Third International Workshop on Wall-Bounded Turbulent Flows

Chicago Hilton, November 17-19, 2005

The workshop is organized to maximize discussion and introspection with an atmosphere that encourages an open-mind approach to the issues. The speakers are asked to prepare shorter talks rather than spill over the allotted time. All talks are limited to a maximum of 15 minutes, and are accompanied by discussion of approximately the same length. It is important for the speakers to make the main points rather than to be comprehensive and discursive. Prepared discussions should be limited to a maximum of two slides per individual. It will be at the discretion of the session chair as to how and when the discussion takes place. Each session should end with a general discussion of the main themes raised in the session.

Wednesday, 16 November

Location: Suite 1979, Nineteenth Floor

- Registration and Social Gathering
  18:00 – 21:30

Thursday, 17 November

Location: Lake Ontario Room; Eighth Floor

- Registration
- Welcome (Hassan Nagib) and Announcements (Lex Smits, Ivan Marusic)
  7:30 – 8:10

Session 1: Pipe flows; Roughness

(Chair: K.R. Sreenivasan; Co-Chair: Bob Moser)

1. **Lex Smits, Gary Kunkel and James Allen** (Princeton University)
   *Flow in rough pipes*

2. **Beverley McKeon** (Imperial College)
   *Inertial scaling in wall-bounded flows*

3. **Jonathan Morrison** (Imperial College)
   *Interaction between inner and outer regions of turbulent wall-bounded flow*

Coffee Break

4. **Min S. Chong and Jason Monty** (University of Melbourne)
   *Development lengths in duct and pipe flow*

5. **Alessandro Talamelli** (Universita di Bologna) and **Henrik Alfredsson** (KTH Stockholm)
   *Status and recent developments in CICLoPE project*
   (Includes Report on First CICLoPE Symposium, Ivan Marusic (U. Minnesota))

6. **Mike Schultz and Karen Flack** (US Naval Academy)
   *Comparison of Turbulence over Rough and Smooth Walls*

7. **Casimir van Doorne and Frans Nieuwstadt** (TU Delft)
   *Turbulence measurements in a pipe flow using high-speed PIV*

Lunch

**12:15 –13:30**
Session 2: Structure and Organized Motions  
(Chair: Roddam Narashima; Co-Chair: Min Chong)  
13:30 – 17:15

1. **Ronald J. Adrian** (Arizona State University)  
   Some fundamental questions about wall turbulence structure

2. **Javier Jimenez** (U. Politecnica Madrid)  
   Self-similar structures of the logarithmic region, up to Re, = 2000

3. **Kaoru Iwamoto and Nobu Kasagi** (University of Tokyo)  
   Direct numerical simulation of turbulent channel flow at Re, = 2320 and evaluation of hierarchical structures

Coffee Break 15:00 -15:20

4. **Ivan Marusic and Nick Hutchins** (University of Minnesota)  
   “Superstructures” in the logarithmic region of turbulent boundary layers

5. **Hassan Nagib, Kapil Chauhan and Peter Monkewitz** (IIT Chicago & EPF Lausanne)  
   Non-Universality of Kármán coefficient in pressure-gradient boundary layers

6. **Takahiro Tsukahara and Hiroshi Kawamura** (Tokyo University of Science)  
   Puff-like structure captured in DNS of the turbulent Poiseuille flow at low Reynolds numbers

Adjourn 17:15

Dinner at Greek Islands Restaurant (www.greekislands.net) 18:30 – 21:30
- Ride Special Bus at 8th Street Entrance of Hilton 18:30
- Ride Special Bus Back to Hilton 21:15

Friday, 18 November

Location: Lake Ontario Room; Eighth Floor

- Announcements 8:15 – 8:30

Session 3: Scaling I  
(Chair: Lex Smits; Co-Chair: Beverley McKeon)  
8:30 – 12:15

1. **K.R. Sreenivasan** (ICTP)  
   Log expansions in boundary layers

2. **Robert Moser** (University of Texas at Austin)  
   Scaling of the small-separation two-point correlation in the log-layer

3. **Peter Monkewitz, Kapil Chauhan and Hassan Nagib** (EPFL Lausanne & IIT Chicago)  
   Options for consistent scaling of ZPG boundary layers

Coffee Break 9:50 -10:10

4. **Peter A. Davidson** (Cambridge University)  
   The structure function law for near-wall turbulence

5. **Carlo M. Casciola and Renzo Piva** (Universita di Roma "La Sapienza")  
   Scaling laws and anisotropy in wall bounded flows

6. **Joseph C. Klewicki** (University of New Hampshire)  
   Scale separation and momentum transport

7. **Meredith Metzger** (University of Utah)  
   Reynolds number effects on the turbulent bursting frequency

Lunch 12:15 - 13:30
Session 4: Scaling II  
(Chair: Ron Adrian; Co-Chair: Joe Klewicki)

1. **Tim Nickels** (Cambridge University)  
   *Spectra, scaling and structure functions in boundary layers*

2. **Kenneth T. Christensen** (University of Illinois at Urbana-Champaign)  
   *Population trends of small-scale spanwise vortices in wall turbulence*

3. **Ron Panton** (University of Texas at Austin)  
   *The complexities of a higher-order overlap law*

Coffee Break  
15:00 -15:20

4. **Gunnar Johansson and Bill George** (Chalmers University of Technology)  
   *Momentum-integral force balance in turbulent boundary layers*

5. **Noor Afzal** (Aligarh University)  
   *Inner and outer scalings in transitional rough wall-bounded turbulent flows*

6. **Jens Fransson and Arne Johansson** (KTH Stockholm)  
   *Pressure and velocity intermittency studies throughout the turbulent boundary layer edge*

Adjourn  
17:15

Saturday, 19 November

Location: Astoria Room; Third Floor

- **Announcements**  
  8:45 – 9:00

**Session 1 Summary and Discussion**  
9:00 - 9:40

**Session 2 Summary and Discussion**  
9:40 - 10:20

Coffee Break  
10:20 - 10:40

**Session 3 Summary and Discussion**  
10:40 - 11:20

**Session 4 Summary and Discussion**  
11:20 - 12:00

Closing remarks  
12:00 - 12:10

**Adjourn Workshop**  
12:10

**Tour of Wind Tunnel Facilities & IIT**  
14:00 – 16:00

- Ride Special Bus at 8th Street Entrance of Hilton  
  14:00

- Tour NDF and Other Facilities & Visit IIT Campus  
  Architectural Highlights  
  14:20 – 15:40

- Ride Special Bus Back to Hilton  
  15:30
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