

# Conference Agenda

## Session Overview

Date: Monday, 02/Sept/2024

8:30am - 9:00am	<b>Registration: Arrival and Registration</b> Location: <a href="#">Foyer</a>			
9:00am - 9:15am	<b>Welcome: Welcome</b> Location: <a href="#">Wolfgang-Paul-Saal</a> Chair: <a href="#">Andreas Lintermann</a> Chair: <a href="#">Sohel Sebastian Herff</a>			
9:15am - 10:15am	<b>KN1: Keynote 1: Lennart Schneiders: The intricacies of adaptive unstructured mesh refinement for industrial flows</b> Location: <a href="#">Wolfgang-Paul-Saal</a> Chair: <a href="#">Andreas Lintermann</a> Chair: <a href="#">Sohel Sebastian Herff</a>			
10:15am - 10:45am	<b>Break-1: Coffee Break</b> Location: <a href="#">Foyer</a>			
10:45am - 12:15pm	<p><b>MS1-1: Quantum Computing for CFD Applications</b> Location: <a href="#">Curtius-Raum</a> Chair: <a href="#">Matthias Möller</a> Chair: <a href="#">Julia Kowalski</a></p> <p>10:45am - 11:05am <b>Strategies for the application of Quantum Computers in Computational Fluid Dynamics</b> <a href="#">Stefan Langer</a>, <a href="#">Stefan Görtz</a></p> <p>11:05am - 11:25am <b>INCORPORATING FINITE VOLUME AND WEIGHTED ESSENTIALLY NON-OSCILLATORY METHODS INTO A QUANTUM ALGORITHM FOR NONLINEAR PARTIAL DIFFERENTIAL EQUATIONS</b> <a href="#">Frank Gaitan</a></p> <p>11:25am - 11:45am <b>Towards large-scale computational fluid dynamics solvers with quantum iterative algorithms</b> <a href="#">Chelsea A. Williams</a>, <a href="#">Antonio A. Gentile</a>, <a href="#">Vincent E. Elfving</a>, <a href="#">Daniel Berger</a>, <a href="#">Oleksandr Kyriienko</a></p> <p>11:45am - 12:05pm <b>SOLVING FLUID DYNAMICS EQUATIONS WITH DIFFERENTIABLE QUANTUM CIRCUITS</b> <a href="#">Smit Chaudhary</a>, <a href="#">Giorgio Tosti Balducci</a>, <a href="#">Oleksandr Kyriienko</a>, <a href="#">Panagiotis Kl.</a></p>	<p><b>MS2-1: Advances in Parallel Simulation of Reacting Flow</b> Location: <a href="#">Schumpeter-Raum</a> Chair: <a href="#">Jian Fang</a> Chair: <a href="#">Álvaro Moure</a></p> <p>10:45am - 11:05am <b>AN EFFICIENT PARALLEL IMPLEMENTATION OF AN HYBRID METHOD FOR THE ADVECTION OF HIGH SCHMIDT SCALARS IN FLOWS</b> <a href="#">Simon Santoso</a>, <a href="#">Guillaume Houzeaux</a>, <a href="#">Damien Dosimont</a></p> <p>11:05am - 11:25am <b>DNS OF FLAME INSTABILITY AND CELLULAR STRUCTURE OF LEAN HYDROGEN COMBUSTION</b> <a href="#">Yu Xie</a>, <a href="#">Jiang Fang</a>, <a href="#">Junfeng Yang</a>, <a href="#">Xiaojun Gu</a></p> <p>11:25am - 11:45am <b>Efficient Design of Low-NOx Hydrogen Combustors by GPU-Accelerated