghe, R.</u>, <u>Poncet, S.</u> and <u>Viazzo, S.</u></p>
	12:55	<p>ENCOUNTER RATES AND TRANSIT TIME DISTRIBUTIONS FOR SURFACES MOVING IN TURBULENT FLOWS by <u>Pécseľi, H.</u> and <u>Trulsen, J.</u></p>	<p>TIME-RESOLVED COMBINED DPIV/PTV MEASUREMENTS OF TWO-PHASE TURBULENT PIPE FLOW by <u>Kolaas, J.</u> and <u>Jensen, A.</u></p>	12:55	<p>TORQUE SCALING IN TURBULENT TAYLOR-COUETTE FLOW WITH CO- AND COUNTER-ROTATING CYLINDERS by <u>van Gils, D.P.M.</u>, <u>Huisman, S.</u>, <u>Bruggert, G.</u>, <u>Sun, C.</u> and <u>Lohse, D.</u></p>

13:10–14:40 Lunch & MT Poster Session

14:40–15:25 Invited lecture by B. Geurts 'Regularization of turbulence - a comprehensive modeling approach' (Auditorium), Chair: B. Eckhardt

<p><b>Tu3A</b>, room A, Chair: J. Wesfreid EVOLUTION OF TRANSITIONAL STRUCTURES FROM PUFF TO SLUG THROUGH MULTIPLE SPLITTING IN A PIPE FLOW AT LOW REYNOLDS NUMBER by <u>Krauss, J., Ertunç, Ö., Ostwald, C., Lienhart, H. and Delgado, A.</u></p>	15:25	<p><b>Tu3B</b>, room B, Chair: A. Vallgren DISSIPATION SCALES OF KINETIC HELICITIES IN TURBULENCE by <u>Plunian, F., Lessines, T., Carati, D. and Stepanov, R.</u></p>	<p><b>Tu3C</b>, room C, Chair: C. Nore THE SHORT-WAVELENGTH INSTABILITY OF MAGNETICALLY BUOYANT LAYER by <u>Mizerski, K., Davies, C. and Hughes, D.</u></p>	15:25	<p><b>Tu3D</b>, room D, Chair: A. Bogustawski A HYBRID NUMERICAL SCHEME FOR NEW FORMULATIONS OF DELAYED DETACHED-EDDY SIMULATION (DDES) by <u>Ashton, N., Prosser, R. and Revell, A.</u></p>
<p>TRACKING THE TRANSITIONAL FLOW STRUCTURES IN LOW REYNOLDS NUMBER PIPE FLOW by <u>Ertunç, Ö., Krauss, J., Lienhart, H., Miranda, P.R. and Delgado, A.</u></p>	15:40	<p>EXPERIMENTAL SPECTRA OF QUANTUM TURBULENCE FOR VARIOUS FLOWS by <u>Salort, J., Chabaud, B., Lévêque, E. and Roche, P.-E.</u></p>	<p>EFFECTIVE MAGNETIC DIFFUSIVITY AND TURBULENT VISCOSITY IN A SPIN-DOWN FLOW OF LIQUID by <u>Frick, P., Noskov, V., Denisov, S. and Stepanov, R.</u></p>	15:40	<p>LARGE-EDDY SIMULATIONS OF CONFINED TURBULENT WAKE FLOWS by <u>Biancofiore, L., Gallaire, F. and Pasquetti, R.</u></p>
<p>BASE FLOW MODULATIONS FOR SKIN-FRICTION DRAG REDUCTION by <u>Fransson, J. and Tamelli, A.</u></p>	15:55	<p>ROTATING HELICAL TURBULENCE: THREE-DIMENSIONALIZATION OR SELF-SIMILARITY IN THE SMALL SCALES? by <u>Pouquet, A., Baerenzung, J., Mininni, P.D., Rosenberg, D. and Thalabard, S.</u></p>	<p>DIRECT NUMERICAL SIMULATIONS OF THREE-DIMENSIONAL MAGNETOHYDRODYNAMIC TURBULENCE WITH RANDOM, POWER-LAW FORCING by <u>Sahoo, G. and Pandit, R.</u></p>	15:55	<p>LES OF DROPET-LADEN NON-ISOTHERMAL CHANNEL FLOW by <u>Michatek, W., Liew, R., Kuerten, H. and Zeegers, J.</u></p>
<p>PLANAR RICHTMYER-MESHKOV INSTABILITIES AND TRANSITION TO TURBULENCE by <u>Gowardhan, A., Grinstein, F. and Ristorcelli, R.</u></p>	16:10	<p>UNIVERSALITY OF LOCAL DISSIPATION SCALES IN BUOYANCY-DRIVEN TURBULENCE by <u>Xia, K.-Q. and Zhou, Q.</u></p>	<p>DYNAMOS IN ROTATING COMPRESSIBLE CONVECTION by <u>Favier, B. and Bushby, P.</u></p>	16:10	<p>LARGE-EDDY SIMULATION OF THE FLAT-PLATE TURBULENT BOUNDARY LAYER by <u>Inoue, M. and Pullin, D.</u></p>
<p>THE CRITICAL REYNOLDS NUMBER OF PIPE FLOW by <u>Avila, K., De Lozar, A., Avila, M. and Hof, B.</u></p>	16:25	<p>UNIVERSAL ASPECTS OF SMALL-SCALE MOTIONS IN TURBULENCE by <u>Elsinga, G.E. and Marusic, I.</u></p>	<p>TRANSIENTS AND TURBULENCE POCKETS IN NATURAL CONVECTION OF PARAMAGNETIC FLUID SUBJECTED TO STRONG MAGNETIC FIELD GRADIENTS by <u>Kenjereš, S., Wrobel, W., Pyrda, L., Fornalik-Wajs, E. and Szymd, J.</u></p>	16:25	<p>LES OF FLUID AND HEAT FLOW OVER A WALL-BOUNDED SHORT CYLINDER AT DIFFERENT INFLOW CONDITIONS by <u>Borello, D. and Hanjalić, K.</u></p>

