Joint ERCOFTAC/EU-CTFF
European Drag Reduction and Flow Control Meeting – EDRFCM 2022

Tuesday 6th September

	Welcome **10:40-10:50**		
	Session 1.1 **10:50-12:30**		
Passive control	Pierre Ricco	NOTES ON THE SKIN-FRICTION COEFFICIENT OF BOUNDARY LAYERS AND CONFINED FLOWS	1
Passive control	Olaf van Campenhout	EXPERIMENTAL AND NUMERICAL INVESTIGATION INTO THE DRAG PERFORMANCE OF DIMPLED SURFACES IN A TURBULENT BOUNDARY LAYER	2
Passive control	Benedetto Mele	DRAG REDUCTION MODELING FOR ENGINEERING APPLICATIONS	3
Passive control	Saskia Pasch	MEASUREMENTS IN A TURBULENT CHANNEL FLOW BY MEANS OF AN LDV PROFILE SENSOR	4
Passive control	Mahmud Muhammad	EFFECT OF SLAT ATTACHMENT ON RUDDER LEADING EDGE OF A VERTICAL TAIL PLANE	6
	Lunch **12:30-14:00**		
	Session 1.2 **14:00-16:00**		
Passive control	Federica Gattere	FLOW OVER RIBLETS: ANALYTICAL CORRECTION OF CORNER SINGULARITY	7
Passive control	Jeremy Wong	ASSESSING THE PROTRUSION-HEIGHT CONCEPT FOR PREDICTING THE DRAG-REDUCTION PERFORMANCE OF RIBLETS	8
Passive control	Jooha Kim	BIOMIMETIC FLOW CONTROL FOR A PARAGLIDER: FROM IDEA TO PRODUCT	9
Passive control	Zhihao Zhang	EXPERIMENTAL INVESTIGATION OF THE SESSILE DROPLET EVAPORATION PROCESS BASED ON DIFFERENT SURFACE ROUGHNESS AND WETTABILITY	10
Passive control	Fermin Mallor	CANCELLATION OF THE INVISCID CONTRIBUTION IN SKIN-FRICTION DECOMPOSITIONS	11
Passive control	Firoozeh Foroozan	SYNCHRONIZED MEASUREMENTS OF FLOW AND WALL FIELDS IN TURBULENT BOUNDARY LAYERS	12
	Tea break **16:00-16:30**		
	Session 1.3 **16:30-18:30**		
EU-CTFF	Kwing-So Choi	PLASMA FLOW CONTROL OF THE TIP VORTICES OVER A VERY LOW ASPECT-RATIO WING	13
EU-CTFF	Francois Rogier	ELECTROHYDRODYNAMIC FORCE MODELLING AND APPLICATION TO FLOW CONTROL	14
EU-CTFF	Li He	TWO-SCALE COUPLING FOR WALL-BOUNDED TURBULENCE OVER ‘REGULAR ROUGHNESS’	15
EU-CTFF	Arivazhagan Balasubramanian	PREDICTION OF WALL-BOUNDED TURBULENCE IN A VISCOELASTIC CHANNEL FLOW USING CONVOLUTIONAL NEURAL NETWORKS	16
EU-CTFF	Yaxing Wang	OPPOSITION CONTROL OF TURBULENT SPOTS	17
EU-CTFF	Amrit Kumar	SPREADING DYNAMICS OF A WATER DROP ON A MICRO-TEXTURED SURFACE	18
	Reception **18:30-20:00**		

Wednesday 7th September

Session 2.1 **8:40-10:20**

Wall forcing	Maurizio Quadrio	DRAG REDUCTION ON A TRANSONIC WING	19
Wall forcing	Emanuele Gallorini	COHERENT NEAR-WALL STRUCTURES AND DRAG REDUCTION BY SPANWISE FORCING	20
Wall forcing	Esther Mateling	INTERNAL FLOW STRUCTURE MODIFICATION GENERATED BY TRANSVERSAL SURFACE WAVES	21
Wall forcing	Amandine Capogna	NEAR-WALL MHD TURBULENCE CONTROL - EFFECT OF A HALBACH MAGNET CONFIGURATION	22
Wall forcing	Isabella Fumarola	SIMULTANEOUS MEASUREMENTS OF SURFACE AND FLUID VELOCITY IN A TURBULENT BOUNDARY LAYER WITH STANDING SPANWISE WAVES AT THE WALL	23