Simulations in OpenFOAM</b> <a href="#">Federico Ghioldi</a>, <a href="#">Shashikant M. Aithal</a>, <a href="#">Federico Piscaglia</a></p> <p>11:45am - 12:05pm <b>ENHANCING INSIGHT INTO TURBULENT LIFTED HYDROGEN JET FLAMES USING A REYNOLDS STRESS, STRETCHED FLAMELET MODEL</b> <a href="#">Chengpei Wu</a>, <a href="#">Junfeng</a></p>	<p><b>MS3-1: Convergence of Artificial Intelligence and High-Performance Computing for Computational Fluid Dynamics (AI + HPC4CFD PT. 3)</b> Location: <a href="#">Wolfgang-Paul-Saal</a> Chair: <a href="#">Mario Rüttgers</a> Chair: <a href="#">Guillaume Houzeaux</a></p> <p>10:45am - 11:05am <b>DRAG CORRELATIONS FOR MULTIPHASE FLOWS USING ARTIFICIAL NEURAL NETWORKS</b> <a href="#">Julian Vorspohl</a>, <a href="#">Laurent André</a>, <a href="#">Mario Rüttgers</a>, <a href="#">Wolfgang Schröder</a></p> <p>11:05am - 11:25am <b>A study on the effect of the number of collocation points in the training of physics-informed neural networks for unsteady flows</b> <a href="#">Junya Onishi</a>, <a href="#">Makoto Tsubokura</a></p> <p>11:25am - 11:45am <b>Predicting Turbulent Boundary Layer Flows Using Transformers Coupled to the Multi-Physics Simulation Tool m-AIA</b> <a href="#">Rakesh Sarma</a>, <a href="#">Fabian Hübenthal</a>, <a href="#">Fabian Orland</a>, <a href="#">Christian Terboven</a>, <a href="#">Andreas Lintermann</a></p> <p>11:45am - 12:05pm <b>CREATING A VIRTUAL POPULATION OF THE</b></p>	<p><b>MS5-1: HPC Biomechanics and New Challenges</b> Location: <a href="#">Matini-Raum</a> Chair: <a href="#">Silvia Ceccacci</a> Chair: <a href="#">Ane Beatriz Eguzkitza</a></p> <p>10:45am - 11:05am <b>AN EMBEDDED BOUNDARY MESH METHOD FOR SIMULATING RIGID HEART VALVES</b> <a href="#">Cristóbal Samaniego</a>, <a href="#">Mariano Vázquez</a>, <a href="#">Guillaume Houzeaux</a></p> <p>11:05am - 11:25am <b>PARALLEL MESH DEVELOPMENTS TO PREPARE FOR BIOSIMULATIONS</b> <a href="#">Phoebe Cullen</a>, <a href="#">Charles Moulinec</a>, <a href="#">James Gebbie-Rayet</a>, <a href="#">Jerome Bonelle</a>, <a href="#">Yvan Fournier</a></p> <p>11:25am - 11:45am <b>Comparison of airflow and particle deposition in different acinus geometries.</b> <a href="#">Ane Beatriz Eguzkitza</a>, <a href="#">Guillaume Houzeaux</a>, <a href="#">Carlos Arnedo</a>, <a href="#">Filippo Nasseti</a>, <a href="#">Jernimo Calderon</a>, <a href="#">Fernando Muñoz</a></p> <p>11:45am - 12:05pm <b>Lung digital twin COVID-19 infection: a multiphysics - multiscale HPC-modelling based on CFPD and agent based model coupled</b></p>

