

20th International Couette -Taylor Workshop Final Program

July 11 -13 2018, Marseilles, FRANCE

	8:00	9:00	9:30	10:15	10:45	12:15	13:45	15:30	16:00	16:30	18:00	20:00
		Keynotes	Sessions	Break	Sessions	Lunch	Sessions	Break	Keynotes	Sessions		
Wednesday July 11	Opening	B. Pier	TC1		TC2		CPX		P. Ghendrih	MHD		
Thursday July 12		B. Hof	INS1		INS2		TC3		K. Julien	CV		Banquet
Friday July 13		F. Marquez	MIX1		MIX2		GEO	End ICTW				



CENTRALE
MARSEILLE



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MÉCANIQUE ET COMPLEXITÉ

Wednesday, July 11

8:00	Registration	
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8:45 – 9:00	Eric Serre	Opening Lecture for the 20th International Couette Taylor Workshop
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<i>Poster Session: Workshop duration</i>		
Isabelle Raspo , Stéphane Viazzo, Anthony Randriamampianina, Gabriel Meletti, Uwe Harlander, Torsten Seelig, Andreas Krebs	Low Mach Number Modeling of Stratorotational Instability in a water-filled Taylor-Couette cavity	
Sebastian Altmeyer	Alternating `flip' solutions in ferrofluid Taylor-Couette flow	
Sebastian Merbold, Uwe Harlander, Christoph Egbers	DFG Core Facility Center: Physics of rotating Fluids	
Zahia Tigrine , Ahcene Bouabdallah	Experimental and Numerical Modelling of fluid flow between rotating spheres	

9:00 – 9:30	<i>Keynote Lecture 1</i> Chairman :D. Martinand	<u>Benoît Pier</u> : Complex dynamics in eccentric Taylor-Couette-Poiseuille flow
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<i>Session : Taylor Couette Flow 1- Chairman : D. Martinand</i>		
9:30 – 9:45	Richard M. Lueptow , Denis Martinand, Eric Serre	Taylor Couette Flow with Imposed Radial and Axial Flows - A Weakly Nonlinear Analysis
9:45 – 10:00	Arnaud Prigent , Clement Savaro, Innocent Mutabazi	Experimental study of the flow produced in a vertical Taylor-Couette system submitted to a large radial temperature gradient
10:00 – 10:15	Innocent Mutabazi , Changwoo Kang, Arnaud Prigent	Numerical investigation of the flow structures in a vertical Taylor-Couette system with a large radial temperature gradient

Coffee Break : 10:15 – 10:45		
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<i>Session : Taylor Couette Flow 2- Chairman : D. Martinand</i>		
10:45 – 11:00	Pieter Berghout , Rick Dingemans, Xiaojue Zhu, Roberto Verzicco, Richard J.A.M. Stevens, Wim van Saarloos, Detlef Lohse	Direct Numerical Simulations of a Finite-Wavelength Modulation within Taylor-Couette Flow
11:00 – 11:15	Yasushi Takeda , Lea Pokorny, Erich J. Windhab	Symmetry in Taylor Couette Flow
11:15 – 11:30	Xiaojue Zhu , Ruben A. Verschoof, Dennis Bakhuis, Sander G. Huisman, Roberto Verzicco, Chao Sun, Detlef Lohse	Wall roughness induces asymptotic ultimate Taylor-Couette turbulence
11:30 – 11:45	Konstantin Ilin , Andrey Morgulis	On the stability of a Couette-Taylor flow between rotating porous cylinders to three-dimensional perturbations
11:45 – 12:00	Juan M. Lopez	Subcritical instability of Taylor-Couette flow with stationary inner cylinder
12:00 – 12:15	Mehdi Riahi , Said Aniss, Mohamed Ouazzani Touhami	Subharmonic instabilities on modulated Taylor-couette

Lunch : 12:15 – 13:45

<i>Session : Free surface, bubbly and complex flows - Chairman : R. M. Lueptow</i>		
13:45 – 14:00	Wen Yang , Ivan Delbende, Yann Fraigneau, Laurent Martin Witkowski	Structures in a rotating flow with free surface: simulations and experiments
14:00 – 14:15	Harunori Yoshikawa , Shu Satoh, Christian Mathis	Formation of spiral liquid curtains in a Rayleigh-Taylor system

14:15 – 14:30	Cecile Lemaitre , Cherif Nouar, Yao Agbessil, Philippe Marchal, Lionel Choplin	Instability of the Taylor-Couette-Poiseuille flow with radial flux of a shear-thinning fluid
14:30 – 14:45	Peter Reinke , Tom Beckmann, Marcus Schmidt	Taylor-Couette Flow with Cavitation
14:45 – 15:00	Abdelouahab El jaouahiry , Said Aniss	Effect of amplitude ratio of a quasi-periodic gravitational modulation on the thermal instability in a Hele-Shaw cell
15:00 – 15:15	Antoine Faugaret, Laurent Martin Witkowski , Yohann Duguet, Yann Fraigneau	Influence of boundary conditions on instabilities in free surface rotating
15:15 – 15:30	Hayani Mohamed , Aniss Said	Stability of a Viscoelastic Pulsed Flow in Taylor Couette Geometry

