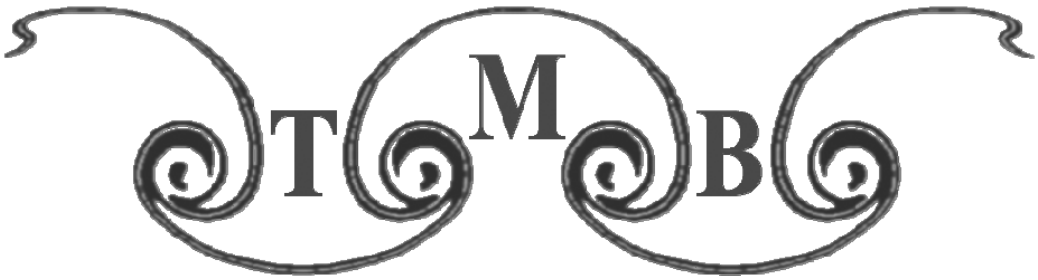

Turbulent Mixing and Beyond

Sixth International Conference

Tenth Anniversary Program

PROGRAM

14 - 18 August, 2017

the Abdus Salam International Centre for Theoretical Physics

Strada Costiera 11, Trieste, Italy

Tel: +39–040–2240–9932; Fax: +39–040–2240–7932

E-mail: smr3141@ictp.it, tmb@ictp.it, tmb.program@gmail.com

http://www.ictp.it/~tmb/, http://tmbw.org

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When?

Routine

9.00 – 10.00	lectures, talks
10.00 – 10.30	*coffee break*
10.30 – 12.30	lectures, talks
12.30 – 14.00	*lunch*
14.00 – 16.00	lectures, talks
16.00 – 16.30	*coffee break*
16.30 – 18.30	lectures, talks

Parallel sessions

14 August 2017	Monday	14.00-16.20
15 August 2017	Tuesday	9.00-10.15, 10.30-12.50, 14.00-16.20
16 August 2017	Wednesday	9.00-10.20, 10.30-12.45, 15.00-16.10
17 August 2017	Thursday	9.00-10.20, 10.30 – 12.30, 14.00-16.20
18 August 2017	Friday	9.00-10.05, 10.30 – 12.50

Poster session

15 August 2017	Tuesday	17.30 – 19.00

Round Tables

17 August 2017	Thursday	17.30 – 19.00

TMB4U presentations

14 August 2017	Monday	14.00-16.20
15 August 2017	Tuesday	14.00-16.20, 17.30-19.00
16 August 2017	Wednesday	9.00-10.20, 16.30-18.40
17 August 2017	Thursday	9.00-10.20, 14.00-16.20
18 August 2017	Friday	10.30 – 12.50

Where?

Leonardo da Vinci (Main) Building

Lectures, Talks	Budinich (Main) Lecture Hall
Lectures, Talks	Euler Lecture Hall
Poster Sessions	Poster Hall, nearby Budinich Lecture Hall
Round Tables	Oppenheimer Room
Computer/Internet	Computer rooms, wireless

Coffee, Receptions, Banquet

Coffee Breaks on 14 Aug - 18 Aug at 10.00-10.30 & 16.00-16.30 near Budinich Lecture Hall
Receptions on 13 Aug at 19.00-21.00 & 18 Aug at 19.00 – 21.00 at Adriatico Guest House
Banquet on 16 Aug Wed at 19.00 – 21.00 at Adriatico Guest House

13 August 2017, Sunday

ADRIATICO GUEST HOUSE

18.00-19.00 Organizing Committee meeting

14 August 2017, Monday

BUDINICH LECTURE HALL

M1.1	Non-equilibrium processes
9.00-9.35	TMB-2017 Introduction Abarzhi SI
9.35-10.10	Intermittent many-body dynamics at equilibrium Campbell DK

M2.1	High energy density physics
10.30-11.05	Vorticity and kinetic energy in Richtmyer-Meshkov like flows Wouchuk JG
11.05-11.40	High energy density turbulent mixing from astrophysical collisionless plasma flows to solid-density plastic flow in metals Park HS
11.40-12.15	Novel regimes of hydrodynamic instabilities and mixing in high energy density settings Remington BA
12.15-12.50	Scale coupling in strong shock driven Richtmyer-Meshkov flows Abarzhi SI