	<b>Barkoutsos, Lorenzo</b> <b>Cardarelli, Antonio A</b> <b>Gentile</b>	<b>Yang, Xiaojun Gu</b>	<b>HUMAN NASAL CAVITY FOR VELOCITY-BASED PREDICTIONS OF RESPIRATORY FLOW FEATURES USING GRAPH CONVOLUTIONAL NEURAL NETWORKS</b> <b><u>Hadrien Calmet</u>, Joan Calafell, Rakesh Sarma, Mario Rüttgers, Andreas Lintermann, Guillaume Houzeaux</b>	<b>simulations</b> <b>Alice Novell, Fernando Muñoz, Thaleia Ntiniakou, Arnau Montagud, Guillaume Houzeaux, <u>Beatriz Eguzkitza</u></b>
<b>12:15pm</b> - <b>1:45pm</b>	<b>Lunch-1: Lunch Break</b> Location: <b>Foyer</b>			
<b>1:45pm</b> - <b>2:45pm</b>	<b>KN2: Keynote 2 - Christian Hasse: How high-fidelity simulations of hydrogen combustion on supercomputers accelerate the energy transition</b> Location: <b>Wolfgang-Paul-Saal</b> Chair: <b>Sohel Sebastian Herff</b> Chair: <b>Andreas Lintermann</b>			
<b>2:45pm</b> - <b>3:15pm</b>	<b>Break-2: Coffee Break</b> Location: <b>Foyer</b>			
<b>3:15pm</b> - <b>4:45pm</b>	<b>MS1-2: Quantum Computing for CFD Applications</b> Location: <b>Curtius-Raum</b> Chair: <b>Matthias Möller</b> Chair: <b>Julia Kowalski</b>  <b>3:15pm - 3:35pm</b> <b>The Quantum Boltzmann Method</b> <b><u>Merel Annelise Schalkers</u>, <u>Matthias Möller</u></b>  <b>3:35pm - 3:55pm</b> <b>Quantum annealing computations to obtain converged flow solutions</b> <b><u>Yuichi Kuya</u>, Takahito Asaga</b>  <b>3:55pm - 4:15pm</b> <b>QLBM - A Software Package for Developing Quantum Lattice Boltzmann Methods</b> <b><u>Călin-Andrei Georgescu</u>, <u>Matthias Möller</u></b>  <b>4:15pm - 4:35pm</b> <b>A QUANTUM ALGORITHM FOR APPROXIMATION OF NONLINEAR TERMS IN NAVIER-STOKES EQUATIONS</b> <b><u>Xinfeng Gao</u></b>	<b>MS2-2: Advances in Parallel Simulation of Reacting Flow</b> Location: <b>Schumpeter-Raum</b> Chair: <b>Álvaro Moure</b> Chair: <b>Jian Fang</b>  <b>3:15pm - 3:35pm</b> <b>Parallel adaptive high-resolution simulation of rotating detonation engines in 3D</b> <b>Han Peng, <u>Ralf Deiterding</u></b>  <b>3:35pm - 3:55pm</b> <b>DNS OF A HYDROGEN FLAME INTERACTING WITH HOMOGENEOUS ISOTROPIC TURBULENCE MAINTAINED BY A DETERMINISTIC FORCE</b> <b>Yifan Xu, <u>Jian Fang</u>, Zhen Lu, Xiaojun Gu, Zhi X. Chen</b>  <b>3:55pm - 4:15pm</b> <b>Computation of transport and chemistry for combustion applications in the code Alya using accelerated architectures</b> <b><u>Álvaro Moure</u>, Alejandro Lamas, Anurag Surapaneni, Daniel Mira</b>	<b>MS3-2: Convergence of Artificial Intelligence and High-Performance Computing for Computational Fluid Dynamics (AI + HPC4CFD PT. 3)</b> Location: <b>Wolfgang-Paul-Saal</b> Chair: <b>Guillaume Houzeaux</b> Chair: <b>Mario Rüttgers</b>  <b>3:15pm - 3:35pm</b> <b>Evaluating Random Forest Classifiers to Optimise Load Balancing of Parallel Mesh Generation</b> <b><u>Ananya Gangopadhyay</u>, Paul Bartholomew, Michèle Weiland</b>  <b>3:35pm - 3:55pm</b> <b>PHYSICS INFORMED MACHINE LEARNING MODELING OF DROPLET DYNAMICS</b> <b><u>Andreas D. Demou</u>, Nikos Savva</b>  <b>3:55pm - 4:15pm</b> <b>Investigating the Effects of Spanwise Transversal Traveling Waves on a Turbulent Compressible Flat Plate Flow with the Aid of a Deep Autoencoder Network</b> <b><u>Xiao Shao</u>, Hilmi Oguzhan AYAN, Fabian HÜBENTHAL, Mario RÜTTGERS, Andreas LINTERMANN, Wolfgang SCHRÖDER</b>  <b>4:15pm - 4:35pm</b>	<b>MS5-2: HPC Biomechanics and New Challenges</b> Location: <b>Matini-Raum</b> Chair: <b>Silvia Ceccacci</b> Chair: <b>Ane Beatriz Eguzkitza</b>  <b>3:15pm - 3:35pm</b> <b>COMPUTATIONAL MODELLING OF PARTICLES FATE IN NASAL DRUG TREATMENTS</b> <b><u>Silvia Ceccacci</u>, Jose Angel Vicente Porres, Nerea Rio Grela, Hadrien Calmet, Abel Gargallo Peiro, Clement Rigaut, Benoit Haut, Guillaume Houzeaux, Beatriz Eguzkitza</b>  <b>3:35pm - 3:55pm</b> <b>WET SURFACE MODELING IN LATTICE BOLTZMANN SIMULATIONS FOR PRE- AND POST-SURGERY IMPACTS ON HUMIDITY TRANSFER IN THE NASAL CAVITY</b> <b>Shota Ito, <u>Mario Rüttgers</u>, Moritz Waldmann, Andreas Lintermann</b>  <b>3:55pm - 4:15pm</b> <b>FUNDAMENTAL STUDY ON FLUID-STRUCTURE INTERACTION MODELS FOR PULSE WAVEFORM ANALYSIS THROUGH</b>

