DAY 3	Friday 30th May 2025				
08:00-08:25	Coffee break and Refreshments				
Keynote 08:30 - 09:15	Chair: Dr Steffen Schmidt TU Munich	Prof Luca Biferale (University of Tor Vergata & INFN, Italy) Data driven tools for Lagrangian and Eulerian turbulence: benchmarks and challenges			
09:15 - 10:30		Dr Rundi Qiu & Prof Wang Yiwei (Institute of Mechanics, Chinese Academy of Sciences, China) Physics-informed neural networks for phase-field method in two-phase flow			
10:00 - 10:15	Patrick Vagovic (European Xfel)				
10:15 - 11:00	Coffee Break, Refreshments				
Parallel Sessions	Optimization and Design	Turbulence	Industrial & Applied ML in Fluid Systems	Physics-informed models	Multi-scales
Chair	Prof Kyriakos Giannakoglou National Technical University of Athens	Prof Joonsik Hwang KAIST	Prof Peter Jimack Leeds University	Prof Andrea Beck University of Stuttgart	Prof Maurizio Quadrio Politechnico di Milano
11:00 - 11:15	***S.14-P.2 Florian Sobieczky*** E.Dudkin A.Lopez C. Lackner M. Hochsteger, B.Scheichl *Reinforcement Learning for Accelerated Aerodynamic Shape Optimization* Software Competence Center Hagenberg	***S.5-A.7 Zahra Lakdawala*** Hassan Kassem, Waasif Nadeem *On training of data-driven and physics driven neural networks for wind farm planning* Fraunhofer Institite for Wind Energy Systems	***S.6-A.11 Dmitry Ponkratov*** M. Bucci, K. Moran, N. MacLennan, M. Wheeler *How does AI solve the challenge of vessel draught mark readings?* *Siemens*	***S.11-A.4 Yu Jiao*** A. Bußmann; Steffen J. Schmidt; N. A. Adams *Ultrasonic Field Modeling and Prediction Using Physics-Informed Machine Learning* TUM	***S.3-P.1 Michael Mays*** C Marsh, S Rezaeiravesh and A Revell *Application of multi-fidelity Gaussian Process modeling to the Common Research Model - High-Lift geometry for use in digital environments* University of Manchester
11:15 - 11:30	***S.14-A.6 Sho Watanabe*** Yosuke Hasegawa *Shape optimizations of fluid flow around a circular cylinder by using PINNs* Komatsu Ltd.	***S.5-P.8 Simon Dalpke*** Jiasheng Yang, Alexander Stroh *Physics-Informed Adversarial Network for prediction of turbulent flow over rough surfaces* ISTM	***S.6-P.14 Bernhard Einberger*** Robert Pöschl, Andreas Ennemoser *Data-Driven Ejector Layout: Integrating High-Fidelity CFD, Machine Learning Surrogate, and Genetic Algorithms* AVL List GmbH	***S.11-A.5 Rundi Qui*** Jingzhu Wang, Zhen Zhang and Yiwei Wang *A hybrid physics-enhanced turbulent model for high-fidelity flow predictions* Chinese Academy of Sciences	***S.3-P.2 Marco Laudato*** L Manzari and K Shukla *Neural Operators for Multiscale Modeling of Platelet Dynamics in Shear Flow* KTH Royal Institute of Technology KTH Royal Institute of Technology
11:30 - 11:45	***S.14-A.7 Marc Schouler*** C. Matar, X. Gloerfelt, A. Belme, P. Cinnella *Machine learning-based aerodynamic optimization with extreme fidelity cost imbalance* Sorbonne University	***S.5-A.8 Mohammad Sharifi Ghazijahani*** Christian Cierpka *Temporal modeling of turbulence via echo state networks* Technische Universität Ilmenau	***S.6-P.15 Bin LIU*** Lei ZHANG, Yu LIU, Xia LI; *Effects of chock and shock save effect on aerodynamic load and temperature of subsonic vacuum tube maglev train* CRRC Tangshan Co	***S.11-P.10 Maximilian Dreisbach*** E. Kiyani, J. Kriegseis, G. Karniadakis, A. Stroh *Convolutional feature-enhanced physics-informed neural networks for reconstructing two-phase flows* ISTM	***S.3-P.3 Niccolò Tonioni*** L. Agostini, F. Kerherv, L. Cordier and R. Vinuesa *VIVALDy: A novel β-Variational Autoencoder approach for Low-Order Dynamical Modeling of Vortex-Induced Vibrations.* CRNS