M3.1	Non-equilibrium processes, Turbulence, Magneto-hydrodynamics
14.00-14.35	Dynamics of the vortex line density in anisotropic superfluid turbulence Procaccia I
14.35-15.10	Instability and fragmentation of liquid jets: molecular dynamics and smoothed particle hydrodynamics simulations Zhakhovsky VV
15.10-15.45	Is helicity everywhere or nowhere? The case of rotating stratified magnetohydrodynamic turbulence Cambon C
15.45-16.20	Non-stationary turbulent energy cascade in the framework of scaling symmetry approach Gorokhovski MA

M4.1	Non-equilibrium processes, Plasmas
16.30-17.00	Slow, fast and ultra-fast components of ordered structures in fluid flows Chashechkin YD
17.00-17.30	Similarity of anisotropic, variable viscosity flows Danaila L
17.30-18.00	Nonlinear interactions of kink-unstable flux ropes and shear Alfven waves: creating smaller-scale structures from larger ones Vincena ST
18.00-18.30	Turbulence spreading and avalanch dynamics in fusion plasmas Hahm TS

14 August 2017, Monday

EULER LECTURE HALL

M3.2	Mathematical aspects, Combustion, Interfacial dynamics TMB4U
14.00-14.20	Dissipation element analysis of premixed and non-premixed turbulent flames Attili A
14.20-14.40	A fully homogenized model for a non-equilibrium two-phase flow in double porosity media with thin fissures Voloshin A
14.40-15.00	Exact time-dependent solution to the Euler-Helmholtz and Riemann-Hopf equations Chefranov AS
15.00-15.20	Development and validation of a five-equation multicomponent model with viscous, thermal and species diffusion Groom M
15.20-15.40	What is the final size of turbulent mixing zones driven by the Faraday instability? Grea BJ
15.40-16.00	Effect of noise on Rayleigh-Taylor mixing with space-dependent acceleration Pandian A
16.00-16.20	Convective thermal fluxes in unsteady non-homogenous flows Tellez J

15 August 2017, Tuesday

BUDINICH LECTURE HALL

T1.1	Magneto-hydrodynamics, Physics of atmosphere
9.00-9.35	Heat transfer enhancement in liquid metal targets by rotating magnetic field Sukoriansky S
9.35-10.10	Turbulence in rotating fluids and the Nastrom & Gage spectrum Galperin B
T2.1	Astrophysics, High energy density physics
10.30-11.00	Cascades and scaling in two-dimensional compressible turbulence Kritsuk A
11.00-11.30	Primordial magneto-hydrodynamic turbulence and its signatures Kahniashvili T
11.30-12.00	Mixing as relaxation Williams RJR
12.00-12.30	On the multidimensional character of core-collapse supernova explosions Endeve E
12.30-12.50	Effect of large-scale vorticity perturbations on shocks undergoing nuclear dissociation Huete C
T3.1	Non-equilibrium processes, Turbulence and mixing
14.00-14.35	Understanding turbulence from a kinetic theory perspective Chen H
14.35-15.10	Turbulence and mixing in thermal convection Verma MK
15.10-15.45	Intermittency effects on passive scalar spectrum at very high Schmidt number Gotoh T
15.45-16.10	Non-Richardson scaling laws in turbulent particle pair diffusion Malik NA
T4.1.1	Geophysics
16.30-17.05	Circulation in the atmospheres of gas giant planets and in the Earth's outer core due to small-scale convection Afanasyev YD
17.05-17.40	Geostrophic turbulence and the formation of large scale structure Knobloch E
T4.1.2	Poster Session
17.30-19.00	Posters in TMB themes