**Predicting NOx emissions from porous media burners using physics-informed graph neural networks**

**Rishabh Puri, Oliver T. Stein, Thorsten Zirwes**

**BLOOD VESSELS USING HYPERWORKS**

**Yuki Kaneko, Tomohiro Fukui**

**4:15pm - 4:35pm**

**GPU Accelerated FEM based Lagrangian particle tracking framework for Human Air Pathway**

**Thivin Anandh, Sashikumaar Ganesan**

**6:15pm  
-  
8:15pm**

**Social Event-1: Visit of the Arithmeum**

Location: **Arithmeum**  
Lennéstr. 2, 53113 Bonn

**Date: Tuesday, 03/Sept/2024**

8:30am -	<b>KN3: Keynote 3 - Ricardo Vinuesa Motilva: Explaining and controlling turbulent flows through deep learning</b>			
9:30am	Location: <b>Wolfgang-Paul-Saal</b> Chair: <b>Guillaume Houzeaux</b> Chair: <b>Andreas Lintermann</b>			
9:30am -	<b>Break-3: Coffee Break</b>			
10:00am	Location: <b>Foyer</b>			
10:00am -	<p><b>MS2-3: Advances in Parallel Simulation of Reacting Flow</b> Location: <b>Schumpeter-Raum</b> Chair: <b>Jian Fang</b> Chair: <b>Alvaro Moure</b></p> <p><b>10:00am - 10:40am</b> <b>A EUROPEAN PERSPECTIVE ON FINITE-RATE-CHEMISTRY SOLVERS TOWARDS EXASCALE</b> Mathis Bode, Daniel Mira, Christos E. Frouzakis, <u>Christian Hasse</u></p> <p><b>10:40am - 11:00am</b> <b>LARGE-SCALE DNS AND THE IMPORTANCE OF HIGH REYNOLDS NUMBERS IN TURBULENT FLAMES</b> <u>Antonio Attili</u></p> <p><b>11:00am - 11:20am</b> <b>Deep learning-assisted heterogenous computing of reactive flows using DeepFlame</b> <u>RUNZE MAO</u>, ZIHENG WU, ZHI X. CHEN</p>	<p><b>MS3-3: Convergence of Artificial Intelligence and High-Performance Computing for Computational Fluid Dynamics (AI + HPC4CFD PT. 3)</b> Location: <b>Wolfgang-Paul-Saal</b> Chair: <b>Mario Rüttgers</b> Chair: <b>Guillaume Houzeaux</b></p> <p><b>10:00am - 10:40am</b> <b>HydroGym-GPU: From 2D to 3D Benchmark Environments for Reinforcement Learning in Fluid Flows</b> <u>Christian Lagemann</u>, Mario Rüttgers, Miro Gondrum, Matthias Meinke, Wolfgang Schröder, Andreas Lintermann, Steve Brunton</p> <p><b>10:40am - 11:00am</b> <b>Hard Constraint Projection in a Physics Informed Neural Network</b> <u>Miranda J S Horne</u>, Peter K Jimack, Amirul Khan, He Wang</p> <p><b>11:00am - 11:20am</b> <b>Super-resolution and parallel-in-time integration to accelerate