Coffee break **10:20-10:50**

Session 2.2 **10:50-12:30**

Wall forcing	Dileep Chandran	TURBULENT DRAG REDUCTION BY SPANWISE WALL FORCING AT HIGH REYNOLDS NUMBERS	24
Wall forcing	Rahul Deshpande	TOWARDS ENERGY-EFFICIENT TURBULENT DRAG REDUCTION THROUGH ENHANCING THE INTER-SCALE COUPLING	25
Wall forcing	Alessandro Chiarini	TURBULENT DRAG REDUCTION USING SPANWISE FORCING IN COMPRESSIBLE REGIME	26
Wall forcing	Paolo Olivucci	MULTI-FIDELITY SURROGATE MODELLING OF THE NET POWER SAVINGS OF AN ACTUATED TURBULENT BOUNDARY-LAYER	27
Wall forcing	Mohammad Umair	REYNOLDS STRESSES TRANSPORT IN A TURBULENT CHANNEL FLOW CONTROLLED USING STREAMWISE TRAVELLING WAVES	28

Lunch **12:30-14:00**

Session 2.3 **14:00-16:00**

Plasma control	Nicholas Benard	RING-TYPE DBD PLASMA ACTUATOR AT MILLIMETRIC SCALE	29
Plasma control	Kaisheng Peng	EXPERIMENTAL BASE FLOW MODIFICATION THROUGH PLASMA ACTUATION ON A SWEPT WING	30
Plasma control	Patricia Sujar-Garrido	PLASMA VORTEX GENERATORS USED FOR SEPARATION CONTROL AND DRAG REDUCTION ON A BLUFF BODY	31
Plasma control	Sergei Leonov	SHOCK WAVE REFLECTION CONTROL IN M=4 FLOW BY FILAMENTARY ELECTRICAL DISCHARGE	32
Plasma control	Giulia Zoppini	CONTROL OF STATIONARY CROSSFLOW INSTABILITIES THROUGH DESTRUCTIVE INTERFERENCE	33
Plasma control	Jacopo Serpieri	WALL-TURBULENCE CONDITIONING WITH STEADY CROSSFLOW-DIRECTED PLASMA JETS	34

Tea break **16:00-16:30**

Session 2.4 **16:30-18:30**

Flow instabilities	Dongdong Xu	WALL COOLING AND HEATING EFFECTS ON THE EXCITATION OF GÅNORTLER VORTICES IN COMPRESSIBLE BOUNDARY LAYERS	35
Flow instabilities	Jordi Casacuberta	THE REVERSE LIFT-UP EFFECT IN CROSSFLOW INSTABILITIES OVER SURFACE IRREGULARITIES	36
Flow instabilities	Andras Szabo	STABILITY ANALYSIS OF MINIATURE VORTEX GENERATORS	37
Flow instabilities	Anna Spasova	DEVELOPMENT OF AN ALGORITHM FOR CREATING A DEVICE THAT FORMS THE SUBMERGED JET WITH REQUIRED INSTABILITY CHARACTERISTICS	38
Flow instabilities	Peter Nagy	THE DELAY OF NATURAL LAMINAR-TURBULENT TRANSITION USING ELASTIC COATING AND MINIATURE VORTEX GENERATORS	39
Flow instabilities	Gareev Linar	EXPERIMENTAL DETECTION OF NON-MODAL PERTURBATION GROWTH MECHANISM IN A LAMINAR JET	40