11:45 - 12:00	***S.14-A.8 Deniz Bezgin*** Aaron B. Buhendwa, Steffen J. Schmidt, Nikolaus A. Adams *Differentiable Fluid Dynamics for Shape Optimization in Compressible Flows* *TUM*	***S.5-A.9 Benet Eiximeno Franch*** M. Sanchís-Agudo, A. Miró, Ivette Rodriguez, R. Vinuesa, O.Lehmkuhl *Towards Deep-Learning Based Probabilistic Closures for Algebraic Surrogate Models of Turbulent Flows* Barcelona Supercomputing Center	***S.6-P.16 Chris Pliakos*** Giorgos Efrem, Dimitrios Terzis, Pericles Panagiotou *Data-driven skin friction estimation for UAV wings in subsonic flows* Aristotle University of Thessaloniki	***S.11-P.11 Yuhang Wang*** *Sergiy Shelyag and Jorg Schluter* *Physics-informed Transformer-based Neural Operator for Parametric Super Resolution of Turbulent Flows from Spatially Sparse Data* Deakin University	***S.3-P.4 Min Yang*** H. Liu, D, Fernandes del Pozo, T. Chen *Development of an AI Surrogate Model Trained on CFD-ASM Results for Predicting Pollutant Degradation and Dispersion in Ecological Wetlands* Harbin Institute of Technology
12:00 - 12:15	***S.14-A.9 Juri Bellucci*** M. Giovannini, M. Silei, E. Spano B. Francesco *Data-Driven Multi-Fidelity Framework for Real-Time Optimization of LPT Blades* Morfo Design Srl	***S.5-A.10 Paola Cinnella*** Cécile Roques, Grégory Dergham, Xavier Merle *Improving the reliability of turbulent flow predictions using Clustered Model Aggregation* Sorbonne University	***S.6-P.17 Wei Suo*** Weiwei Zhang *An improved finite difference method enhanced by deep neural networks* Northwestern Polytechnical University	***S.11-P.12 Vassili Kitsios*** L. Cordier; T. J. O'Kane *Data-driven and physics-constrained reduced-order model of the global climate* CSIRO	***S.3-P.5 Georgios Kanellis*** P Stamatopoulos, G Kanellis, T Lyras, D Stefanitsis and N Nikolopoulos *Numerical Simulation of Industrial-Scale Fluidised Bed Reactors Using an Artificial Neural Network EMMS Drag Model* Centre for Research and Technology Hellas
12:15 - 12:30	***S.14-P.3 Innyoung Kim*** Jonghyun Chae, Hwijun Bae, and Donghyun You *Automation of CFD-based design process for turbomachinery blades using deep reinforcement learning* Pohang University of Science and Technology	***S.5-P.9 Xianglin Shan*** Weiwei Zhang *Progressive Data-Driven modification for Spalart-Allmaras Turbulence Modeling* Northwestern Polytechnical University	***S.6-A12 Dmitry Ponkratov*** Junaid Awan, Miles Wheeler *Leveraging Generative AI for Simulation-Driven Optimization of Ship Hull Forms* Compute Maritime Ltd / SIEMENS	***S.11-A.6 Huang Bo*** Haobo Hua; Sensen He; Huan Han; Zhigang Zuo, S Liu *Solve advection-diffusion-Langmuir adsorption processes in 2-D oscillatory flows using residual physics-informed neural networks* National Supercomputing Center in Zhengzhou	***S.3-P.6 Carlo Brunelli*** B Janssens, K Hillewaert, M Runacres *Incremental SVD-Based Compression for Unsteady Adjoint in Variational MultiScale Optimization* Royal Military Academy Brussels
12:30 - 12:45	***S.14-P.4 Martin Kubíček*** Alex Guerrero; Adam Trčka; Davide Franco; Piero Pantalone; Vratislav Šálený *POMAI: Probabilistic Optimization Modeling Using Artificial Intelligence* Uptimai	***S.5-A.11 Tianyi Li*** M. Buzzicotti, A. S. Lanotte, F. Bonarccorso, L. Biferale, L. Centurioni *Diffusion Models for Reconstruction of Eulerian and Lagrangian Turbulent Data* University of Rome "Tor Vergata"	***S.6-PO.2 Christoforos Lefkiou*** Foivos Koukouvinis; Sotiris Chatzis *Flow field prediction around 2D bluff bodies* Cyprus University of Technology		
