

Symposium on Fluid Science and Turbulence

Poster Session I: Turbulent Flows

(Friday May 30, 1:30-2:40pm, Great Hall, Levering Building)

Numerical simulations of spatially evolving turbulent boundary layers with and without streamwise pressure gradient

Guillermo Araya, Kenneth Jansen, and Luciano Castillo

Steady and time-periodic blowing/suction perturbations in a turbulent channel flow

Guillermo Araya, Luciano Castillo, and Stefano Leonardi

Comparison and scaling of the turbulent bursting period over a very large Reynolds number range

Enrique Arce-Larreta, Meredith Metzger, and Beverley McKeon

Controlling the large scale qualities of turbulence

G. Bewley, K. Chang, R. Zimmerman, M. Gibert, M. Torralba, H. Xu, H. Nobach, and E. Bodenschatz

Effects of High Freestream Turbulence on Rough Surface Turbulent Boundary Layers

B. Brzek, S. Torres-Nieves, J. Lebron, and L. Castillo

Lagrangian modeling and alignment trends of vorticity with pressure-Hessian eigendirections in turbulence

Laurent Chevillard and Charles Meneveau

Refined similarity hypotheses in shell models of turbulence

Emily S.C. Ching, H. Guo, and T.S. Lo

Ultimate-state scaling in a shell model for homogeneous turbulent convection

Emily S.C. Ching and T.C. Ko

Turbulence Structure for Two-Dimensional Roughness

Karen A. Flack, Michael P. Schultz, and Ralph J. Volin

On the asymptotic behavior of the large scales in homogeneous turbulence shear flow: an experimental study

Juan C. Isaza, Z. Warhaft, and Lance R. Collins

Lagrangian acceleration in confined two-dimensional turbulent flow

Benjamin Kadoch, Wouter J.T. Bos, and Kai Schneider

Experimental study of an active grid-generated shearless mixing layer and comparisons with large-eddy simulation

Hyung Suk Kang and Charles Meneveau

Spatial distribution of production and dissipation of TKE in turbulent boundary and mixing layers

Doug Kelley, James Diorio, and James Wallace

Velocity stress moments in a pre-turbulent state

Robert M. Kerr, Andrew N. Ferguson, and Miguel D. Bustamante

Statistics of velocity gradients in isotropic and shear turbulence

Dmitry Krasnov, Thomas Boeck, Jorg Schumacher

Single-scale Wavelet Representation of Navier-Stokes Dynamics: Formulation and Scaling

Jacques Lewalle

Measurements of Pressure Related Turbulence Statistics in an Open Cavity Shear Layer Flow

Xiaofeng Liu and Joseph Katz

Study of the dynamics of the velocity gradient tensor

M. Martins Afonso and C. Meneveau

Spectral Characteristics and Near-wall dynamics in High Reynolds Number ZPG TBLs

Hassan Nagib, Kapil Chauhan, and Richard Duncan

Time-dependent forcing of turbulent thermal convection

J.J. Niemela and K.R. Sreenivasan

Gottingen High Pressure Turbulence Facility (GTF)

Holger Nobach, Haitao Xu, and Eberhard Bodenschatz

Third-order synthetic turbulence

Robert Rubinstein

Effects of intense free stream turbulence on a turbulent boundary layer

Nicole Sharp, Stephanie Neuscamman, Sergiy Gerashchenko, and Zellman Warhaft

Statistical Mechanics of Fluid Turbulence based on the Cross-Independence Closure Hypothesis

Tomomasa Tatsumi

Turbulence of a free surface

Willem van de Water and Ralph Savelsberg

Stochastic biorthogonal decomposition of random fluid flows

D. Venturi, X. Wan, and G. E. Karniadakis

Dispersion from line sources in decaying grid turbulence

Sharadha Viswanathan and Stephen B. Pope

A Lagrangian Study of Turbulent Energy Cascade

Minping Wan, Charles Meneveau, Zuoli Xiao, Shiyi Chen, and Gregory Eyink

Experimental studies of small-scale turbulence in buoyancy-driven flows

Ke-Qing Xia, Quan Zhou, and Chao Sun

Virtual Nikuradse

Bobby H. Yang and Daniel D. Joseph

Intermittency Growth versus Thermalization in Navier-Stokes Turbulence

Jian-Zhou Zhu

The JHU turbulence database cluster and its functions

Yunke Yang, Minping Wan, Charles Meneveau, Shiyi Chen, Yi Li, Eric Perlman, Randal Burns, Gregory Eyink, and Alex Szalay