16:40–17:00 Coffee & MT Poster Session

<p><b>Tu4A</b>, room A, Chair: E. Tuluszka-Sznitko OPTIMAL PERTURBATIONS IN DUSTY-GAS PLANE-CHANNEL FLOW by <u>Boronin, S.</u></p>	17:00	<p><b>Tu4B</b>, room B, Chair: P. Bernard A NUMERICAL INVESTIGATION OF A FLOW AROUND TWO CIRCULAR CYLINDERS WITH EITHER ONE SUBJECTED TO A TRANSVERSE HARMONIC OSCILLATION by <u>Kim, J.</u></p>	<p><b>Tu4C</b>, room C, Chair: A. Nowakowski ON THE CONTROL OF GLOBAL MODES IN SWIRLING JET EXPERIMENTS by <u>Oberleithner, K., Sieber, M., Nayeri, C.N. and Paschereit, C.O.</u></p>	17:00	<p><b>Tu4D</b>, room D, Chair: D. Pullin DYNAMIC KALMAN FILTERING TO SEPARATE LOW-FREQUENCY INSTABILITIES FROM TURBULENT FLUCTUATIONS: APPLICATION TO THE LARGE-EDDY SIMULATION OF UNSTEADY TURBULENT FLOWS by <u>Cahuzac, A., Boudet, J., Borgnat, P. and Lévêque, E.</u></p>
<p>TRAVELLING WAVES IN LOW AND INTERMEDIATE ROTATING SPHERICAL SHELL CONVECTION by <u>Futterer, B., Koch, S. and Egbers, C.</u></p>	17:15	<p>NUMERICAL SIMULATIONS OF SWIRLING PIPE FLOWS- DECAY OF SWIRL AND OCCURRENCE OF VORTEX STRUCTURES by <u>Vaidya, H., Ertunç, Ö., Genç, B., Beyer, F., Köksoy, C. and Delgado, A.</u></p>	<p>LAGRANGIAN MEASUREMENTS OF TURBULENT ENTRAINMENT IN AN AXISYMMETRIC JET. by <u>Wolf, M., Lüthi, B., Holzner, M., Liberzon, A., Krug, D. and Tsinober, A.</u></p>	17:15	<p>TURBULENT NATURAL CONVECTION IN A DIFFERENTIALLY HEATED CAVITY OF ASPECT RATIO 5 FILLEDWITH NON-PARTICIPATING AND PARTICIPATING GREY MEDIA by <u>Capdevila, R., Lehmkuhl, O., Trias, F.X., Pérez-Segarra, C.-D. and Colomer, G.</u></p>
<p>NEGATIVE MAGNUS EFFECT ON A ROTATING SPHERE AT AROUND THE CRITICAL REYNOLDS NUMBER by <u>Muto, M., Watanabe, H., Tsubokura, M. and Oshima, N.</u></p>	17:30	<p>STRUCTURE OF VORTICITYTUBE SEGMENTS IN FLUID TURBULENCE by <u>Wang, L.</u></p>	<p>DIRECT NUMERICAL SIMULATION OF VECTOR-CONTROLLED FREE JETS by <u>Tsujimoto, K., Ao, K., Shakouchi, T. and Ando, T.</u></p>	17:30	<p>QUANTIFICATION OF THE EFFECTS OF UNCERTAINTIES IN TURBULENT FLOWS THROUGH GENERALIZED POLYNOMIAL CHAOS by <u>Meldi, M., Lucor, D. and Sagaut, P.</u></p>
<p>EFFECT OF FREE-STREAM TURBULENCE CHARACTERISTICS ON BOUNDARY LAYER TRANSITION by <u>Shahinfar, S. and Fransson, J.</u></p>	17:45	<p>TRANSFORMATION OF VORTEX STRUCTURES IN THE WAKE OF A SPHERE MOVING IN THE STRATIFIED FLUID WITH DECREASING OF INTERNAL FROUDE NUMBER by <u>Matyushin, P. and Gushchin, V.</u></p>	<p>LARGE-EDDY SIMULATION OF MIXING IN A SUBSONIC JET WITH DENSITY AND PRESSURE BASED SOLUTION APPROACHES by <u>Vuorinen, V., Wehrfritz, A., Yu, J., Kaaria, O., Larmi, M. and Boersma, B.</u></p>	17:45	<p>FILTERED DENSITY FUNCTION APPROACH FOR LARGE EDDY SIMULATION OF TURBULENT TWO-PHASE FLOWS. by <u>Chibbaro, S. and Minier, J.-P.</u></p>
<p>ON THE GENERATION OF THREE-DIMENSIONAL DISTURBANCES FROM TWODIMENSIONAL NONLINEAR INSTABILITIES IN SHEAR FLOWS by <u>Liu, J.T.C.</u></p>	18:00	<p>TOPOLOGY AND DYNAMICS OF FLOW STRUCTURES IN WALL-BOUNDED TURBULENT FLOWS by <u>Mizuno, Y., Atkinson, C. and Soria, J.</u></p>		18:00	<p>DIRECT NUMERICAL SIMULATION OF TURBULENT PIPE FLOW UP TO A REYNOLDS NUMBER OF 61,000 by <u>Boersma, B.</u></p>

18:30–20:30 Guided walk in Warsaw

20:30–22:30 ETC Committee meeting

# Wednesday

9:00–9:45 Invited lecture by I. Marusic 'High Reynolds number wall turbulence' (Auditorium), Chair: N. Sandham

<p><b>We1A</b>, room A, Chair: B. Protas STIRRING TURBULENCE WITH TURBULENCE by <u>Cekli, H.E., Joosten, R. and van de Water, W.</u></p>	09:45	<p><b>We1B</b>, room B, Chair: J. Palma FLOW AROUND FINITE-SIZE NEUTRALLY BUOYANT LAGRANGIAN PARTICLES IN FULLY DEVELOPED TURBULENCE by <u>Gibert, M., Klein, S. and Bodenschatz, E.</u></p>	<p><b>We1C</b>, room C, Chair: E. Lévêque NOVEL EXPERIMENTAL SET-UP TO ANALYSE CRYOGENIC FLOWS BY VISUALISATION by <u>La Mantia, M., Rotter, M. and Skrbek, L.</u></p>	09:45	<p><b>We1D</b>, room D, Chair: D. Livescu PARABOLIC FLIGHT EXPERIMENT 'CONVECTION IN A CYLINDER' - CONVECTION PATTERNS IN DIFFERENT BUOYANCY FORCES by <u>Dahley, N., Futterer, B., Egbers, C., Crumeyrolle, O. and Mutabazi, I.</u> DYNAMICS OF REVERSALS IN RAYLEIGH-BÉNARD CONVECTION by <u>Chandra, M. and Verma, M.</u></p>
<p>FURTHER PROGRESS IN A RE-EXAMINATION OF THE DISSIPATION ANOMALY by <u>McComb, W.D., Berera, A., Salewski, M. and Yoffe, S.</u></p>	10:00	<p>PARTICLE ENTRAINMENT IN SPHERICAL-CAP WAKES by <u>Warncke, N., Delfos, R., Ooms, G. and Westerweel, J.</u></p>	<p>ENERGY SPECTRA OF QUANTUM TURBULENCE: THEORY AND SIMULATIONS by <u>Machida, M., Sasa, N., Kano, T., Lvov, V., Rudenko, O. and Tsubota, M.</u> SHELL MODELS OF SUPERFLUID TURBULENCE by <u>Wacks, D. and Barenghi, C.F.</u></p>	10:00	<p>DISAPPEARANCE OF ASPECT-RATIO DEPENDENCE OF HEAT TRANSPORT WITH INCREASING ROTATION RATE IN TURBULENT RAYLEIGH-BÉNARD CONVECTION by <u>Overkamp, J., Stevens, R., Lohse, D. and Clercx, H.J.H.</u></p>
<p>ON THE MAXIMUM ENSTROPY GROWTH IN A HYDRODYNAMIC SYSTEM by <u>Ayala, D. and Protas, B.</u></p>	10:15	<p>EXPERIMENTAL STUDY OF RELATIVE VELOCITY STATISTICS AND COLLISION OF INERTIAL PARTICLES IN TURBULENCE. by <u>Saw, E.-W., Bewley, G.P. and Bodenschatz, E.</u></p>	<p>QUANTUM TURBULENCE IN HELIUM-4 PURE SUPERFLOW by <u>Babuin, S., Stammeter, M., Rotter, M. and Skrbek, L.</u></p>	10:30	<p>BOLGIANO VS. KOLMOGOROV SCALING IN RAYLEIGH-TAYLOR TURBULENCE by <u>Boffetta, G., De Lillo, F., Mazzino, A. and Musacchio, S.</u></p>
<p>ANALYSIS OF MULTI-PLANE PIV DATA USING TWO AND THREE-DIMENSIONAL POD by <u>Liberzon, A., Gurka, R. and Hetsroni, G.</u></p>	10:30	<p>INTERPOLATION ERROR IN DNS SIMULATIONS OF TURBULENCE: CONSEQUENCES FOR PARTICLE TRACKING by <u>van Hinsberg, M. A. T., ten Thije Boonkkamp, J.H.M., van de Wiel, B.J.H., Toschi, F. and Clercx, H.J.H.</u></p>	<p>KOLMOGOROV CASCADE AND EQUIPARTITION OF KINETIC ENERGY IN NUMERICAL SIMULATION OF SUPERFLUID TURBULENCE by <u>Salort, J., Lévêque, E. and Roche, P.-E.</u></p>	10:45	<p>VISCOUS BOUNDARY LAYERS IN TURBULENT RAYLEIGH-BÉNARD CONVECTION by <u>Li, L., Resagk, C. and du Puits, R.</u></p>

