



Fifth Madrid Turbulence Workshop
Final Meeting, June 30th, 2023
Torres-Quevedo Seminar Room (2nd floor)
Remote: <https://upm.zoom.us/j/83783460253>

9 :30		J. Jiménez	Welcome
TIME	Authors / <u>Speaker</u>	HOSTS	PROJECT
DATA SCIENCE AND ARTIFICIAL INTELLIGENCE			
9:35	C.Amor, G.Foggi, M.E.Rosti, S. Le Clainche, A. Corrochano	Adal Galván	Unveiling elastic turbulence in free and wall-shear flows with data-analysis tools
9:50	<u>O.Mariño</u> , E. Ferrer	Adal Galván	Accelerating high order discontinuous Galerkin solvers using neural networks: turbulent flows with walls
10:05	<u>F.Alcántara-Ávila</u> , B. Font, A. Lozano-Durán, M. P. Encinar, R. Vinuesa, O. Lehmkuhl.	Miguel P. Encinar,, Adrián Lozano-Durán	Deep reinforcement learning for active flow control in separated turbulent boundary layers
10:20	W.Li, <u>B. Chen</u> , <u>Y.Fan</u>	Adal Galván	Prediction of turbulent statistics based on low-rank resolvent modes and machine learning
10:35	<u>D.Wälchli</u> , L. Guastoni, R. Vinuesa_P. Koumoutsakos,	Adal Galván	Flow control with multi-agent reinforcement learning.
10:50-11:05 BREAK			
CAUSALITY AND INFORMATION TRANSFER			
11:05	<u>Y.Ling</u> , A.Lozano-Durán	Carlos Martínez	Causality between long streaks and bursts in wall-bounded turbulence
11:20	<u>A.Domínguez-González</u> , M.Pérez-Encinar, D. Martínez-Ruiz, K. Osawa	Miguel P. Encinar	Causality of bistable propagation of lean premixed hydrogen flames
11:35	S.Dawson, <u>B. López-Doriga</u> , A.Srivastava, H.J. Bae, R. Vinuesa	Miguel P. Encinar	Sparsity-promoting modal decompositions for causality analysis of coherent structures in turbulent duct flows
11:50	<u>D. Massaro</u> , J.Yao, S. Rezareiravesh, P.Schlatter, F.Hussain	Adal Galván	High Reynolds-number turbulent pipe flow: statistical and data-driven analysis
12:05	<u>M.Pérez-Encinar</u> , T.Zaki	Miguel P. Encinar	Significant trajectories in isotropic turbulence
12:20	<u>Z.Hao</u> , J. De Salis, R.García-Mayoral	Kosuke Osawa	Inter-scale causality relations in wall turbulence
13:00-14:30 LUNCH (CAFETERIA)			

14:30	<u>X.Zhang</u> , J.Jiménez	Miguel P. Encinar	Causally significant structure study with intense Vortex/energy structure in isotropic Turbulence at low Reynolds number
14:45	<u>A.Vela-Martín</u> , M.Pérez-Encinar	Alberto Vela	Predictability of wall-bounded flows by massive ensemble forecasting
STRUCTURES			
15:00	<u>M. Scherer</u> , M. Uhlmann, G. Kawahara	Kosuke Osawa	Analysing the impact of secondary flows on scalar transport in square duct flows with the aid of invariant solutions
15:15	<u>R.Hammachi</u> , J.Cardesa, E. Piot, J.P.Brazier, H. Deniau, M. Montagnac	Adal Galván	Elucidating mode synchronization in transitional hypersonic boundary layers through coherent structure tracking
15:30	C.Silva, <u>A. Ghira</u>	Alberto Vela	Temporal worm tracking in isotropic turbulence
DYNAMICS			
15:45	J.Soria, <u>A.Matas</u> , K. Liu, E. Kannadasan, C. Atkinson	Carlos Martínez	Energy transfer and scale interactions in the formation and evolution of energy-eddies in turbulent boundary layers
16:00	M.Ávila, A. Vela-Martín, <u>D.Morón</u>	Adal Galván	Predictability and causality of puff decay in pipe flow
16:15-16:30 BREAK			
16:30	<u>G. Boga</u> , A. Cimarelli	Carlos Martínez	Numerical experiments on turbulent boundary layers
16:45	<u>E. Ballouz</u> , S. Dawson, H.J.Bae	Carlos Martínez	Transient growth of time-local resolvent modes in turbulent channel flow
17:00	<u>T.Gungor</u> , A.Gungor, Y. Maciel	Carlos Martínez	Turbulent activity in the near-wall region of TBLs with large velocity defect
17:15	<u>M. Lee</u>	Kosuke Osawa	On the budget equation of velocity-temperature correlation in Rayleigh-Bénard convection at moderate Rayleigh numbers
17:30	<u>J.Liu</u> , S.Sarkar	Jinyuan Liu	Quasi-two-dimensional dynamics in geophysical wakes
17:45	D.Gayme, B.Viggiano, H. Mulchandani, <u>R.García-Mayoral</u> , D.Chung	Ricardo G ^a -Mayoral	A reduced-order model based study of spatio-temporal interactions in rough wall-bounded turbulence
18:00	A.Elnahas, <u>E.Lenz</u> , H.J. Bae, A.Lozano-Durán, P.Moin	Carlos Martínez	Are the dynamics of wall turbulence in minimal channels and large channels equivalent? A Graph-theoretic approach
21:30-... FINAL DINNER (Casa Juan, see attached map)			

The purpose of the kick-off meeting is to let everybody know about your results. We will again keep time to APS standards. Please keep your presentation to: **11 minutes talk (9 green + 2 yellow) + 3 minutes questions (red) + 1 minute change (black).**



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May 29 – June 30, 2023
Universidad Politécnica de Madrid
Final Dinner
Restaurante Asador Casa Juan,
C. de la Infanta Mercedes, 111,
28020 Madrid



Metro station: Valdeacederas (Line 1)

