

1st Multiflow Summer Workshop 2013

Journal of Physics: Conference Series Volume 506

**Madrid, Spain
10 June – 12 July 2013**

Editors:

J. Jimenez

**ISBN: 978-1-63439-286-0
ISSN: 1742-6588**

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© by the Institute of Physics
All rights reserved.

Printed by Curran Associates, Inc. (2014)

For permission requests, please contact the Institute of Physics
at the address below.

Institute of Physics
Dirac House, Temple Back
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481
Fax: 44 1 17 920 0979

techtracking@iop.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

LES / NUMERICS

STOCHASTIC SELF-ENERGY SUBGRID MODEL FOR THE LARGE EDDY SIMULATION OF TURBULENT CHANNEL FLOWS	1
<i>V Kitsios, J A Sillero, J Soria, J S Frederiksen</i>	
SCALING OF VELOCITY FLUCTUATIONS IN OFF-WALL BOUNDARY CONDITIONS FOR TURBULENT FLOWS	16
<i>M P Encinar, R García-Mayoral, J Jiménez</i>	
NUMERICAL ISSUES IN LAGRANGIAN TRACKING AND TOPOLOGICAL EVOLUTION OF FLUID PARTICLES IN WALL-BOUNDED TURBULENT FLOWS	29
<i>C Atkinson, J Hackl, P Stegeman, G Borrell, J Soria</i>	

THE ENERGY CASCADE AND REDUCED-ORDER MODELS

TURBULENCE IN THE HIGHLY RESTRICTED DYNAMICS OF A CLOSURE AT SECOND ORDER: COMPARISON WITH DNS	43
<i>N C Constantinou, A Lozano-Durán, M-A Nikolaidis, B F Farrell, P J Ioannou, J Jiménez</i>	
THE ATTACHED REVERSE AND DETACHED FORWARD CASCADES IN WALL-TURBULENT FLOWS	61
<i>A Cimarelli, E De Angelis, A Talamelli, C M Casciola, J Jiménez</i>	
GRANGER CAUSALITY IN WALL-BOUNDED TURBULENCE	71
<i>G Tissot, A Lozano-Durán, L Cordier, J Jiménez, B R Noack</i>	

WALL-BOUNDED FLOWS

ANALYSIS OF A TURBULENT BOUNDARY LAYER SUBJECTED TO A STRONG ADVERSE PRESSURE GRADIENT	86
<i>A G Gungor, Y Maciel, M P Simens, J Soria</i>	
HAIRPIN VORTICES IN TURBULENT BOUNDARY LAYERS	100
<i>G Eitel-Amor, O Flores, P Schlatter</i>	
SKIN-FRICTION CRITICAL POINTS IN WALL-BOUNDED FLOWS	115
<i>J I Cardesa, J P Monty, J Soria, M S Chong</i>	
TURBULENT PIPE FLOW: STATISTICS, RE-DEPENDENCE, STRUCTURES AND SIMILARITIES WITH CHANNEL AND BOUNDARY LAYER FLOWS	130
<i>G K El Khoury, P Schlatter, G Brethouwer, A V Johansson</i>	
SCALING OF PRESSURE SPECTRUM IN TURBULENT BOUNDARY LAYERS	144
<i>S S Patwardhan, O N Ramesh</i>	
POSSIBLE MODIFICATION OF THE LARGE-SCALE FLOW STRUCTURES BY VORTICAL STRUCTURAL INTERACTIONS	154
<i>M V Goudar, G E Elsinga</i>	

OTHER SHEAR FLOWS

CHARACTERIZATION OF THE SHEAR LAYER IN A MACH 3 SHOCK/TURBULENT BOUNDARY LAYER INTERACTION	164
<i>C Helm, M P Martin, P Dupont</i>	
INFLUENCE OF SOLID BOUNDARY CONDITIONS ON THE EVOLUTION OF FREE AND WALL-BOUNDED TURBULENT FLOWS	178
<i>P D'Addio, D Sassun, O Flores, P Orlandi</i>	
CHARACTERISTICS OF THE TURBULENT/NONTURBULENT INTERFACE IN BOUNDARY LAYERS, JETS AND SHEAR-FREE TURBULENCE	N/A
<i>C B Da Silva, R R Taveira, G Borrell</i>	

Author Index