12:45 - 14:00	Lunch (Maich restaurant)				
Keynote 14:00 - 14:45	Chair: Prof Bruno Diaz ORAU NASA Ames Research Center	Prof Maurizio Quadrio (Politechnico di Milano, Italy) Enhancing artificial intelligence with fluid mechanics an opportunity for biomedical applications			
Keynote 14:45 - 15:30		Paris Perdikaris (Microsoft / University of Pennsylvania, USA) Aurora: A foundation model of the atmosphere			
15:30 - 16:30	*Chair:Prof Manolis Gavaises City St George University of London*	Round Table II: Q & A with Industry Panel Dmitry Ponkratov (Siemens), Yves-Marie Lefebvre (Tecplot), Bernhard Einberger (AVL), *Thanasis Boutsikakis (Corintis SA, Switzerland)*			
16:30 – 17:00	Coffee break and Refreshments				
Parallel Sessions	Optimization and Design	Machine Learning	Environmental and atmospheric	PDE Solvers	Industrial & Applied ML in Fluid Systems
Chair	Dr Simon Weissenberger Andritz Hydro GmbH	Prof Paris Perdikaris Microsoft / University of Pennsylvania	Dr Vassili Kitsios CSIRO & Monash University	Prof Koji Fukagata Keio University	Dr Chaouki Habsci IFPEN
17:00 - 17:15	***S.14-P.5 Francis Adams*** M Puttock-Brown, E Sorguven and M Chughtai *Accelerating Low Noise Axial Fan Design: A Surrogate Modeling Framework for Multi-Objective Optimization* University of Sussex	***S.18-A.1Nils Thuerey*** Erik Franz, Hao Wei, Luca Guastoni *PICT Adaptive GPU Accelerated and Differentiable Fluid Simulation for Machine Learning* *TUM*	***S.17-P.1 Yasuhiro Kanishima*** Keita Saito, Ryo Ito, Takashi Ueda,Yoshihiro Taniyama, Keiji Araki, Akifumi Kyomasu *Comparison of strong wind forecasts by fluid analysis-based and AI-based methods* Toshiba Energy Systems & Solutions Corporation	***S.4-A.7 Paris Perdikaris*** Sifan Wang; Shyam Sankaran; Hanwen Wang *Simulating Fluid Flows with Continuous Vision Transformers* *University of Pennsylvania*	***S.6-P18 Hamid Ait Abderrahmane*** Moussa Tembely *Asymptotic Model for Flow in Heterogeneous Media* Khalifa University
17:15 - 17:30	***S.14-P.6 Donggeon Lee*** Kwangshun Shim, Seongim Choi *The Prediction of Three Dimensional Flow Fields Analysis using Image Based Model Order Reduction in Various Wing Shape and Application to CFD-based Design Optimization* *GIST*	***S.18-A.2 Barath Sundaravadivelan*** Alberto Scotti *Reliable Collision Predictions in Chaotic Flows with Sequence-to-Sequence Models* Arizona State University	***S.17-A.1 Kasia Nowakowska*** Douglas Parker,Steven Tobias,Lorenzo Tomassini *Echo State Networks for Nowcasting a Simplified Model of Atmospheric Convection* University of Leeds	***S.4-A.8 Jiajun Hu*** Zhen Lu, Yue Yang *Generative prediction of flow fields around an obstacle using the diffusion model* Peking University	***S.6-P.19 Samuel Baker*** S. Goswami, X. Fang, and Felix C. P. Leach *Vector-based loss functions for turbulent flow field inpainting* University of Oxford
17:30 - 17:45	***S.14-A.10 Georgios Bletsos*** A. Hassan, M. A. Maram, T T Nguyen, M. Palm, T. Rung *Adjoint-based shape optimization of an OSV hull using a VAE-assisted propulsion surrogate model* Hamburg University of Technology	***S.18-A.3 Meike Tütken*** Dr.-Ing. Josef Winter, M.Sc. Alexandra Junk, Dr.-Ing. Steffen Schmidt, Prof. Dr.-Ing. Nikolaus A. Adams *Hybrid Machine Learning for Efficient Flow Simulations of Porous Media* *TUM*	***S.17-A.2 Jun Park*** Changhoon Lee *AI-Driven High-Resolution Precipitation Nowcasting: Insights into Atmospheric Fluid Dynamics and Spatiotemporal Correlations* Yonsei University	***S.4-P.7 Ze Wang*** Weiwei Zhang, Shufang Song *Euler equation embedding Double-series Residual neural Network for aerothermal modelling and prediction* Northwestern Polytechnical University	***S.6-A.13 Damien Aubagnac-Karkar*** C.Mehl *Accounting for variable time-steps in Neural Network accelerated kinetic computations.* IFPEN