simulations with the ICON-O ocean model</b> <u>Philip Freese</u>, Maximilian Witte, Fabricio R. Lapolli, Sebastian Götschel, Peter Korn, Christopher Kadow, Daniel Ruprecht</p> <p><b>11:20am - 11:40am</b> <b>TOWARDS ACTIVE FLOW CONTROL STRATEGIES THROUGH DEEP REINFORCEMENT LEARNING</b> <u>Ricard Montalà</u>, Bernat Font, Oriol Lehmkuhl, Ricardo Vinuesa, Ivette Rodriguez</p>	<p><b>MS8: Machine Learning-Based Reduced Order Models for Fluid Flow Emulators and Application to Design Optimization</b> Location: <b>Matini-Raum</b> Chair: <b>Amirul Khan</b></p> <p><b>10:00am - 10:40am</b> <b>CONTROLLABLE DROPLET TRANSPORT VIA INVERSE DESIGN OF SUBSTRATE HETEROGENEITY</b> <u>Panayiotis-Yiannis Vrionis</u>, Andreas Demou, Nikos Savva</p> <p><b>10:40am - 11:00am</b> <b>DATA-DRIVEN CFD-BASED DESIGN OPTIMISATION OF FLOW PATTERN IN A GRAVITATIONAL MIXER SETTLER</b> <u>Zinedine Khatir</u></p> <p><b>11:00am - 11:20am</b> <b>A SURROGATE MODEL BASED SHAPE OPTIMIZATION FRAMEWORK FOR COMPRESSIBLE FLOWS</b> <u>Niyazi Şenol</u>, Hasan U. Akay, Şahin Yiğit</p> <p><b>11:20am - 11:40am</b> <b>Machine learning based intelligent CFD simulation for interactive design exploration of built environments</b> <u>Usamah Abdulsamad Adia</u>, Amirul Khan, Andrew Sleigh, He Wang</p>	<p><b>OT4: Scalable Solvers</b> Location: <b>Curtius-Raum</b> Chair: <b>Abdelouahed Ouardghi</b></p> <p><b>10:00am - 10:20am</b> <b>An In-house overset supersonic solver with grid refinement capability on parallel environment</b> <u>Mohamad El Hajj Ali Barada</u>, Bayram Çelik</p> <p><b>10:20am - 10:40am</b> <b>4D PARALLEL COMPUTING FOR SPACE-TIME SIMULATIONS</b> <u>Hugues Digonnet</u>, Luisa Silva</p> <p><b>10:40am - 11:00am</b> <b>Roadmap for extreme-scale simulations: on the evolution of Poisson solvers</b> <u>F.Xavier Trias</u>, Àdel Alsalti, Assensi Oliva</p> <p><b>11:00am - 11:20am</b> <b>DOMAIN DECOMPOSITION METHOD FOR EQUIVALENT SOURCES METHOD IN AEROACOUSTIC</b> <u>Damien TROMEUR-DERVOUT</u>, Naima DEBIT, Roland DENIS, Benoit FABREGE</p>
12:00pm -	<b>Lunch-2: Lunch Break</b>			
1:30pm	Location: <b>Foyer</b>			
1:30pm -	<b>SP1: Florian Berberich: PRACE transition to an Association of Users and HPC Centres in Europe</b>			
	Location: <b>Wolfgang-Paul-Saal</b>			