15 August 2017, Tuesday

EULER LECTURE HALL

T1.2	Material science, Mathematical aspects
9.00-9.20	Shock compressibility of two-phase liquid-vapor mixture of metals at high temperatures Khishchenko KV
9.20-9.40	Analytical solutions for the nonlinear regime of the Rayleigh-Taylor and Richtmyer-Meshkov instabilities at arbitrary Atwood number Bouquet SE
9.40-10.10	Laws of the wall for velocity and temperature in supersonic turbulent boundary layers Vigdorovich II
T2.2	Magneto-hydrodynamics, Physics of atmosphere, Geophysics
10.3-10.55	Evolution of Structures during electric explosion of conductors Tkachenko SI
10.55-11.20	Analysis of flow structural elements around obstacles in thermodynamically non-equilibrium media Zagumennyi IV
11.20-11.45	Towards a solution of the closure problem for convective atmospheric boundary layer turbulence Gryanik VM
11.45-12.10	Filtration by porous media: the role of flow disorder Miele F
12.10-12.30	Large eddy simulation of a marine turbine in a stable stratified flow condition Brunetti A
12.30-12.50	Mixing and entrainment in variable viscosity and density round jet Danaila L
T3.2	Wall-bounded flows, Physics of atmosphere, Geophysics, MHD TMB4U
14.00-14.20	On coherent structures in a turbulent mixing layer created downstream of a “Lambda” notch Suehiro E
14.20-14.40	On cascade reversal in extended MHD Miloshevich G
14.40-15.00	Linear analysis of magneto-hydrodynamic Richtmyer-Meshkov instability in converging geometry Bakhsh A
15.00-15.20	Single-particle dispersion in stably stratified turbulence Sujovolsky NE
15.20-15.40	Helicity distribution in a convective vortical flows Evgrafova AV
15.40-16.00	Simulation of turbulence mixing in atmosphere boundary layer and fractal dimension Strijhak S
16.00-16.20	Gas flow in unconventional gas reservoirs using space fractional transport models Ali I

16 August 2017, Wednesday

BUDINICH LECTURE HALL

W1.1	Wall-bounded and shear flows, Turbulence and mixing
9.00-9.25	Turbulent flow in the bulk of thermal convection: comparison of smooth and different roughness boundaries Foroozani N
9.25-10.00	Mean equation based scaling analysis of fully-developed turbulent channel flow with uniform heat generation Klewicki JC
W2.1	Stochastic processes
10.30-11.05	Symbolic approaches to characterize complex dynamics Small M
11.05-11.40	Anomalous super-diffusive transport and Levy walks Fedotov S
11.40-12.15	A comparison of realizable and regularized Markovian and non-Markovian inhomogeneous turbulence closures with ensemble averaged direct numerical simulations for general geophysical flows far from equilibrium. O'Kane TJ
12.15-12.45	Multi-level segment analysis and the applications in fluid turbulence Wang L
W3.1.1	Turbulence and mixing
14.00-15.00	Ten years of the TMB program Sreenivasan KR
W3.1.2	Turbulence and mixing, Interfacial dynamics
15.00-15.35	On the structure of the Rayleigh-Taylor Mixing zone Meshkov EE
15.35-16.10	On the fundamentals of Rayleigh-Taylor mixing driven by variable acceleration Abarzhi SI
W4.1	Interfacial dynamics, Magneto-hydrodynamics, Non-equilibrium processes
16.30-17.05	Current-vortex sheet dynamics in magneto-hydrodynamic flows Matsuoka C
17.05-17.30	Singularity formation in gas-dynamic and fast magneto-hydrodynamic shocks Pullin DI
17.30-17.55	Stability and structure of fields of a flow with a hydrodynamic discontinuity Ilyin D TMB4U
17.55-18.20	Anomalous diffusion in laminar flows Zaks MA
18.20-18.40	Internal intermittency and finite Reynolds number effect for turbulent mixing of passive and active scalars Danaila L