11:00–11:25 Coffee & WT Poster Session

<p><b>We2A</b>, room A, Chair: D. Barkley EXPERIMENTAL STUDY ON HOMOGENIZATION IN GRID TURBULENCE: by <u>Cardesa-Dueñas, J.I., Nickels, T. and Dawson, J.</u></p>	11:25	<p><b>We2B</b>, room B, Chair: R. Du Puits PIV INVESTIGATION OF A BUOYANT PLUME ABOVE HEATED HORIZONTAL CYLINDER by <u>Grafsrønnening, S., Jensen, A. and Pettersson-Reif, B.A.</u></p>	<p><b>We2C</b>, room C, Chair: A. Liberzon SPIRAL INSTABILITY AND SCREECH EFFECT IN SUPERSONIC JET FLOWS by <u>Menshov, I. and Nenshev, A.</u></p>	11:25	<p><b>We2D</b>, room D, Chair: R. Kerr DAMPING INERTIAL MODES EXCITATION IN A CLOSED GRID TURBULENCE EXPERIMENT UNDER ROTATION by <u>Cortet, P.-P., Lamriben, C., Moisy, F. and Maas, L.R.M.</u></p>
<p>DNS ON A SPATIALLY DEVELOPING GRID TURBULENCE by <u>Suzuki, H., Nagata, K., Sakai, Y. and Hayase, T.</u></p>	11:40	<p>MULTI SCALE PIV MEASUREMENTS OF SHEAR FLOW TURBULENCE by <u>Buxton, O. and Ganapathisubramani, B.</u></p>	<p>RESPONSE TO ROTATING FORCING OF THE VON-KÁRMÁN DISK BOUNDARY LAYER by <u>Vasudevan, M., Siddiqui, E., Pter, B., Scott, J., Azouzi, A., Michelet, R. and Nicot, C.</u></p>	11:40	<p>LABORATORY STUDY OF FORCED ROTATING SHALLOW WATER TURBULENCE by <u>Espa, S., Di Nitto, G. and Cenedese, A.</u></p>
<p>HIGHER-ORDER MOMENTS OF VELOCITY FLUCTUATIONS IN THE WAKE OF A SHORT STACK by <u>Adaramola, M.S., Bergstrom, D.J. and Sumner, D.</u></p>	11:55	<p>SPECTRUM OF A PASSIVE SCALAR IN TURBULENT MIXING by <u>Lee, S.-K., Djenidi, L., Antonia, R. and Rajagopalan, S.</u></p>	<p>INSTABILITY MECHANISMS IN TURBULENT AXISYMMETRIC SUPERSONIC WAKES by <u>Sandberg, R.</u></p>	11:55	<p>STATISTICS OF CONFINED TURBULENT FLOWS WITH ROTATION EFFECTS by <u>Jause-Labert, C. and Godefert, F.S.</u></p>
<p>FREELY-DECAYING, HOMOGENEOUS TURBULENCE GENERATED BY MULTI-SCALE GRIDS by <u>Davidson, P.A. and Krogstad, P.-Å.</u></p>	12:10	<p>PASSIVE SCALAR TRANSPORT IN A LOCALIZED SYNTHETIC WALL TURBULENCE IN A CONTRACTION CHANNEL by <u>Lefevre, N., Djenidi, L. and Tardu, S.</u></p>	<p>EXPERIMENTAL STUDY OF TURBULENCE BEGINNING OF SUPERSONIC BOUNDARY LAYER ON SWEEP WING AT MACH NUMBERS 2-4 by <u>Semionov, N., Kosinov, A. and Yermolaev, Y.</u></p>	12:10	<p>LABORATORY EXPERIMENT AND NUMERICAL SIMULATIONS OF INERTIAL WAVE-INTERACTIONS IN A ROTATING SPHERICAL SHELL by <u>Koch, S., Harlander, U., Hollerbach, R. and Egbers, C.</u></p>
<p>NEGATIVE STREAMWISE VELOCITIES AND OTHER RARE EVENTS NEAR THE WALL IN TURBULENT CHANNEL FLOW by <u>Lenaers, P., Li, Q., Brethouwer, G., Schlatter, P. and Örlü, R.</u></p>	12:25	<p>SCALE-BY-SCALE TURBULENT ENERGY BUDGETS WHICH ACCOUNT FOR THE COHERENT MOTION by <u>Thiesset, F., Danaila, L., Antonia, R. and Zhou, T.</u></p>	<p>ON THE DECAY OF TURBULENCE IN PLANE COUETTE FLOW by <u>Manneville, P.</u></p>	12:25	<p>NUMERICAL STUDY OF HOMOGENEOUS TURBULENCE WITHIN BAROCLINIC CONTEXT by <u>Pieri, A., Cambon, C. and Godefert, F.S.</u></p>
<p>INFLOW LENGTH AND TRIPPING EFFECTS IN TURBULENT BOUNDARY LAYERS by <u>Örlü, R. and Schlatter, P.</u></p>	12:40	<p>INFLUENCE OF VORTICITY ALIGNMENT UPON SCALAR GRADIENT PRODUCTION IN THREE-DIMENSIONAL, ISOTROPIC TURBULENCE by <u>Gonzalez, M. and Paranthoën, P.</u></p>	<p>DNS AND THE THEORY OF RECEPTIVITY OF A SUPERSONIC BOUNDARY LAYER TO FREE-STREAM DISTURBANCES by <u>Soudakov, V., Fedorov, A. and Ryzhov, A.</u></p>	12:40	<p>HELICAL PROPERTIES OF SHEARED AND ROTATING TURBULENCE by <u>Jacobitz, F., Schneider, K., Bos, W. and Farge, M.</u></p>
<p>TURBULENT ASYMPTOTIC SUCTION BOUNDARY LAYERS STUDIED BY SIMULATION by <u>Schlatter, P. and Örlü, R.</u></p>	12:55	<p>DEPLETION OF ADVECTION IN TURBULENT SCALAR MIXING by <u>Bos, W., Rubinstein, R. and Fang, L.</u></p>	<p>HEAT TRANSFER IN ROTOR/ROTOR CAVITY by <u>Tuliszka-Sznitko, E., Majchrowski, W. and Kietczewski, K.</u></p>	12:55	

