



## Euromech Colloquium 568

# Coherent structures in fully developed turbulence

**Polytechnic University of Madrid, School of Aeronautics: May 20-22, 2015**

### Schedule

<b>May 20. 9:00-19:00</b>			
9:00-9:05	<b>Welcome and opening remarks.</b> J. Jiménez		
<b>Invariant solutions I: Late transition and turbulence. CHAIR: J. Gibson</b>			
9:05-9:40	S. Rawat, C. Cossu, Y. Hwang, F. Rincon	Toulouse/ Imperial	Exact coherent solutions for the filtered large scale motions in turbulent Couette flow
9:40-10:15	K. Deguchi, P. Hall	Imperial	Free-stream coherent structures
10:15-10:50	P. Hall, K. Deguchi	Imperial	Vortex-wave interactions in shear flows: classification and stability properties of solutions.
10:50-11:15	<b>Coffee break</b>		
11:15-11:50	D. P. Wall, M. Nagata	Tianjin/Oita	A localized exact coherent traveling wave in channel flow
11:50-12:25	A. Sekimoto, S. Dong, J. Jiménez	UP Madrid	Invariant solutions in homogeneous shear flow
12:25-13:00	S. Zammert, B. Eckhardt	U. Marburg/ Delft	Exact coherent structures in plane Poiseuille flow at high Reynolds numbers
13:00-14:30	<b>Lunch</b>		
<b>Invariant solutions II: Transition. CHAIR: M. Nagata</b>			
14:30-15:05	S. Altmeyer, A. Willis, F. Mellibovsky, B. Hof	IST Austria /Sheffield/UP Catalunya.	Streamwise-localized solutions with natural 1-fold symmetry
15:05-15:40	M. Avila, P. Ritter, F. Mellibovsky	Erlangen/ UP Catalunya	Coherent structures and spatiotemporal fluctuations in pipe flow
15:40-16:15	J. F. Gibson, E. Brand, T. Schneider	U. New Hampshire/ EPF Laussane	Localized exact coherent structures in plane Couette and plane Poiseuille flow
16:15-16:45	<b>Coffee break</b>		
16:45-17:20	B. Hof	IST Austria	Onset of fully turbulent pipe flow
17:20-17:55	T. Kreilos, T.M. Schneider	Laussane	Localized wall-mode and free-stream coherent structures in the asymptotic suction boundary layer
17:55-19:00	<b>General discussion. CHAIR: M. Avila</b>		

<b>May 21. 9:00-19:00</b>			
<b>Reduced models. CHAIR: D. Henningson</b>			
9:00-9:35	B. Eckhardt, E. Jelli, S. Zammert, M. Pausch	U. Marburg	Large scale coherent structures in turbulent flows
9:35-10:10	B. Farrell, P. Ioannou, D.F. Gayme, V. Thomas	Harvard/ Athens/ John Hopkins	A reduced nonlinear model study of roll/streak dynamics in wall-bounded shear flow turbulence
10:10-10:45	D. F. Gayme, V. Thomas, B. Farrell, P. Ioannou	John Hopkins/ Harvard/ Athens	The restricted nonlinear model as a natural minimal representation of self-sustaining turbulence in plane Couette flow
10:45-11:15	<b>Coffee break</b>		
11:15-11:50	P. J. Ioannou, B. Farrell	Athens	Structure and mechanism of turbulence in plane Poiseuille flow under dynamical restriction
11:50-12:25	J. Jiménez	UP Madrid	Direct detection of linearized bursts in turbulence
12:25-13:00	M. Pérez-Encinar, J. Jiménez	UP Madrid	Identifying Orr-like behaviour in large-scale turbulent wall-bounded flows.
13:00-14:30	<b>Lunch</b>		
<b>Dynamics and control. CHAIR: B. Farrell</b>			
14:30-15:05	S. Chernyshenko	Imperial	Coherent structures and drag reduction from linearized Navier-Stokes viewpoint
15:05-15:40	D.J.C. Dennis, F.M. Sogaro	Liverpool/ Imperial	The reorganisation of turbulent pipe flow by a drag-reducing polymer additive
15:40-16:10	<b>Coffee break</b>		
16:10-16:45	E. Öngüner, M. Dittmar, P. Meyer, C. Egbers	U. Branderburg/ LaVision	PIV measurements of turbulent structures in a horizontal pipe
16:45-17:20	R.M. Kerr	Warwick	Two steps to helicity annihilation and energy dissipation for reconnecting classical vortices
17:55-19:00	<b>General discussion. CHAIR: B. Eckhardt</b>		
20:30-	<b>Conference Dinner</b>		

<b>May 22. 9:00-15:00</b>			
<b>Structures in turbulent flows: Observational evidence. CHAIR: D. Gayme</b>			
9:00-9:35	Y. Bengana, Y. Hwang	Imperial/ UPMC	Self-similar bursting of minimal attached eddies in turbulent channel flow
9:35-10:10	A. Lozano-Durán, J. Jiménez	UP Madrid	Time-resolved evolution of coherent structures in turbulent channels
10:10-10:45	P. Schlatter, R. Örlü, D. Henningson	KTH	On hairpin vortices in turbulent boundary layers
10:45-11:15	<b>Coffee break</b>		
11:15-11:50	X. Wu, P. Moin	RMC Ontario/ Stanford	Careful visualization of accurate DNS database reveals turbulent spot in the near-wall region of fully turbulent boundary layer
11:50-12:25	A. Shahirpour, J. Sesterhenn, C. Egbers	U. Branderburg/ TU Berlin	Numerical investigation of turbulent pipe flow structures and their dependence on wall temperature
12:25-13:30	<b>General discussion. CHAIR: P. Schlatter</b>		
13:30	<b>Closing remarks and Lunch</b>		