16 August 2017, Wednesday

EULER LECTURE HALL

W1.2	Material science, Non-equilibrium processes, Mathematical aspects TMB4U
9.00-9.20	Massively parallel Smoothed Particle Hydrodynamics modeling of shock-loaded spherical particles Egorova MS
9.20-9.40	Dynamics of turbulent melting from below driven by thermal convection Rabbanipour EB
9.40-10.00	Phase field model for immiscible two phase flow in microfluidic junctions Hafsi Z
10.00-10.20	The dynamics of selfish flocks Algar SD
W2.2	Turbulence and mixing, Combustion, Stochastic processes
10.30-10.55	Passive scalar transport by a non-Gaussian turbulent flow (Batchelor regime) Sirota VA
10.55-11.20	Transition from direct to inverse energy cascade in three dimensional turbulence Sahoo G
11.20-11.40	Reynolds stress closure for the RANS-equation Petty CA
11.40-12.00	Simulation of a Richtmyer-Meshkov turbulent mixing zone using a Probability Density Function model Guillois F
12.00-12.20	Rayleigh-Taylor unstable flames: connecting local and global properties Hicks EP
12.20-12.45	Processes formation of microporosity at initial stage of phase transition Zmievskaya GI
W3.2.2	Numerical modeling
15.00-15.25	A numerical study of decay of vortex rings in confined domains Sooraj R
15.25-15.50	Comparison of conjugate heat transfer in forward facing step using various turbulence models, considering variable thermophysical properties of the working fluid Jayakumar JS
15.50-16.10	Blended and nudged Navier-Stokes equations Germano M

17 August 2017, Thursday

BUDINICH LECTURE HALL

R4.1 High energy density physics

9.00-9.35 Interfacial magnetohydrodynamic instabilities in laser plasmas
Sano T

9.35-10.10 Collisionless shocks in the Large Plasma Device
Niemann C

R2.1 Plasmas

10.30-11.05 Ohms law and the collision of magnetic flux ropes
Gekelman W

11.05-11.40 Laser generated Richtmyer-Meshkov and Rayleigh-Taylor instabilities and nonlinear wave-vortex paradigm in turbulent mixing
Lugomer S

11.40-12.10 The dynamics of 2D turbulence in magnetically confined tokamak plasmas and statistical properties of the resulting transport
McKee G

12.10-12.40 Turbulent thermal mixing in multiple interacting magnetised electron temperature filaments
Sydora RD

R3.1 Mathematical aspects, high energy density physics

14.00-14.35 Quasi solution method in a vortex dynamics problem
Tanveer S

14.35-15.05 Remarks on the Clebsch representation of fluid mechanics and turbulence
Yoshida Z

15.05-15.40 The arrow of time and extending conventional thermodynamics from matter to antimatter
Klimenko AY

15.40-16.10 Rogue waves and Talbot carpets: Dynamics driven by modulation instability
Belic MR

R4.1.1 High energy density physics

16.30-17.05 Hydrodynamic instability as consequence of laser action
Inogamov NA

17.05-17.40 Internal Capsule Defects Quenching Thermonuclear Ignition
Azechi H

OPPENHEIMER ROOM

R4.1.2 Round Tables

17.40-19.00 Round Table

17 August 2017, Thursday

EULER LECTURE HALL

R1.2	Interfacial dynamics, Non-equilibrium processes, Combustion	TMB4U
9.00-9.20	Evolution of the linear Richtmyer-Meshkov instability when a shock/ rarefaction is reflected Cobos-Campos F	
9.20-9.40	Simulation of Richtmyer-Meshkov instability in the presence of thermal fluctuations using fluctuating hydrodynamics Narayanan K	
9.40-10.00	Particle clustering and turbophoresis in elastic turbulent flow Garg H	
10.00-10.20	Mathematical modeling of adiabatic shear bands formation under dynamical loading Ilnitsky D	
R2.2	Stochastic processes, Geophysics, Wall-bounded flows	
10.30-10.55	Stochastic subgrid models for inertial particles dynamics in a highly turbulent flow Gorokhovski M	
10.55-11.20	Localization of convective currents under frozen parametric disorder and eddy transport of passive scalar Goldobin DS	
11.20-11.45	A reduced model for salt-finger convection in the small diffusivity ratio limit Xie JH	
11.45-12.05	Large eddy simulation of turbulent flow in a sharp meander bend Campomaggiore F	
12.05-12.30	Turbulent flows in ducts of arbitrary shape Orlandi P	
R3.2	Experiments, Interfacial dynamics, Turbulence, Combustion	TMB4U
14.00-14.35	Physical characteristics determination of the products of the shock wave-induced surface destruction. Optoheterodyne Doppler measurements. Kuratov SE	
14.35-14.35	Ejecta produced by Rychtmyer-Meshkov instability from free metal surfaces Dyachkov SA	
14.35-15.00	Stochastic model of turbulent mixing layer and its use for explanation of peculiarities of aerodynamic noise generated by turbulent jet Kopiev VF	
15.00-15.20	Instabilities and mixing in internal waves attractors Sibgatullin I	
15.20-15.40	Interaction between shock wave and turbulent wake Inokuma K	
15.40-16.00	Modeling of turbulent flow through the ejector of a two-stage ejector refrigeration system Ziaei-Rad M	
16.00-16.20	Numerical investigation of turbulent flow through cooling channels Saeedan M	