Coffee Break : 15:30 – 16:00

16:00 – 16:30	<i>Keynote Lecture 2</i> Chairman : E. Serre	<u>Philippe Ghendrih</u> : Burning plasma turbulence driven by a Rayleigh-Bénard like instability
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<i>Session : Magneto - Electro- Dynamics - Chairman : E. Serre</i>		
16:30 – 16:45	Martin Seilmayer , Frank Stefani, Thomas Gundrum	Recent Developments of the Liquid Metal Taylor Couette Experiment PROMISE
16:45 – 17:00	Sebastian Altmeyer , Younghae Do, Soorok Ryu	Transient behavior between multi-cell flow states in ferrofluidic Taylor-Couette flow
17:00 – 17:15	Kengo Deguchi	High-speed standard magneto-rotational instability
17:15 - 17:30	Yuji Tasaka , Takatoshi Yanagisawa, Tobias Vogt, Sven Eckert	2D oscillatory convections in a bounded liquid metal layer under an imposed horizontal magnetic field
17:30 – 17:45	S. Lecheheb , A. Bouabdallah, Z. Tigrine	Effect of aspect ratio on steady liquid metal through the Gratz system in MHD

Thursday, July 12

9:00 – 9:30	Keynote Lecture 3 Chairman : P. Le Gal	Björn Hof : Directed percolation transition to turbulence
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<i>Session : Instability and Transition 1</i> - Chairman : P. Le Gal		
9:30 – 9:45	Joran Rolland	Numerical and theoretical study of extremely rare collapse and build-up of turbulence in stochastic models of wall flows
9:45 – 10:00	Rodrigo Ezeta , Sander G. Huisman, Dennis Bakhuis, Sander Bonestroo, Chao Sun, Detlef Lohse	Drag reduction due to vapor bubbles in high-Reynolds number Taylor-Couette
10:00 – 10:15	Tim Gebler , Judith Kahle, Martin Oberlack	New non-modal stability analysis and algebraic growth rate of a Taylor Couette model problem in an infinite domain

Coffee Break : 10:15 – 10:45

<i>Session : Instability and Transition 2</i> - Chairman : P. Le Gal		
10:45 – 11:00	Alvaro Meseguer , Francisco Marques, Fernando Mellibovsky, Patrick Weidman	Shear flow instabilities in stretching channels and twisted pipes
11:00 – 11:15	Eunok Yim , J.-M. Chomaz, D. Martinand, E. Serre	Transition to turbulence in the rotating disk boundary layer of a rotor-stator cavity
11:15 – 11:30	Ruben A. Verschoof, Dennis Bakhuis, Pim A. Bullee, Sander G. Huisman , Chao Sun, Detlef Lohse	The influence of wall roughness on bubble drag reduction in Taylor-Couette turbulence
11:30 – 11:45	Roger Ayats , Alvaro Meseguer, Fernando Mellibovsky	On a new family of Tollmien-Schlichting Waves

11:45 – 12:00	Masato Nagata Darren P. Wall Takashi Noguchi	Bifurcation in rotating plane Couette revisited
12:00 – 12:15	Giulio Facchini, Benjamin Favier, Meng Wang, Michael Le Bars, Patrice Le Gal	The linear instability of the stratified plane Couette flow

Lunch : 12:15 – 13:45

<i>Session : Taylor-Couette Flows 3- Chairman: I. Mutabazi</i>		
13:45 – 14:00	Michael F. Schatz , Christopher J. Crowley, Michael Krygier, Roman O. Grigoriev	Exact Coherent Structures in Weakly Turbulent Couette-Taylor Flow: Experiments and Numerics
14:00 – 14:15	Andreas Froitzheim , Sebastian Merbold, Christoph Egbers, Rodrigo Ezeta, Detlef Lohse, Chao Sun	Large scale vortices in the Taylor-Couette
14:15 – 14:30	Pim A. Bullee , Ruben A. Verschoof, Dennis Bakhuis, Sander G. Huisman, Chao Sun, Rob G. H. Lammertinkand Detlef Lohse	Drag reduction in Taylor-Couette turbulence with a superhydrophobic inner cylinder
14:30 – 14:45	Yacine Bengana , Laurette Tuckerman	Spirals, ribbons and RZIF: frequency prediction from mean flows counter-rotating Couette-Taylor flows
14:45 – 15:00	Denis Martinand , Nils Tilton	Global modes in Taylor-Couette-Poiseuille flow with a permeable inner cylinder
15:00 – 15:15	Denni Chaimaa , Aniss Said, Eljaouahiry Abdelouahab	Instability of a quasi-periodic pulsed Taylor-Couette flow
15:15 – 15:30	Jia Heng Teoh, Rensheng Deng, Chi-Hwa Wang	From Bubbles to Cells: A decade of investigation into the phenomenon of object motion in the Taylor-Couette flow