13:10–14:40 Lunch & WT Poster Session

14:25–14:40 Presentation of the TSI instrument (Auditorium)

14:40–15:25 Invited lecture by M. Burgoin 'Experimental investigations of turbulent transport of inertial particles' (Auditorium), Chair: C.M. Casciola

**We3A**, room A, Chair: P. Jonáš  
BIFURCATION OF TURBULENT REGIMES IN ROTATING PLANE COUETTE FLOW by Salewski, M. and Eckhardt, B.

DIRECT NUMERICAL SIMULATIONS OF STRATIFIED OPEN CHANNEL FLOWS by Deusebio, E., Schlatter, P., Brethouwer, G. and Lindborg, E.  
THE COLLAPSE OF TURBULENCE IN THE ATMOSPHERIC BOUNDARY LAYER by van de Wiel, B.J.H., Moene, A., Jonker, H. and Clercx, H.J.H.

BOUNDARY-LAYER RECEPTIVITY TO SURFACE NON-UNIFORMITIES LEADING TO GENERATION OF CÖRTLER VORTICES by Ivanov, A.V., Kachanov, Y. and Mischenko, D.

THE IMERSPEC METHODOLOGY - PRESENTATION AND PRELIMINARY APPLICATIONS by Silveira-Neto, A., Moreira, L. and Mariano, F.

**We4A**, room A, Chair: M. Buschmann  
REYNOLDS NUMBER DEPENDENCY OF NEAR-WALL STATISTICS OF ZERO-PRESSURE- by Buschmann, M.H., Keirsbulck, L., Fourié, G., Labraga, L. and Gad-el-Hak, M.  
SIMULATION OF ROUGH WALL TURBULENT CHANNEL FLOW USING A PARAMETRIC FORCING APPROACH by Busse, A. and Sandham, N.

COHERENT VORTICITY EXTRACTION IN TURBULENT BOUNDARY LAYERS USING ORTHOGONAL WAVELETS by Khujadze, G., Nguyen van yen, R., Schneider, K., Oberlack, M. and Farge, M.

STUDY ON THE ANALOGY BETWEEN VELOCITY AND TEMPERATURE FLUCTUATIONS IN TURBULENT ROTATING CHANNEL FLOWS by Yang, Z., Cui, G.-X., Xu, C.-X. and Zhang, Z.

SMALL-SCALE STATISTICS IN DIRECT NUMERICAL SIMULATION OF TURBULENT CHANNEL FLOW AT HIGH-REYNOLDS NUMBER by Morishita, K., Ishihara, T. and Kaneda, Y.

NEW ANEMOMETERS FOR CHARACTERIZATION OF ATMOSPHERIC TURBULENT FLOWS ON SMALL LENGTH SCALES by Puczyłowski, J., Peinke, J. and Hölling, M.

**We3B**, room B, Chair: M. Gibert  
STATISTICS OF STREAMLINE SEGMENTS BASED ON THE LOCAL DYNAMICS OF TURBULENCE by Schaefer, P., Gampert, M. and Peters, N.

LAGRANGIAN VELOCITY AND ACCELERATION AUTOCORRELATIONS IN ROTATING TURBULENCE by Del Castello, L. and Clercx, H.J.H.

MICRO-BUBBLES IN TURBULENCE: A LAGRANGIAN INVESTIGATION by Sun, C., Martinez, J., Prakash, V., Tagawa, Y. and Lohse, D.

STRETCHING OF MATERIAL LINES IN PSEUDO-TURBULENCE INDUCED BY SMALL RISING BUBBLES by Tanaka, M., Tsujimura, Y. and Kanatani, H.

PROBING VORTICITY-STRAIN ALIGNMENT IN TURBULENCE USING TETRAD-BASED VELOCITY GRADIENT by Xu, H., Pumir, A. and Bodenschatz, E.

**We4B**, room B, Chair: L. Danaïla  
K-SPECTRUM OF DECAYING, AGING AND GROWING PASSIVE SCALARS IN LAGRANGIAN CHAOTIC FLUID FLOWS by Kalda, J.

DIMENSIONALITY INFLUENCE ON PASSIVE SCALAR TRANSPORT. DECOUPLING FROM THE UNDERLYING VELOCITY FIELD. by Iovieno, M., Ducasse, L. and Tordella, D.

DIFFUSION OF A SPOT OF PASSIVE SCALAR IN TURBULENT FLOW by Calzavarini, E., Eckhardt, B., Toschi, F. and van de Water, W.

ROUGH HORIZONTAL PLATES: HEAT TRANSFER AND HYSTERESIS by Tisserand, J.C., Creysse, M., Gasteuil, Y., Pabiou, H., Gibert, M., Castaing, B. and Chillà, F.

THE DYNAMICS OF TURBULENT SCALAR MIXING NEAR THE EDGE OF THE SHEAR LAYER by Taveira, R.M.R., da Silva, C.B. and Pereira, J.C.F.

QUANTITATIVE STUDIES OF TURBULENT MASS FLUX AT INTERFACES BY DIRECT NUMERICAL SIMULATION by Toh, S. and Okahashi, Y.

**We3C**, room C, Chair: A. Talamelli  
PARTICLE-LADEN JETS: PARTICLE DISTRIBUTION AND BACK-REACTION ON THE FLOW by Picano, F., Sardina, G., Gualtieri, P. and Casciola, C.M.

DROPLET BEHAVIOR IN A RANQUE-HILSCH VORTEX TUBE by Liew, R., Michatek, W., Zeegers, J. and Kuerten, H.

DIRECT NUMERICAL SIMULATION OF STRAINED TURBULENCE AND PARTICLES WITHIN by Gylfason, A., Lee, C.-M., Perlekar, P., Toschi, F. and Ivanov, D.