17:45 - 18:00	***S.14-A.11 Jan Rottmayer*** Long Chen; Nicolas R. Gauger *Bayesian Neural Networks for Surrogate-based Optimization in Aerodynamic Shape Optimization* RPTU Kaiserslautern-Landau	***S.18-P.1 Hani Elmestikawy*** J. Reuter, S. Mostaghim, B. Van Wachem *Drag modelling for flows through assemblies of spherical particles with machine learning: A comparison of approaches* University of Magdeburg	***S.17-A.3 Armand de Villeroché*** V. Le Guen, Rem-Sophia Mouradi,P. Massin, Marc Bocquet,A. Farchi,S. Cheng,P. Armand *MeshGraphNets for 3D atmospheric flow in Urban Environment for Atmospheric Dispersion* EDF R&D / CEREA	***S.4-A.9 Lucas Berthet*** Bruno Blais, Frédérick P. Gosselin *Finite Element Neural Network Method for Navier-Stokes Equations* Polytechnique Montréal	***S.6-A.14 Justo Matheus*** F.-J. Granados-Ortiz *Application of Reduced-Order Models and Machine Learning to Enhance Downlink Communication in Rotary Steerable Systems for Oil & Gas Drilling* SLB and University of Almeria
18:00 - 18:15	***S.14-A.12 Athanasios Mokos*** Y. Sato, B. Niceno,S.V. Churakov,N. I. Prasianakis *Eulerian Multiphase CFD Model Optimisation and Sensitivity Analysis for Nuclear Reactor Fuel Assembly Simulations* Paul Scherrer Institute	***S.18-A.4 Brian Thurow*** B. Sapkota, H. Mettelsiefen, M. Moaven, S. H. Halder,V. Raghav *Machine Learning-Enhanced Light-Field Fluid-Structure Interaction Diagnostics* Auburn University	***S.17-P.3 Vladimir Kossov*** O Fedorenko, M Tuken *Peculiarities of occurrence of concentration gravitational currents caused by mechanical equilibrium loss of a multicomponent system containing greenhouse gases* Abai Kazakh National Pedagogical University	***S.4-A.10 Harish Ramachandran*** Artur P. Toshev, S. Schmidt, Nikolaus A. Adams *On Diffusion-based Graph Neural Networks for Lagrangian Fluid Simulations* *TUM*	***S.6-P.20 Fang Shen*** Zeyu Li; Qingfei Fu; Wang Han, Lijun Yang *Generative Modelling of Temperature Field Evolution from Sparse Pressure Measurement* Beihang University
18:15 - 18:30	***S.14-A13 Dmitry Ponkratov*** E.A. Arens, P. Mas, M. Wheeler *An integrated workflow to train and seamlessly leverage AI models for vessel design optimisation and performance prediction* SIEMENS	***S.18-A.5 Moloud Arian Maram*** A. Hassan, T. T. Nguyen, H. Schwarz, G. Bletsos, D. Bendl, M. Palm, T. Rung *Development of a data-driven propulsion surrogate model using Machine Learning methods* J.M. Voith SE & Co. KG		***S.4-A.11 Joshua Cummings*** C. Fernandes 2, F. Dong 3, M.A Alves, M.S.N Oliveira *Exploring the Use of Feed-Forward Multilayer Perceptron Networks for Modeling the Non-Linear Behaviour of Viscoelastic Fluids* University of Strathclyde	***S.6-P.21 Koichi Tsujimoto*** T. Tanoue, T. Ando and M. Takahashi *Diffusion Suppression Control of a Free Jet at a Medium Reynolds Number with Transverse Vibration of Inflow* Mie University
18:45 - 19:00	Prof M. Gavaises, Closing Remarks & Announcement for 2nd AIFLUIDs Symposium				
19:00 - 23:00	Farewell drinks, Gala Dinner, Cretan night & Dance				