Thursday 8th September

	Session 3.1 **8:40-10:20**		
Blowing & suction	Iraj Mortazavi	MODAL ANALYSIS AND FLOW CONTROL ON A REDUCED SCALE SUV	41
Blowing & suction	Jonathan Morrison	SUPPRESSING THE PRESSURE DRAG OF A TURBULENT BLUFF BODY WAKE WITH PULSED JET FORCING	42
Blowing & suction	Hung Truong	AERODYNAMIC DRAG REDUCTION OF A TILT ROTOR AIRCRAFT USING ZERO-NET-MASS-FLUX DEVICES	43
Blowing & suction	Xiaodong Chen	DRAG REDUCTION PERFORMANCE OF SWEEPING JETS ON A SLANTED-BASED CYLINDER	44
Blowing & suction	Giulio Rota	ON-OFF PUMPING FOR DRAG REDUCTION IN A TURBULENT CHANNEL FLOW	45
	Coffee break **10:20-10:50**		
	Session 3.2 **10:50-12:30**		
Blowing & suction	Davide Gatti	GLOBAL MOMENTUM BUDGET FOR TURBULENT FLOW CONTROL VIA MICROBLOWING	46
Blowing & suction	Babak Mohammadikalakoo	EFFECT OF THE REAR LINKING TUNNELS AND BLOWING ACTIVE FLOW CONTROL ON AERODYNAMIC PERFORMANCE OF BLUFF BODY	47
Blowing & suction	Mike Diessner	ON THE DEVELOPMENT OF A BAYESIAN OPTIMISATION FRAMEWORK FOR TURBULENT DRAG REDUCTION	48
Blowing & suction	Joseph O'Connor	FLOW PHYSICS OF A TURBULENT BOUNDARY LAYER ACTUATED VIA WALL-NORMAL BLOWING IN DIFFERENT CONFIGURATIONS	49
Blowing & suction	Annika Frede	NUMERICAL INVESTIGATION OF HOMOGENEOUS BLOWING AND SUCTION ON AN AIRFOIL IN COMPRESSIBLE FLOW	50
	Lunch **12:30-14:00**		
	Session 3.3 **14:00-16:00**		
Liquid drag reduction	Keizo Watanabe	DRAG REDUCTION OF AQUEOUS SUSPENSIONS OF FINE SOLID MATTER IN PIPE FLOWS	51
Liquid drag reduction	Keizo Watanabe	HEAT TRANSFER IMPROVEMENT AND DRAG REDUCTION OF GRAPHENE OXIDE SUSPENSIONS	52
Liquid drag reduction	Ricardo Garcia-Mayoral	CAPTURING THE EFFECT OF SLIP/NO-SLIP SUPERHYDROPHOBIC TEXTURES IN TEXTURE-LESS SIMULATIONS	53
Liquid drag reduction	Michiel van Nesselrooij	DEVELOPMENT OF AN APPARATUS FOR FLAT PLATE DRAG MEASUREMENTS AND ITS APPLICATION FOR COMPLIANT COATINGS IN TURBULENT BOUNDARY LAYERS	54
Liquid drag reduction	Tao Liu	ON THE DETECTION AND CHARACTERISATION OF HIBERNATING TURBULENCE IN BOUNDARY-LAYER FLOWS	55
Liquid drag reduction	Dries vann Nimwegen	THE CHARACTERIZATION OF DRAG REDUCING AGENTS FOR APPLICATION IN LOW-ENTHALPY GEOTHERMAL WELLS AND DISTRICT HEATING SYSTEMS	56

Museum	**16:00-18:00**
Banquet	**19:45**

Friday 9th September

Session 4.1 **9:00-10:20**

Machine learning	Laurent Cordier	CONTROL OF UNSTEADY WAKE FLOWS BY MACHINE LEARNING	57
Machine learning	Fermin Mallor	BAYESIAN OPTIMIZATION OF ACTIVE FLOW CONTROL IN THE TURBULENT BOUNDARY LAYER ON A NACA4412 PROFILE	58
Machine learning	Shaun Davey	MEASURING THE UNSTEADY DRAG OF SUPERHYDROPHOBIC SURFACE TREATMENT USING NEURAL NETWORKS AND EXPERIMENTAL DISPLACEMENT TIME SERIES	59
Machine learning	Remy Hosseinkhan	EXPLORATION STRATEGIES FOR CONTROL OF CHAOTIC DYNAMICAL SYSTEMS USING REINFORCEMENT LEARNING	60

Coffee break **10:20-10:50**

Session 4.2 **10:50-12:30**

Machine learning	Chenwei Xia	FLOW CONTROL FOR BLUFF BODY DRAG REDUCTION USING REINFORCEMENT LEARNING WITH PARTIAL MEASUREMENTS	61
Machine learning	Anna Guseva	LARGE-SCALE OPPOSITION FLOW CONTROL OF THE LOGARITHMIC LAYER	62
Machine learning	Enrico Amico	DEEP REINFORCEMENT LEARNING FOR BLUFF BODY WAKE CONTROL	63
Machine learning	Fabio Pino	MACHINE LEARNING CONTROL OF 2D FALLING LIQUID FILM	64
Machine learning	Anand Sudhi	DESIGN EXPLORATION OF LOW DRAG NLF AND HLFC WINGS	65

Session 4.3 **14:00-15:40**

Porous surface	Alfredo Pinelli	ON THE EFFECTS OF FILAMENTS INCLINATION ON CANOPY FLOWS	66
Porous surface	Essameldin Abdo	TURBULENCE OVER ANISOTROPIC POROUS SUBSTRATES: A HOMOGENIZATION-BASED STUDY	67
Porous surface	F.H. Hartog	TURBULENT BOUNDARY LAYERS OVER SURFACES WITH STREAMWISE-PREFERENTIAL PERMEABILITY	68
Porous surface	Mahiro Morimoto	DISCUSSION ON THE POSSIBILITY OF TURBULENT DRAG REDUCTION BY A STREAMWISE PREFERENTIAL POROUS MEDIUM	69
Porous surface	Ludovico Fossa	SUPERSONIC PRE-TRANSITIONAL STREAKS OVER POROUS SURFACES	70

Farewell **15:40-16:00**

Tea break **16:00-16:30**