ROLE OF THERMAL PLUMES ON PARTICLE DISPERSION IN A TURBULENT RAYLEIGH-BERNARD CELL by Lavezzo, V., Clercx, H.J.H. and Toschi, F.

TURBULENCE IN A MICROCHANNEL by Kowalewski, T. and Błotnicki, S.

**We4C**, room C, Chair: J. Rokicki  
ON TWO MECHANISMS OF DISSIPATION BY 2D FULLY DEVELOPED TURBULENT FLOWS by Nguyen van yen, R., Farge, M. and Schneider, K.

SYMMETRY-PRESERVING REGULARIZATION OF WALL-BOUNDED TURBULENT FLOWS by Trias, F.X., Gorobets, A., Verstappen, R. and Oliva, A.

TURBULENT ENTRAINMENT DUE TO A PLUME IMPINGING ON A DENSITY INTERFACE by van Reeuwijk, M., Hunt, G. and Jonker, H.

NUMERICAL SIMULATION OF THE TURBULENT SEPARATION REATTACHMENT FLOW AROUND A THICK FLAT PLATE by Tenaud, C., Fraigneau, Y. and Daru, V.

INNER-LAYER INTENSITIES FOR THE FLAT-PLATE TURBULENT BOUNDARY LAYER BY COMBINING A PREDICTIVE WALL MODEL WITH LES by Inoue, M., Mathis, R., Marusic, I. and Pullin, D.

LARGE-EDDY SIMULATION OF TURBULENCE-INDUCED AERO-OPTIC EFFECTS IN FREE SHEAR FLOWS by Volkov, K. and Emelyanov, V.

**We3D**, room D, Chair: A. Johansson  
SECOND ORDER CLOSURE FOR STRATIFIED CONVECTION: BULK REGION AND OVERSHOOTING by Biferale, L., Mantovani, F., Pivanti, M., Pozzati, F., Sbragaglia, M., Scagliarini, A., Schifano, S.F., Toschi, F. and Tripiccone, R.

FIRST RESULTS FROM THE VARIABLE DENSITY TURBULENCE TUNNEL by Bewley, G.P., Nobach, H., Xu, H. and Bodenschatz, E.

STRUCTURE FUNCTION SCALING IN A  $Re_{\lambda} = 250$  TURBULENT MIXING LAYER by Attili, A. and Bisetti, F.

CONDITIONAL ANALYSIS NEAR STRONG SHEAR LAYERS IN DNS OF ISOTROPIC TURBULENCE AT HIGH REYNOLDS NUMBER by Ishihara, T., Hunt, J.C.R. and Kaneda, Y.

FRACTAL PROPERTIES OF A NON-AXISYMMETRIC WAKE by Nilsen, C. and Andersson, H.I.

**We4D**, room D, Chair: F. Plunian  
EXPERIMENTAL SPACE-TIME ANALYSIS OF WAVE TURBULENCE by Mordant, N.

WAVELET ANALYSIS OF THE SLOW NON-LINEAR DYNAMICS OF WAVE TURBULENCE by Miquel, B. and Mordant, N.

LARGE-SCALE VELOCITY FLUCTUATIONS OF TURBULENCE by Mouri, H.

IN-SILICO EXPERIMENTS ON CHARACTERISTIC TIME SCALE AT A SHEAR-FREE GAS-LIQUID INTERFACE IN FULLY DEVELOPED TURBULENCE by Nagaosa, R. and Handler, R.

SYNTHETIC TURBULENCE PREDICTION IN NON-KOLMOGOROV TURBULENCESYNTHETIC TURBULENCE PREDICTION IN NON-KOLMOGOROV TURBULENCE by Nicolleau, F., Nowakowski, A. and Michelitsch, T.

19:00–23:00 Conference Dinner

# Thursday

9:00–9:45 Invited lecture by J. Schumacher ‘Heat transport in dry and moist Rayleigh-Benard convection’ (Auditorium), Chair: J.-F. Pinton

<p><b>Th1A</b>, room A, Chair: R. Antonia ANALYSIS AND NUMERICAL SIMULATION OF A LABORATORY ANALOG OF RADIATIVELY INDUCED CLOUD-TOP ENTRAINMENT by <u>Schmidt, H.</u>, <u>Kerstein, A.R.</u>, <u>Nédélec, R.</u>, <u>Wunsch, S.</u> and <u>Sayler, B.J.</u> A FAST ATMOSPHERIC TURBULENT PARAMETERS ESTIMATION. APPLICATION TO LIDAR OBSERVATIONS. by <u>Suzat, F.</u>, <u>Baehr, C.</u> and <u>Dabas, A.</u> QUASI-GEOSTROPHIC TURBULENCE AT FINITE ROSSBY NUMBER by <u>Vallgren, A.</u>, <u>Deusebio, E.</u> and <u>Lindborg, E.</u> TRANSIENT DIABATIC PLUMES SIMULATE CUMULUS CLOUD FORMS, EVOLUTION, ENTRAINMENT by <u>Diwan, S.S.</u>, <u>Narasimha, R.</u>, <u>Bhat, G.S.</u> and <u>Sreenivas, K.R.</u> KINEMATIC AND DYNAMIC PAIR COLLISION STATISTICS OF SEDIMENTING INERTIAL PARTICLES RELEVANT TO WARM RAIN INITIATION by <u>Rosa, B.</u>, <u>Parishani, H.</u>, <u>Ayala, O.</u>, <u>Wang, L.-P.</u> and <u>Grabowski, W.W.</u></p>	<p>09:50</p> <p>10:05</p> <p>10:20</p> <p>10:35</p> <p>10:50</p>	<p><b>Th1B</b>, room B, Chair: A. Petrosyan LES OF THE INTERACTION BETWEEN A PREMIXED FLAME AND COMPLEX TURBULENT SWIRLING FLOW by <u>Ludiciani, P.</u>, <u>Duwig, C.</u>, <u>Szasz, R.Z.</u>, <u>Fuchs, L.</u> and <u>Gutmark, E.J.</u> IMPLEMENTATION OF MULTI-STEP GLOBAL REACTION MECHANISMS IN LES SOLVERS by <u>Irannezhad, M.</u> and <u>Eriksson, L.-E.</u> TRANSPORT OF INERTIAL PARTICLES IN A TURBULENT PREMIXED JET FLAME by <u>Battista, F.</u>, <u>Picano, F.</u>, <u>Troiani, G.</u> and <u>Casciola, C.M.</u> THE EFFECTS OF BACK-REACTION ON TURBULENCE MODULATION IN SHEAR FLOWS by <u>Gualtieri, P.</u>, <u>Picano, F.</u>, <u>Sardina, G.</u> and <u>Casciola, C.M.</u> TURBULENCE MODIFICATION AND PARTICLE DISPERSION IN A GAS-DROPLETS NON-ISOTHERMAL TURBULENT FLOW DOWNSTREAM OF A PIPE SUDDEN EXPANSION by <u>Terekhov, V.</u> and <u>Pakhomov, M.</u></p>	<p>09:50</p> <p>10:05</p> <p>10:20</p> <p>10:35</p> <p>10:50</p>	<p><b>Th1C</b>, room C, Chair: S. Babuin TURBULENCE IN A BOSE-EINSTEIN CONDENSATE by <u>White, A.</u>, <u>Proukakis, N.</u>, <u>Youd, A.</u>, <u>Wacks, D.</u>, <u>Baggaley, A.</u> and <u>Barenghi, C.F.</u> SYMMETRY PLANE CONDITIONS IN NUMERICAL EULER SOLUTIONS by <u>Kerr, R.</u> and <u>Bustamante, M.</u> VORTICITY BUDGET OF A TORNADO-LIKE VORTEX by <u>Sassa, K.</u> and <u>Takemura, S.</u> COHERENT STRUCTURE FORMATION IN THE TWO-DIMENSIONAL TURBULENT INVERSE CASCADE by <u>Scott, R.K.</u> EVOLUTION MECHANISMS OF SMALL-SCALE VORTICES IN WALL VICINITY OF UNSTEADY TURBULENT CHANNEL FLOW by <u>Iida, O.</u>, <u>Arakawa, M.</u> and <u>Hirabayashi, S.</u></p>	<p><b>Th1D</b>, room D, Chair: A. Günter THE INFLUENCE OF NON-OBERBECK-BOUSSINESQ EFFECTS ON ROTATING TURBULENT RAYLEIGH-BENARD CONVECTION by <u>Horn, S.</u>, <u>Shishkina, O.</u> and <u>Wagner, C.</u> LONG TIME EVOLUTION OF LARGE-SCALE PATTERNS IN A RECTANGULAR RAYLEIGH-BÉNARD CELL by <u>Sergent, A.</u> and <u>Le Quéuré, P.</u> TURBULENCE AND MIXING CHARACTERISTICS IN THE VARIABLE-DENSITY RAYLEIGH-TAYLOR MIXING LAYER by <u>Livescu, D.</u>, <u>Wei, T.</u> and <u>Petersen, M.</u> BIFURCATIONS IN TURBULENT ROTATING RAYLEIGH-BÉNARD CONVECTION: A FINITE-SIZE EFFECT by <u>Weiss, S.</u> and <u>Ahlers, G.</u> ENERGY SPECTRA IN RAYLEIGH-BENARD CONVECTION by <u>Verma, M.</u>, <u>Mishra, P.</u>, <u>Chandra, M.</u> and <u>Paul, S.</u></p>
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## 11:05–11:25 Coffee & WT Poster Session