2:00pm	Chair: <b>Andreas Lintermann</b> Chair: <b>Sohel Sebastian Herff</b>		
2:00pm - 2:30pm	<b>SP2: Benedikt von St. Vieth: JUPITER - State of Matters</b> Location: <b>Wolfgang-Paul-Saal</b> Chair: <b>Sohel Sebastian Herff</b> Chair: <b>Andreas Lintermann</b>		
2:30pm - 3:00pm	<b>Break-4: Coffee Break</b> Location: <b>Foyer</b>		
2:50pm - 4:30pm	<b>MS4-1: Modernizing CFD: Exploring CI/CD for Improved Software Development Life Cycle</b> Location: <b>Matini-Raum</b> Chair: <b>Damien Dosimont</b> Chair: <b>Guillaume Houzeaux</b>  <b>2:50pm - 3:05pm</b> <b>Codee: Automatic Code Inspection Tool for Modernization and Optimization of Fortran/C/C++ Codes</b> <b><u>Manuel Arenaz</u></b>  <b>3:05pm - 3:25pm</b> <b>Adapting the development of a CFD application following the CI-CD life cycle and a DevOps approach</b> <b><u>Damien Dosimont</u>, Guillaume Houzeaux</b>  <b>3:25pm - 3:45pm</b> <b>Verificarlo CI : Continuous integration for numerical optimization and debugging</b> <b><u>Aurélien Delval</u>, François Coppens, Eric Petit, Roman Iakymchuk, Pablo de Oliveira Castro</b>  <b>3:45pm - 4:05pm</b> <b>Assessing Computational Fluid Dynamics On GPU Using Portable Languages</b> <b><u>Youssef Faqir-Rhazoui</u>, Carlos Garcia Sanchez</b>  <b>4:05pm - 4:25pm</b> <b>Comparing several HPC CFD software through codemetrics: a case study</b> <b><u>Thibault Marzlin</u>, Antoine Dauptain</b>		
3:00pm - 4:20pm	<b>MS6-1: Mini-Symposium on Tool Support for Developing Highly-Parallel CFD Applications</b> Location: <b>Schumpeter-Raum</b> Chair: <b>Jana Gericke</b> Chair: <b>Ronny Tschueter</b>  <b>3:00pm - 3:15pm</b> <b>HPC Software Engineering: Ensuring high-performance and high-quality of software during the full development cycle</b> <b><u>Immo Huismann</u></b>  <b>3:15pm - 3:35pm</b> <b>Performance Modeling for CFD Applications</b> <b>Lukas Rothenberger, Gustavo de Morais, Alexander Geiß, Felix Wolf</b>  <b>3:35pm - 3:55pm</b> <b>On the Modeling and Improvement of Sub-Optimal Submission Patterns on HPC Workloads</b> <b><u>Anthony Larroque</u>, Baptiste Giraud, Antoine Dauptain</b>  <b>3:55pm - 4:15pm</b>	<b>MS7: Lattice Boltzmann Method-Based Computational Fluid Dynamics and its Application</b> Location: <b>Curtius-Raum</b> Chair: <b>Amirul Khan</b>  <b>3:00pm - 3:30pm</b> <b>A Scalable Approach for High-fidelity Wind Turbine Simulations With the LBM</b> <b><u>Anna Wellmann</u>, Martin Geier, Manfred Krafczyk</b>  <b>3:30pm - 3:50pm</b> <b>PERFORMANCE IMPACT: ANALYZING THE INFLUENCE OF THE BLENDING PARAMETER <math>\sigma</math> OF THE HYBRID RECURSIVE REGULARIZATION BGK COLLISION SCHEME ON WMLES IN TURBULENT LBM SIMULATIONS</b> <b><u>Jana Gericke</u>, Kannan Masilamani, Harald Klimach, Gregorio Spinelli</b>  <b>3:50pm - 4:10pm</b> <b>Numerical simulation of the effects of internal</b>	<b>MS9-1: Computational Fluid Dynamics with High-Order Spectral Element Methods on GPUs</b> Location: <b>Wolfgang-Paul-Saal</b> Chair: <b>Mathis Bode</b> Chair: <b>Hendrik Nicolai</b>  <b>3:00pm - 3:40pm</b> <b>Unraveling the boundary layers of high Rayleigh Number convection through Direct Numerical Simulations</b> <b><u>Roshan John Samuel</u>, Prafulla P. Shevkar, Mathis Bode, Janet D. Scheel, Katepalli R. Sreenivasan, Jörg Schumacher</b>  <b>3:40pm - 4:00pm</b> <b>Towards High-Fidelity Simulations of Urban Flows</b> <b><u>Josep M. Duró</u>, Naim Muñoz, Ernest Mestres, Jordi Muela, Oriol Lehmkuhl, Ivette Rodriguez</b>  <b>4:00pm - 4:20pm</b> <b>PARALLEL PERFORMANCE AND COMMUNICATION PATTERN ANALYSIS ON</b>