Coffee Break : 15:30 – 16:00

16:00 – 16:30	<i>Keynote Lecture 4</i> Chairman : M. Médale	Keith Julien : Rotating Rayleigh-Benard Convection: Theory, Experiments and Simulations
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<i>Session : Convection - Chairman : M. Médale</i>		
16:30 – 16:45	Philipp Gerstner , Martin Baumann, Vincent Heuveline	Finite element simulation of thermal electro-hydrodynamic driven flow in annular geometry
16:45 – 17:00	Torsten Seelig , Marcel Jongmanns, Antoine Meyer, Martin Meier, Christoph Egbers	Onset of dielectrophoretic force-driven convection in annular geometry under Earth's gravity
17:00 – 17:15	Changwoo Kang , Innocent Mutabazi	Numerical Study of Thermoelectric Convection in a Finite Cylindrical Annulus
17:15 – 17:30	Antoine Meyer , Marcel Jongmanns, Martin Meier, Torsten Seelig, Changwoo Kang, Innocent Mutabazi, Christoph Egbers	Experiments on thermoelectric convection induced in a cylindrical annulus under microgravity conditions
17:30 – 17:45	Marc Médale , Bruno Cochelin	A path following algorithm to compute bifurcation diagrams in confined natural convection problems involving Bingham fluids
17:45 – 18:00	Antoine Meyer , Harunori Yoshikawa, Innocent Mutabazi, Christoph Egbers	Effect of the dielectrophoretic force in a rigidly rotating cylindrical annulus

Banquet : 20:15

Friday, July 13

9:00 – 9:30	Keynote Lecture 5 Chairman : S. Viazzo	Francisco Marques : Dynamics of thermal plumes in a uniform and a stratified ambient
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<i>Session: Mixing, transport and particle laden flows 1 – Chairman : S. Viazzo</i>		
9:30 – 9:45	Yusuke Ochi , Takafumi Horie, Naoto Ohmura	Aggregation of silica micro particles in chaotic mixing field
9:45 – 10:00	Rouae Ben Dhia , Denis Martinand, Nils Tilton	Dynamics and transport of a solute in Taylor-Couette
10:00 – 10:15	Kanwar Nain Singh , Jamie Partridge, Stuart Dalziel, C. P. Caulfield	Quasi-periodic mixing events in two-layer stably-stratified turbulent Taylor-Couette flow

Coffee Break : 10:15 – 10:45

<i>Session: Mixing, transport and particle laden flows 2 – Chairman : S. Viazzo</i>		
10:45 – 11:00	Madhu V. Majji , Sanjoy Banerjee, Jeffrey F. Morris	Taylor-Couette Flow of Fluid-Particle Suspension
11:00 – 11:15	Philipp Brockmann , Hamid Tabaei Kazerooni, Luca Brandt, Jeanette Hussong	Particle separation in a narrow-gap Taylor-Couette setup
11:15 – 11:30	Geert Brethouwer	The effect of spanwise rotation on turbulence and passive scalar transport in channel flow
11:30 – 11:45	Dennis Bakhuis , Rodrigo Ezeta, Pim A. Bullee, Raymond H. J. Kip, Sander G. Huisman, Alvaro Marin, Detlef Lohse, Chao Sun	Mayonnaise Taylor-Couette Turbulence

11:45 – 12:00	Hayato Masuda ¹ , Saho Yoshida, Takafumi Horie, Naoto Ohmura , Makoto Shimoyamada	Vortex Dynamics in Couette-Taylor Flow with Axial Distribution of Temperature
12:00 – 12:15	Nabila Ouazib, Yacine Salhi , El-Khider Si-Ahmed, Jack Legrand, Abdellah Arhaliass, Gérard Degrez	Numerical Simulation of passive scalar transport in turbulent Taylor-Couette Flows in short annulus with rotating outer wall

Lunch : 12:15 – 13:45

Session : Geophysical flows - Chairman : C. Egbers

13:45 – 14:00	Stéphane Abide , Stéphane Viazzo, Isabelle Raspo, Anthony Randriamampianina, Gabriel Meletti, Uwe Harlander, Andreas Krebs	High-Order Compact scheme for High-Performance Computing of stratified rotating flows
14:00 – 14:15	Gabriel Meletti , Uwe Harlander, Torsten Seelig, Stéphane Viazzo, Stéphane Abide, Andreas Krebs, Anthony Randriamampianina, Isabelle Raspo	Experimental Confirmation of Linear Stability Results on Stratified Taylor-Couette Flows
14:15 – 14:30	Christoph Egbers , Florian Zaussinger, Peter Haun, Peter Canfield, Vadim Travnikov, Andreas Froitzheim	Convection in the spherical gap under micro-gravity conditions: From Earth's mantle to atmospheric
14:30 – 14:45	Uwe Harlander , Costanza Rodda, Ion Borcia, P.Le Gal	Gravity waves in baroclinic jet flows : a survey of laboratory experiments
14:45 – 15:00	Patrice Le Gal , Raül Cruz Gomez, Anne Cros	On the coalescence of anticyclones in stratified rotating flows

Coffee and End of Workshop

