

17th ERCOFTAC SIG 33 Workshop
Progress in Flow Instability, Transition and Control

May 25- 27th, 2026

Detailed Conference Programme

The location of the event is

**Hotel Attica 21, Av. Samil, 15.
Vigo, 36212, Spain**

Conference Organizers:

Dr. Andrea Nóvoa– Imperial College London (chair)

Prof. Luca Magri – Imperial College London (co-chair)

Dr. Ardeshir Hanifi – KTH Royal Institute of Technology

Prof. Flavio Giannetti – Università di Salerno

With thanks to



ERCOFTAC
European Research Community On
Flow, Turbulence And Combustion





Day 1 (Monday, 25th May 2026)

08:40 – 09:10 **Arrival and Registration**

09:10 – 09:20 **Conference Opening**

Dr. Ardeshir Hanifi (KTH), Dr. Andrea Nóvoa (Imperial College London)

09:20 – 10:10 **Keynote Talk by Prof. Tim Colonius (Caltech)**

“OWNS, NOWNS, and Unknowns: Efficient and robust tools for transition prediction”

10:10 – 11:01 **Session 1 | Chair: Prof. Dan Henningson (KTH)**

10:10	“Attachment-line transition and relaminarization on a heated leading edge” K. A. Goc, <u>Jeffrey D. Crouch</u> (The Boeing Company)
10:27	“Beyond Eddy viscosity: using a transport model to improve linear analysis” <u>Sophie J. Knechtel</u> , K. Oberleithner (TU Berlin)
10:44	“Turbulent spot characteristics in free-stream turbulence induced transition” <u>Imge Yigili</u> , Jens H.M. Fransson (KTH)

11:01 – 11:40 **Coffee Break**

11:40 – 13:22 **Session 2 | Chair: Dr. Elena Marensi (Sheffield)**

11:40	“On the influence of free-stream turbulence on roughness-induced boundary-layer transition” <u>Tristan M. Römer</u> , M. Kloker, U. Rist, C. Wenzel (U. Stuttgart)
11:57	“Influence of Mach number and 3D instabilities on the transition mechanisms of laminar boundary layers over gap discontinuities” <u>Víctor Ballester Ribó</u> , J. Crouch, Y. Hwang, S. Sherwin (Imperial)
12:14	“Supersonic receptivity to surface roughness” <u>Matteo Pronunzio</u> , P. Nibourel, C. Content, G. Rigas, D. Sipp (ONERA)
12:31	“Geometrical optimisation of rectangular miniature vortex generators” <u>Márton Kulcsár</u> , A. Szabó, P. Tamás Nagy, G. Paál (Budapest University)
12:48	“Weakly nonlinear resolvent analysis in an axisymmetric sudden expansion” T. Salamon, E. Boujo, Y. M. Ducimetière, <u>François Gallaire</u> (LFMI, EPFL)
13:05	“Characterisation of nonlinear forcing in the resolvent framework for a self-similar adverse-pressure-gradient turbulent boundary layer at the verge of separation” <u>Bihai Sun</u> , K. Liu, A. Matas, J. Soria (Monash University)



13:30 – 14:40 **Lunch Break**

14:40 – 15:30 **Keynote Talk by Dr. Jacob Page (University of Edinburgh)**
“Differentiable flow solvers and online learning for the dynamical systems view of turbulence”

15:30 – 16:21 **Session 3 | Chair: Prof. François Gallaire (LFMI, EPFL)**

15:30	“Symmetry-free periodic orbits of turbulent pipe flow” <u>Sebastian A. Altmeyer</u> , A. P. Willis, Y. Duguet, B. Hof (U. Politècnica Catalunya)
15:47	“Parametric spectral submanifolds capturing Hopf bifurcations with applications to fluid dynamics” <u>James King</u> , B. Kaszás, W. Jussiau, G. Haller (ETH Zürich)
16:04	“Relaminarising turbulent pipe flow: upper edge bisection and nonlinear optimisation” <u>Robert Bennett</u> , Y. Duguet, A. P. Willis, E. Marensi (U. Sheffield)