<p><b>Th2A</b>, room A, Chair: S. Drobnik LINEAR STABILITY OF POISEUILLE FLOW OVER A GENERALIZED STOKES LAYER by <u>Quadrio, M.</u>, <u>Martinelli, F.</u> and <u>Schmid, P.</u> FLOW OVER RIBLET CURVED SURFACES by <u>Loureiro, J.</u> and <u>Silva Freire, A.P.</u> NATURAL LAMINAR-TURBULENT TRANSITION DELAY BY DIELECTRIC BARRIER DISCHARGE by <u>Ustinov, M.</u>, <u>Kogan, M.</u>, <u>Litvinov, V.</u> and <u>Uspensky, A.</u> EFFECTS OF SPATIALLY VARYING SLIP LENGTH ON FRICTION DRAG REDUCTION IN WALL TURBULENCE by <u>Hasegawa, Y.</u>, <u>Frohnepfel, B.</u> and <u>Kasagi, N.</u> CONTROLLING THE DUAL CASCADE OF TWO-DIMENSIONAL TURBULENCE by <u>Farazmand, M.</u>, <u>Kevlahan, N.</u> and <u>Protas, B.</u></p>	<p>11:25</p> <p>11:40</p> <p>11:55</p> <p>12:10</p> <p>12:25</p> <p>12:40</p> <p>12:55</p>	<p><b>Th2B</b>, room B, Chair: J. Siria STEADY VERSUS UNSTEADY WALL PRESSURE FLUCTUATIONS by <u>Baars, W.</u>, <u>Tinney, C.</u> and <u>Ruf, J.</u> ADJOINT BASED NOISE MINIMIZATION OF A ROUND SUPERSONIC JET by <u>Schulze, J.</u> and <u>Sesterhenn, J.</u> TURBULENT ENERGY ROUTES IN VISCOELASTIC WALL TURBULENCE by <u>De Angelis, E.</u>, <u>Casciola, C.M.</u> and <u>Piva, R.</u> MEASUREMENT AND SIMULATION OF A TURBULENT SPRAY by <u>Bordás, R.</u>, <u>John, V.</u>, <u>Schmeyer, E.</u> and <u>Thévenin, D.</u> TURBULENCE CHARACTERISTICS AND MIXING PERFORMANCES OF VISCOELASTIC FLUID FLOW IN A SERPENTINE MICROCHANNEL by <u>Tatsumi, K.</u>, <u>Takeda, Y.</u>, <u>Suga, K.</u> and <u>Nakabe, K.</u> CAPTURING COHERENT STRUCTURES AND TURBULENT INTERFACES IN WAKE FLOWS BY MEANS OF THE ORGANISED EDDY SIMULATION, OES AND BY TOMO-PIV by <u>Deri, E.</u>, <u>Ouvrard, H.</u>, <u>Braza, M.</u>, <u>Hunt, J.C.R.</u>, <u>Hoarau, Y.</u>, <u>Cazin, S.</u>, <u>Cid, E.</u> and <u>Harran, G.</u></p>	<p>11:25</p> <p>11:40</p> <p>11:55</p> <p>12:10</p> <p>12:25</p> <p>12:40</p> <p>12:55</p>	<p><b>Th2C</b>, room C, Chair: S. Kenjers ANOMALOUS TRACER CONCENTRATION ALONG LINES WRITTEN IN A TURBULENT JET FLOW by <u>Dam, N.</u> and <u>van de Water, W.</u> EXPERIMENTAL INVESTIGATION OF CHARACTERISTICS OF TRANSIENT LOW PRESSURE WALL-IMPINGING GAS JET by <u>Yu, J.</u>, <u>Hillamo, H.</u>, <u>Vuorinen, V.</u>, <u>Sarjovaara, T.</u>, <u>Kaario, O.</u> and <u>Larmi, M.</u> NONLINEAR DYNAMO ACTION IN A CYLINDRICAL CONTAINER DRIVEN BY PRECESSION by <u>Nore, C.</u>, <u>Léorat, J.</u>, <u>Guermond, J.-L.</u> and <u>Luddens, F.</u> INTERMITTENCY OF QUASI-STATIC MAGNETOHYDRODYNAMIC TURBULENCE: A WAVELET VIEWPOINT by <u>Okamoto, N.</u>, <u>Yoshimatsu, K.</u>, <u>Schneider, K.</u> and <u>Farge, M.</u> LONG-TIME MAGNETIC AND CROSS HELICITIES EVOLUTION IN THE FREE DECAYING MHD TURBULENCE by <u>Stepanov, R.</u> and <u>Frick, P.</u> CROSS-HELICITY EFFECTS AND TURBULENT TRANSPORT IN MAGNETOHYDRODYNAMIC FLOW by <u>Yokoi, N.</u> and <u>Balarac, G.</u></p>	<p><b>Th2D</b>, room D, Chair: H. Clerx STRUCTURE FUNCTIONS IN ROTATING RAYLEIGH-BÉNARD CONVECTION by <u>Kunnen, R.</u>, <u>Clercx, H.J.H.</u> and <u>Geurts, B.J.</u> PRANDTL AND RAYLEIGH NUMBER DEPENDENCE OF HEAT TRANSPORT IN HIGH RAYLEIGH NUMBER THERMAL CONVECTION by <u>Stevens, R.</u>, <u>Lohse, D.</u> and <u>Verzicco, R.</u> HORIZONTAL ROLLS IN CONVECTIVE FLOW ABOVE A PARTIALLY HEATED SURFACE by <u>Teymurazov, A.</u>, <u>Sukhanovsky, A.</u>, <u>Batalov, V.</u> and <u>Frick, P.</u> HEAT TRANSFER IN CRYOGENIC HELIUM TURBULENT RAYLEIGH-BÉNARD CONVECTION by <u>Urban, P.</u>, <u>Musilová, V.</u>, <u>Králík, T.</u> and <u>Skrbek, L.</u> REVERSALS OF LARGE-SCALE CIRCULATION AT TURBULENT CONVECTION IN RECTANGULAR BOXES by <u>Vasiliev, A.</u> and <u>Frick, P.</u> TEMPERATURE STATISTICS IN TURBULENT RAYLEIGH-BÉNARD-CONVECTION by <u>Lülf, J.</u>, <u>Wilczek, M.</u> and <u>Friedrich, R.</u> HEAT TRANSPORT IN TURBULENT RAYLEIGH-BÉNARD CONVECTION by <u>Ahlers, G.</u>, <u>Funfschilling, D.</u> and <u>Bodenschatz, E.</u></p>
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## 13:10–14:40 Lunch & WT Poster Session