18 August 2017, Friday

BUDINICH LECTURE HALL

F1.1	Combustion
9.00-9.35	The description of the acceleration of the spherically expanding hydrogen/air flames Golub VV
9.35-10.00	Atomistic and mesoscopic simulation of detonation initiation in porous explosives Murzov SA
F2.1	Numerical modeling
10.30-11.05	Coarse grained simulation of turbulent material mixing Grinstein F
11.05-11.40	Rayleigh-Taylor turbulent mixing layers for miscible Newtonian fluids from Boussinesq approximation to fully compressible Navier–Stokes model Gauthier S
11.40-12.15	Hierarchical wavelet-based modeling of turbulent flows Vasilyev OV
12.15-12.50	Turbulence and scaling in high performance computing Yeung PK
F3.1	Experiments, Stochastic processes, interfacial dynamics
14.00-14.30	Richtmyer-Meshkov shock induced fractal mixing Redondo JM
14.30-15.00	Dynamics of singularities, wavebreaking and turbulence in 2D hydrodynamics with free surface Lushnikov PM
15.00-15.30	Gyroscopic analogy of Coriolis effect for stabilizing a rotating stratified flow confined in a spheroid Fukumoto Y
15.30-16.00	Hydrodynamic instabilities Abarzhi SI
16.00-16.20	Analysis of high Atwood number Rayleigh-Taylor mixing using low-Mach number, variable density/viscosity, non-dissipative LES algorithm Yilmaz I
F4.1	Conclusion and Summary
16.30-17.00	Summary Abarzhi SI
17.00-18.00	Organizing Committee meeting

18 August 2017, Friday

EULER LECTURE HALL

F1.2	Material science, Non-equilibrium dynamics
9.00-9.25	Instability of the contact discontinuity in the presence of density perturbations Gorodnichev KE
9.25-9.45	Hydrodynamics of nanofilms with melting and re-crystallization non-equilibrium phase transitions of the first order under action of laser pulse Inogamov NA
9.45-10.05	Influence of time-delayed reaction on stability and transition to self-oscillating mode of multiphase flow in porous medium Konyukhov AV
F2.2	Wall-bounded flows, Physics of atmosphere, Numerical modeling TMB4U
10.30-10.50	Entrainment and scalar mixing process near turbulent/non-turbulent interface in compressible boundary layers Zhang X
10.50-11.10	Compressibility effects on initial evolution of mixing layers Arun S
11.10-11.30	Lagrangian coherent structures resulting from three-dimensional axial vortex breakdown Manjul S
11.30-11.50	Large-eddy simulations of turbulent flow past the Aerospatiale A-airfoil at high Reynolds number Gao W
11.50-12.10	On sheared wind-driven air-shallow water turbulent boundary layers using LES Lopez CS
12.10-12.30	DNS of lid rotating Rayleigh Benard convection Vishnu R
12.30-12.50	Computer simulation of the initial stage of condensation with the fragmentation of charged melt drops Maslennikov SA