16:21 – 17:00 **Coffee Break**

17:00 – 18:25 **Session 4 | Chair: Prof. Kilian Oberleithner (TU Berlin)**

17:00	“Localizing screech closure via KH-guided scattering” L. Antonuzzi, M. Mancinelli, J. Sierra Ausin, P. Jordan and Flavio Giannetti (U. Salerno)
17:17	“Sensitivity analysis and control of impinging jet noise” <u>Zhenyang Yuan</u> , V. Jaunet, P. Jordan, A. V. G. Cavalieri, A. Hanifi (KTH)
17:34	“Global instabilities of a planar jet from a flexible nozzle” <u>Simone Cruciani</u> , V. Citro, M. Fournié, F. Auteri (ISAE-SUPAERO)
17:51	“Time-frequency analysis of turbulent jets using orthogonalized variational mode decomposition” <u>Daniel Rodríguez</u> , I. Padilla-Montero (U. Politecnica de Madrid)
18:08	“Reduced-order modeling and control of a shock-laden scramjet isolator” <u>Daniel J. Bodony</u> , C. Errico, A. Padovan (U. Illinois Urbana-Champaign)

18:30 – 19:15 **Reception**

We invite you to join us at the Hotel Attica 21 terrace to relax and network over some light bites and refreshments. (Note this is a pre-dinner reception, the evening will remain open for you to explore local dining options for dinner.)



Day 2 (Tuesday, 26th May 2026)

09:20 – 10:10 **Keynote Talk by Prof. Marios Kotsonis (TU Delft)**

“From wall impedance to fluidic crystals: Metamaterials for Controlling Boundary Layer Instabilities”

10:10 – 10:44 **Session 5 | Chair: Dr. Jeffrey Crouch (The Boeing Company)**

10:10	“Non-Intrusive control of flow instabilities in a rotor–stator cavity” <u>Riccardo Maranelli</u> , V. Mons, J.-C. Chassaing, M. Queguineur, T. Sayadi (ONERA)
10:27	“From actuation to resonance: wall-impedance strategies for controlling Tollmien-Schlichting waves” <u>Pierre Champeaux</u> , T. Michelis, M. Kotsonis (TU Delft)

10:44 – 11:11 **Flash talks | Chair: Prof. Taraneh Sayadi (CNAM)**

10:50	“Higher-order meshless methods for hydrodynamic stability problems in complex domains” A. Unnikrishnan, <u>Vinod Narayanan</u> (IIT Gandhinagar)
10:53	“Secondary instabilities in nonlinearly distorted pipe-entrance flows” <u>Bo Yuan</u> , E. Marensi, P. Ricco (U. Sheffield)
10:56	“Stabilising effect of a surface hump on crossflow instabilities for varying perturbation wavelength and hump height” <u>Marco Radaelli</u> , A.F. Rius-Vidales, M. Kotsonis (TU Delft)
10:59	“Description of the synchronization of 2 nd Mack mode and acoustic waves in highly cooled hypersonic boundary layers by means of AHLNS” <u>Alberto Franco</u> (DLR)
11:02	“Investigation of low-frequency unsteadiness in transonic shock-wave/boundary layer interactions” <u>Zhen Zhang</u> , J.Hao (Hong Kong Polytechnic University)
11:05	“Occurrence of unsteady global instability in hypersonic forward facing step flow” <u>Zexin Chen</u> , X. Li, X. Liu, J. Hao, C.-Y. Wen (Hong Kong Polytechnic University)
11:08	“Linear mechanism underpins superstructures and near-wall scales in turbulent convection” <u>Xiaoju Zhu</u> , Z. Zhou (Max Planck Inst. for Solar System Research)

11:11 – 11:40 **Coffee Break**



11:40 – 13:22 **Session 6 | Chair: Prof. Julio Soria (Monash University)**

11:40	“On the flutter feedback loop of a flexible plate in a viscous channel flow” <u>Roberta Santoriello</u> , S. Cruciani, M. Fournié, F. Auteri, V. Citro (U. Salerno)
11:57	“Optimal three-dimensional perturbations in fluttering and non-fluttering bioprosthetic aortic valves” <u>Mohammad Moniripiri</u> , K.-M Bornemann, D. S. Henningson, D. Obrist, P. J. Schmid, A. Hanifi (KTH)
12:14	“Flow instabilities in a recorder's mouthpiece” M. Fosas de Pando, A. Tassarar, <u>Rodolfo Ostilla</u> (U. Cádiz)
12:31	“Local and non-local interactions of phononic subsurfaces with Tollmien–Schlichting waves in air” <u>Lorenzo Pierpaoli</u> , R. Cottreau, M. Couliou, N. Fabbiane, O. Marquet (ONERA)
12:48	“Vortex breakdown on hydro turbine draft tube” L. Toldeo, A. C. Kalayci, A. Gesla, <u>Eunok Yim</u> (EPFL)
13:05	“3D Global stability analysis of counter-current jet” <u>Donato Variale</u> , N. Alferez, S. Cherubini, J.-C. Robinet (DynFluid, Arts et Métiers Institute of Technology)

13:30 – 14:30 **Lunch Break**

15:15 – 20:00 **Visit to the Cíes Islands**

We will take a bus from the conference venue at 14:45. If you aim to arrange your own transportation, make sure to arrive by 15:15 at Real Club Náutico de Vigo. The boat departs at 15:30 sharp for a 40-minute route to Cíes islands. We will re-board at the Cíes pier for the **return ferry at 19:15** sharp.