14:40–15:25 Invited lecture by L. Skrbek ‘Quantum Turbulence’ (Auditorium), Chair: P.A. Davidson

Th3A, room A, Chair: N. Kevlahan  
 SELF-SIMILAR TURBULENT BOUNDARY LAYER IN PRESSURE GRADIENT. FOUR FLOW REGIMES by Vigdorovich, I. 15:30

DIRECT SIMULATION OF TURBULENT BOUNDARY LAYER UP TO  $Re=6200$  by Sillero, J.A., Jiménez, J., Moser, R.D. and Malaya, N.P. 15:45

CONTROL AND INSTANTON TRAJECTORIES FOR RANDOM TRANSITIONS IN TURBULENT FLOWS by Bouchet, F., Laurie, J. and Zaboronski, O. 16:00

DETECTION OF NEAR-WALL STREAMWISE VORTICES BY MEASURABLE INFORMATION ON THE WALL AND ITS APPLICATION IN TURBULENCE CONTROL by Ge, M.-W., Xu, C.-X. and Cui, G.-X. 16:15

Th3C, room C, Chair: K. Bajer  
 VORTICITY SCATTERING MEASUREMENTS IN A SUPERFLUID INERTIAL ROUND JET by Duri, D., Salort, J., Diribarne, P., Roche, P.-E. and Baudet, C. 15:30

SELF-RECONNECTING QUANTIZED VORTICES IN SUPERFLUID TURBULENCE by Salman, H. 15:45

INSTABILITIES IN SUPERFLUID PLANE POISEUILLE FLOW by Sooraj, R. and Sameen, A. 16:00

VORTEX LOOPS CASCADE AS A CHANNEL OF QUANTUM TURBULENCE DECAY by Kursa, M.B., Bajer, K. and Lipniacki, T. 16:15

Th3D, room D, Chair: J. Jurkowska  
 BAYESIAN UNCERTAINTY QUANTIFICATION APPLIED TO RANS TURBULENCE MODELS by Oliver, T. and Moser, R.D. 15:30

VERTEX CORRECTIONS AND OPTIMAL SUBGRID MODELS FOR HOMOGENEOUS ISOTROPIC TURBULENCE by Rubinstein, R., Bos, W. and Gotoh, T. 15:45

ON EDDY VISCOSITY MODELS THAT RESTRICT THE DYNAMICS TO LARGE EDDIES by Verstappen, R. 16:00

ASSESSMENT OF PERFORMANCE OF TWO TURBULENCE MODELS IN PREDICTING AN AXYSYMMETRIC WATER JET EVOLVING INTO A WATER TANK by Zidouni Kendil, F., Danciu, D.-V., Bousbia Salah, A. and Mataoui, A. 16:15

16:30–17:00 Closing remarks (Auditorium)

20:30–21:30 Public lecture by Prof. Julian Hunt (Auditorium)

**NOTE TO THE CHAIRMEN**

If you cannot chair the allocated session, please leave the message at the Reception Desk. Please note that strict time keeping is of essence. At least one minute must be left for a comfortable change of speakers.