15 August 2017, Tuesday

POSTER HALL

T4.1.2 Poster Session
17.30-19.00 Posters in TMB themes

N	Title	Author(s)
1	Cosmological evidence that the turbulence problem is solved	Gibson CH
2	Propulsion generated by diffusion-induced flows on a plate and a wedge	Chashechkin YD ; Zagumennyi IV ; Dimitrieva NF
3	Determination of size and concentration of water droplets in experiments with Wilson chamber	Goncharov E; Bazarov M
4	Computational fluid dynamics modeling and simulation of combustion dynamics in a coal gasification process	Ahsan M; Hussain B; Hussain A
5	Investigating flame length and time scales and flame response to oscillations using TARDIS with realistic chemistry	Malik NA
6	Contribution to experimental and numerical study of a full developed fire in an enclosure, with emphasis on flashover phenomenon	Mouangue RM; Onguene MP; Ekobena FHP
7	Large-eddy simulation of mild flame in non-premixed bluff-body burner	Zhang J; Yang T
8	Three-wave resonance in water surface waves	Abella AP ; Soriano MN
9	About the possibility of cumulation stability investigation of the investigation on the hydraulic model of cylindrical implosion	Bespalov DS ; Gryazeva EM ; Kudryavtsev AY ; Meshkov EE ; Novikova IA ; Repin AS
10	Turbulent gaseous mixing induced by the Richtmyer-Meshkov instability at the shock and reshock phase: shock tube experiments and 3D numerical simulations	Bouzgarou G; Bury Y; Jamme S; Griffond J; Souffland D; Haas JF
11	Development of methods for investigating the stability of the pop-up bubble dome in case of small Atwood number	Kanygin RI; Kashcheev AD; Kudryavtsev AY; Meshkov EE; Novikova IA
12	Visualization of some unstable fluid flows by means of solid and liquid markers	Meshkov EE, Novikova IA
13	Effect of double diffusion phenomenon on solutal advective flow	Mosheva EA; Mizev AI; Kostarev KG
14	Enhanced turbulence and mixing in a controlled Taylor–Couette flow	Oualli H; Abdelalil A; Mekadem M; Bouabdallah A; Gad-el-Hak M
15	Turbulence and mixing generated by 3D sparse multi-scale grid	Usama SM ; Kopec JM ; Tellez J ; Kwiatkowski K

		; Redondo JM ; Malik NA
16	Passive scalar mixing in temporally developing grid turbulence	Watanabe T; Nagata K
17	Turbulent boundary layer and mixing of waters of confluensing rivers	Klimenko LS; Goldobin DS; Pimenova AV; Lyubimova TP; Lepikhin AP
18	Dynamic stabilization of plasma instabilities	Kawata S ; Gu YJ
19	Effect of a relative phase of waves constituting the initial perturbation and the wave interference on the dynamics of strong shock driven Richtmyer-Meshkov flows	Pandian A ; Abarzhi S
20	Effect of noise on Rayleigh-Taylor mixing with time-dependent acceleration	Pandian A ; Swisher N ; Abarzhi S
21	Multifluid mathematical model for the numerical investigation of high-speed interaction of metal plates	Utkin PS ; Fortova SV ; Shepelev VV
22	One dimensional turbulent diffusion model for hydrodynamic instability mixing zone growth	Asida SM; Gazit D; Livne E
23	Effect of pressure fluctuations on Richtmyer-Meshkov coherent structures	Bhowmick AK ; Abarzhi SI
24	Effect of pressure fluctuations on Richtmyer-Meshkov coherent structures	Bhowmick AK ; Abarzhi SI
25	A computational study for the membrane supporting grid effect on the Richtmyer-Meshkov instability	Mohamad AM; Samtaney R
26	Late-time evolution of Rayleigh-Taylor instability in a domain of a finite size	Naveh A; Mathew M; Abarzhi SI
27	Low-symmetric coherent structures and dimensional crossover in Rayleigh Taylor flows driven by time dependent accelerations	Bhowmick AK ; Abarzhi SI
28	Scaling laws due to fractal and non-fractal multi-scale space-filling geometries in physical systems	Malik NA
29	Turbulent diffusion of inertial particle pairs such as in pollen and sandstorms	Usama SM; Malik NA
30	Stably and unstably magnetized stratified weak wave turbulence	Nasraoui S; Salhi A
31	Experimental study of heat transfer enhancement in liquid metal by rotating magnetic field	Shukrun T; Sukoriansky S; Zemach E
32	Instability of the interface between two high-speed colliding metal plates: 3D numerical simulation	Fortova SV; Shepelev VV
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