Please, **bring your ID and the ticket** which will be handed to you at registration.

20:30 **Conference dinner**

Once back at the Vigo port, we will take a 5–10-minute walk into the historic Casco Vello (Old Town) to reach our dinner venue: La Central Gastro (Praza da Constitución).



Day 3 (Wednesday, 27th May 2026)

09:20 – 10:10 **Keynote Talk by Prof. Shervin Bagheri (KTH)**

“Model reduction and control of Flows over complex and responsive Surfaces”

10:10 – 11:01 **Session 7 | Chair: Prof. Peter Schmid (KAUST)**

10:10	“Learning with memory: non-Markovian bilinear models for adaptive predictive control of non-autonomous systems” P. Gupta, D. Sipp, T. Sayadi, P. J. Schmid, <u>Georgios Rigas</u> (Imperial)
10:27	“Inference of stable reduced-order models with memory history” <u>Rama Ayoub</u> , M. Oulghelou, P. J. Schmid (KAUST)
10:44	“Passive attenuation of Tollmien–Schlichting waves in air by optimised structured compliant surfaces” <u>Nicolò Fabbiane</u> (ONERA)

11:01 – 11:40 **Coffee Break**

11:40 – 13:22 **Session 8 | Chair: Dr. Eunok Yim (EPFL)**

11:40	“Development of modal and non-modal instabilities in hypersonic boundary layers over blunted cones” <u>Thomas Lescop</u> , J. Lefieux, G. Bégou, C. Content, N. Fabbiane, R. Bur (MBDA)
11:57	“Effects of catalytic walls on the stability of hypersonic boundary layers” <u>Konstantinos Sarras</u> , T. Magin, P. Schmid, T. Sayadi (CNAM)
12:14	“Bayesian optimal design of thermoacoustic instability experiments” M.Yoko, <u>Matthew P. Juniper</u> (Cambridge)
12:31	“Optimal reconstruction of experimental SPOD modes from resolvent responses: application to hypersonic blunt cones boundary-layers” <u>Nicolas d’Eprémesnil</u> , A. Ceruzzi, L. M. Le Page, L. McQuelin, M. McGilvray, C. Caillaud, G. Lehnash, M. Olazabal, P. Jordan (CEA-CESTA)
12:48	“On a pathological laminar separation bubble on a buffeting aerofoil” <u>Erwin R. Gowree</u> , S.Bianchi (ISAE-SUPAERO)
13:05	“Experimental evaluation of a self-similar turbulent boundary layer on the verge of separation developing on D-type roughness” C. Meglio, B. Sun, C. S. Greco, C. Atkinson, <u>Julio Soria</u> (Monash University)



13:30 – 14:40 **Lunch Break**

14:40 – 16:05 **Session 9 | Chair: Dr. Georgios Rigas (Imperial)**

14:40	“Tri-global stability analysis of low-frequency dynamics in a turbulent separation bubble” <u>Lukas M. Fuchs</u> , J. G.R. von Saldern, B. Steinfurth, J. Weiss, K. Oberleithner (TU Berlin)
14:57	“Tangent space precursors of extreme events and critical transitions” <u>Riccardo Consonni</u> , L. Magri (Politecnico di Torino)
15:14	“Understanding perturbation growth in wall turbulence beyond the Lyapunov time” <u>Pablo Egerique de la Concha</u> , Y. Hwang (Imperial)
15:31	“Image-based quantitative analysis of large-scale structures in two-dimensional channel turbulence” <u>Ryo Takai</u> , K. Takahara, Y. Sakagami, C Jaeyun, Y. Sattaya, K.Kato, M. Matsubara (Shinshu University)
15:48	“Interscale energy transfer in adverse pressure gradient transition under increasing inflow complexity” <u>Gustavo Lopes</u> , P. Przytarski, D. Simoni, D. Lengani (Univ. Genova)