## Poster sessions

- MT 1 ON THE HIGH ORDER NUMERICAL INTEGRATION OF THE NAVIER-STOKES EQUATIONS FOR THE SIMULATION OF THE COMPRESSIBLE FLUID FLOW FOR AEROACOUSTICS by Cojocaru, M. and Vadean, C.C.
- MT 2 A STUDY FOR WALL PRESSURE FLUCTUATIONS MODELING by Parlato, M.A., Di Marco, A., Camussi, R. and Jordan, P.
- MT 3 RESEARCH ON WIND STRUCTURE IN THE WIND TUNNEL OF WIND ENGINEERING LABORATORY OF CRACOW UNIVERSITY OF TECHNOLOGY by Bęć, J., Lipeccki, T. and Btazik-Borowa, E.
- MT 4 MODELING OF AUTO-CATALYTIC HALOGEN RELEASE AND OZONE DEPLETION IN POLAR REGIONS by Cao, L. and Gutheil, E.
- MT 5 AERONAUTICAL DIAGNOSTICS FOR CLEAR AIR TURBULENCE FORECASTING AT METEOFRANCE by Crespin, A., Lebot, C., Bouteloup, Y. and Bouysse, F.
- MT 6 EDDY MIXING IN ATMOSPHERIC BOUNDARY LAYER UNDER STRONGER STRATIFICATION by Kurbatskiy, A. and Kurbatskaya, L.
- MT 7 INVESTIGATION OF MULTI-POINT STATISTICS IN ATMOSPHERIC TURBULENT BOUNDARY LAYER FLOWS by Risius, S., Xu, H. and Bodenschatz, E.
- MT 8 RANS CANOPY CONSTANTS FROM WEAK TURBULENCE REGIME by Viana Lopes, J., Palma, J.M.L.M. and Silva Lopes, A.
- MT 9 TROPICAL CYCLONE TURBULENT MIXING AS OBSERVED BY AUTONOMOUS OCEANIC PROFILERS WITH THE HIGH REPETITION RATE by Baranowski, D., Flatau, P. and Malinowski, S.P.
- MT 10 THREE-DIMENSIONAL TRANSITION TO TURBULENCE IN THE WAKE OF AN INCLINED FLAT PLATE by Yang, D., Pettersen, B., Andersson, H.I. and Narasimhamurthy, V.D.
- MT 11 COMPRESSIVE AND EXTENSIVE STRAIN ALONG GRADIENT TRAJECTORIES by Gampert, M., Goebbert, J.H., Schaefer, P., Gauding, M., Peters, N., Aldudak, F. and Oberlack, M.
- MT 12 INFLUENCE OF THE FORCING GEOMETRY TO THE LARGE SCALE STRUCTURE OF A QUASI TWO DIMENSIONAL TURBULENT FLOW by Cutiérrez, P. and Aumaitre, S.
- MT 13 TOWARDS LOCAL RESOLUTION MEASUREMENTS IN TURBULENT LIQUID METAL DUCT FLOWS by Heinicke, C., Thess, A. and Rahneberg, I.
- MT 14 HELICITY AND THE TURBULENT MAGNETIC PRANDTL NUMBER by Jurčičinová, E., Jurčičin, M. and Remecký, R.
- MT 15 DEALIASED CONVOLUTIONS WITHOUT PADDING by Roberts, M. and Bowman, J.C.
- MT 16 WE DEMONSTRATE EXPERIMENTALLY THAT THE POSITION OF WAVE BREAKING POINT IS VERY SENSITIVE TO THE CONCENTRATION OF AIR BUBBLES WHICH ARE CREATED ARTIFICIALLY NEAR FREE SURFACE OF WATER. by Merkoune, D., Ezersky, A., Abcha, N., Amine, F. and Mouazé, D.
- MT 17 REAL-TIME IMAGE COMPRESSION ON LAGRANGIAN PARTICLE TRACKING DATA by Di Lorenzo, F., Gibert, M. and Bodenschatz, E.
- MT 18 PARTICLE DEPOSITION IN CIRCULAR PIPES WITH VARIABLE BED HEIGHT by Adams, J., Fairweather, M. and Yao, J.
- MT 19 PARTICLE DEPOSITION IN TURBULENT SQUARE DUCT FLOWS by Yao, J. and Fairweather, M.
- MT 20 FRACTAL PATTERNS IN TURBULENT FLOWS FOR LADEN PARTICLES by Farhan, M., Nicolleau, F., Nowakowski, A. and Angilella, J.-R.
- MT 21 ROTATION CORRELATION BETWEEN FINITE-SIZE NEUTRALLY BUOYANT PARTICLES AND THE TURBULENT FLOW AROUND IT by Klein, S., Gibert, M. and Bodenschatz, E.
- MT 22 TRANSPORT OF LAGRANGIAN PARTICLES INDUCED BY THE INTERACTION BETWEEN A FREE SINGULAR VORTEX AND A TOPOGRAPHIC SUBMERGED OBSTACLE by Ryzhov, E.A. and Koshel, K.V.
- MT 23 SEDIMENTATION VELOCITY OF HEAVY PARTICLES IN TURBULENT FLOWS by Scatamacchia, R., Lanotte, A.S. and Toschi, F.
- MT 24 TURBULENCE MODULATION BY PARTICLES IN LES OF BACKWARD-FACING STEP FLOW by Volavy, J., Forman, M. and Jicha, M.
- MT 25 DESCRIPTION OF TURBULENCE ON THE BASIS OF KINETIC EQUATIONS by Aristov, V. and Ilyin, O. V.
- MT 26 NUMERICAL SIMULATIONS OF INDUSTRIAL-SCALE COMBUSTION CHAMBER - LES VERSUS RANS by Kwiatkowski, K., Jasiński, D. and Bajer, K.
- MT 27 ADVANCE IN LINEAR THEORY FOR HOMOGENEOUS TURBULENCE SUBJECTED TO BAROCLINIC INSTABILITY by Pieri, A., Salhi, A., Cambon, C. and Godefert, F.S.
- MT 28 LARGE EDDY SIMULATION OF STABLY STRATIFIED TURBULENCE by Shen, Z., Zhang, Z., Cui, G.-X. and Xu, C.-X.
- MT 29 MICRO-CANTILEVER ANEMOMETER FOR CRYOGENIC HELIUM by Salort, J., Monfardini, A. and Roche, P.-E.
- MT 30 LARGE EDDY SIMULATIONS OF PARTICLE-TURBULENCE INTERACTION IN THE TURBULENT FLOW by Jaszczur, M.

- WT 1 EXPERIMENTAL STUDY OF VORTEX FLOW CONTROL OVER A DELTA WING AT LOW REYNOLDS NUMBERS by Kastantin, Y., Nayeri, C.N. and Paschereit, C.O.
- WT 2 TURBULENT SKIN-FRICTION DRAG ON A SLENDER BODY OF REVOLUTION AND GRAY'S PARADOX by Nesteruk, I. and Cartwright, J.
- WT 3 PROPOSED METHOD FOR MEASUREMENT OF FLOW RATE IN UNSTEADY PERIODIC PIPE FLOW by Wertzner, E., Ray, S. and Trimis, D.
- WT 4 EXPERIMENTAL AND NUMERICAL INVESTIGATION OF DIMPLELIKE PROTRUSIONS EMPLOYED IN RECENT HEAT EXCHANGERS by Preibisch, S., Dietzel, D., Friebe, C. and Buschmann, M.H.
- WT 5 LABORATORIAL STUDIES ON THE SEEPAGE IMPACT IN RIVER FLOW TURBULENCE by Herrera Granados, O. and Kostecki, S.
- WT 6 NUMERICAL SIMULATION OF RIBLETS IN PRESENCE OF PRESSURE GRADIENT by Mele, B. and Tognaccini, R.
- WT 7 TURBULENT BOUNDARY LAYER OVER AN UNIFORMLY PERFORATED SURFACE WITH BLOWING by Motuz, V., Kornilov, V., Jehring, L. and Egbers, C.
- WT 8 VELOCITY AND PRESSURE MEASUREMENTS BEHIND FRACTAL ORIFICE PLATE by Muztaba Salim, S.M., Nicolleau, F.C.G.A. and Beck, S.B.M.
- WT 9 DNS OF TURBULENT FLOW IN A CHANNEL WITH AN ELASTIC CANTILEVER by Tsujimoto, K., Sasaki, Y., Shakouchi, T. and Ando, T.
- WT 10 ADVANCED FLUID RESEARCH ON DRAG REDUCTION IN TURBULENCE EXPERIMENTS by Fransson, J., Fallenius, B., Shahinfar, S., Sattarzadeh, S.S. and Talamelli, A.
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