Poster Session II: Nonlinear Dynamics, Fluids Physics & Geophysical Flows

(Saturday May 31, 1:00-2:00pm, Great Hall, Levering Building)

Visualisation of superfluid turbulence

Carlo F. Barenghi and Yuri Sergeev

Dynamics of Coherent Structures in Pulsatile Axisymmetric Stenotic Flows

Beratlis N., and Balaras E.

Multiscale Dynamics of Pre-Transitional Fluctuations in the Isotropic Phase of a Lyotropic Liquid Crystal

C. E. Bertrand, K. Linegar, A. F. Kostko, and M. A. Anisimov

Hydrodynamics, rarefied gas dynamics and sensing with nanoscale wires

Rustom B. Bhiladvala, Mingwei Li, Z. Jane Wang, Shriram Ramanathan, and Donald L. Koch

Nonlinear hydrodynamic phenomena in Stokes flow regime

J. Blawdziewicz, E. Wajnryb, and Yuan-Nan Young

On the effect of turbulence on large particles: a numerical study

L. Botto and A. Prosperetti

Wind turbine - atmospheric turbulent boundary layer interactions: preliminary results from wind-tunnel experiments

Raul Bayoan Cal, Charles Meneveau, Jose Lebron, and Luciano Castillo

Generation and evolution of coherent structures in a jet interacting with a cross-stream and a wake

Andrew Cameron, Stavros Tavoularis, and Matthew Johnson

Investigations on the crest shape of short wavelength spilling breakers

James Diorio, Xinan Liu, and James Duncan

Breakdown of Alfvén's Theorem in Ideal MHD

Gregory Eyink and Hussein Aluie

Near surface turbulence in the atmospheric boundary layer

Alan B. Folz and James M. Wallace

Duality of pore networks and pore space subdivisions: an intuitive concept of practical use

Roland Glantz and Markus Hilpert

Large scale modulation of the dissipative scales in the atmospheric surface layer

Michele Guala, Beverley McKeon, and Meredith Metzger

Characterizing Clear Air Turbulence by Measurements of Spatial Correlation Functions of a Laser Beam

Joseph D. Harris, Robert W. Gammon, and Christopher C. Davis

Transition to Turbulence in the 2-d Driven Cavity Flow

Virginia Kalb

Large eddy simulation of the atmospheric flow over steep terrain

Chad Higgins, Marc Parlange, Charles Meneveau, Elie Bou-Zeid, Vijayant Kumar, and Stuart Chester

Fast Solvers for Models of Fluid Flow

P. Aaron Lott and Howard Elman

Integral form of the skin friction coefficient suitable for experimental data

Faraz Mehdi and Christopher M. White

A Rationalization of the Lagrangian-Averaged Navier-Stokes- Model of Turbulence in Two Dimensions

Balu Nadiga

Geomagnetic reversals: turbulence near the center of the Earth.

Peter Olson, Peter Driscoll

Topological Features in Spatiotemporal Chaos

N.T. Ouellette and J.P. Gollub

Secondary Flow Structure in a Bend Under Pulsatile Conditions

Sean D. Peterson, Chekema Prince, and Michael W. Plesniak

Numerical and experimental investigation of Lagrangian inertial particle statistics in homogeneous isotropic turbulence

Juan P. L. C. Salazar, Lance R. Collins, Jeremy De Jong, Scott H. Woodward, and Hui Meng

It's been ten years, may I have your data?

Inigo San Gil and Giri Palanisamy

Energy dissipation and collisions of singular structures in classical and quantum turbulence

Yoshitaka Shiga, Takuya Miyazaki, Wataru Kubo, Tohru Nakano, and Toshiyuki Gotoh

Imaging Across the Interface of Breaking Waves

Alexandra H. Techet, Jesse L. Belden

Mean Wind: Its Velocity and Temperature Fluctuation in Low-Prandtl-Number Thermal Convection

Yoshiyuki Tsuji and Tomohiro Hayakawa