	<p><b>CORRECTNESS AND PERFORMANCE ANALYSIS OF AN OPEN-SOURCE CFD APPLICATION</b>  <u>Fabian Orland</u>, Joachim Jenke, Radita Liem</p>	<p>and external viscosity contrast of a red blood cell in a non-Newtonian plasma on its motion and suspension rheology  <u>Haruki Morimoto</u>, Tomohiro Fukui</p>	<p><b>SOD2D: A CFD HIGH-ORDER SPECTRAL ELEMENT CODE</b>  <u>Jordi Muela</u>, Lucas Gasparino, Oriol Lehmkuhl</p>
4:20pm - 4:30pm	<p><b>Break-5: Short Break</b>  Location: <a href="#">Foyer</a></p>		
4:30pm - 5:30pm	<p><b>MS4-2: Modernizing CFD: Exploring CI/CD for Improved Software Development Life Cycle</b>  Location: <a href="#">Matini-Raum</a>  Chair: <a href="#">Damien Dosimont</a></p> <p>4:30pm - 4:50pm  <b>Enabling lighter and faster simulations with repeated matrix blocks</b>  <u>Josep Plana-Riu</u>, Francesc Xavier Trias, Guillem Colomer, Àdel Alsalti-Baldellou, Xavier Álvarez-Farré, Assensi Oliva</p> <p>4:50pm - 5:10pm  <b>A continuous benchmarking pipeline for performance engineering on different architectures for the waLBerla framework</b>  <u>Kajol Kulkarni</u>, Christoph Alt</p> <p>5:10pm - 5:30pm  <b>A portable algebraic implementation for reliable overnight industrial LES</b>  <u>Marcial Francisco Mosqueda Otero</u>, Àdel Alsalti-Baldellou, Xavi Álvarez Farré, Josep Plana Riu, Guillem Colomer Rey, Francesc Xavier Trias Miquel, Asensio Oliva Ilena</p>	<p><b>MS6-2: Mini-Symposium on Tool Support for Developing Highly-Parallel CFD Applications</b>  Location: <a href="#">Schumpeter-Raum</a>  Chair: <a href="#">Jana Gericke</a>  Chair: <a href="#">Ronny Tschueter</a></p> <p>4:30pm - 4:50pm  <b>ACCELERATING THE FLOWSIMULATOR: TOWARDS RAPID, LOW-EFFORT DEPLOYMENT OF HPC SOFTWARE</b>  <u>Raphael Haupt</u>, Immo Huismann, Azat Khuziyakhmetov</p> <p>4:50pm - 5:10pm  <b>Streamlining Performance Analysis Workflows using Compiler-Assisted Instrumentation Selection</b>  <u>Sebastian Kreutzer</u>, Peter Arzt, Christian Bischof</p> <p>5:10pm - 5:30pm  <b>Working towards FAIRness in performance data</b>  <u>Maximilian Sander</u>, <u>William R. Williams</u>, Bert Wesarg</p>	<p><b>MS9-2: Computational Fluid Dynamics with High-Order Spectral Element Methods on GPUs</b>  Location: <a href="#">Wolfgang-Paul-Saal</a>  Chair: <a href="#">Mathis Bode</a>  Chair: <a href="#">Hendrik Nicolai</a></p> <p>4:30pm - 4:50pm  <b>IN-SITU VISUALIZATION WITH ASCENT AND NEKRS FOR LARGE-SCALE CFD PROBLEMS ON GPUS</b>  <u>Jens Henrik Göbber</u>, Damian Alvarez, Mathis Bode, Paul Fischer, Christos E. Frouzakis, Joseph A. Insley, Yu-Hsiang Lan, Victor A. Mateevitsi, Misun Min, Michael E. Papka, Silvio Rizzi, Roshan J. Samuel, Jörg Schumacher</p> <p>4:50pm - 5:10pm  <b>DNS OF INTRINSICALLY UNSTABLE 3D FLAMES USING DEFICIENT REACTANT THERMOCHEMISTRY: VALIDATION AND SCALING IN NEKRS</b>  <u>Hamid Kavari</u>, Pasquale Eduardo Lapenna, Mathis Bode, Daniel Mira, Francesco Creta</p> <p>5:10pm - 5:30pm  <b>COMPUTATIONAL INVESTIGATION OF THE ATMOSPHERIC BOUNDARY LAYER IN THE GABLS BENCHMARK PROBLEM USING THE SPECTRAL ELEMENT CODE NEKRS</b>  <u>Damaskinos Konioris</u>, Dimitrios Papageorgiou, Ioannis Kavroulakis, Mathis Bode, Misun Min, Paul Fischer, Ananias Tomboulides</p>
6:15pm - 7:15pm	<p><b>KN4: Keynote 4 - Niclas Jansson: Towards Exascale Simulations of Turbulent Flow</b>  Location: <a href="#">Leoninum</a>  Chair: <a href="#">Andreas Lintermann</a>  Chair: <a href="#">Sohel Sebastian Herff</a></p>		
7:15pm -	<p><b>Social Event-2: Conference Dinner</b>  Location: <a href="#">Leoninum</a>  Noeggerathstrasse 34, 53111 Bonn</p>		

10:00pm 

**Date: Wednesday, 04/Sept/2024**

9:00am - 10:00am	<b>KN5: Keynote 5 - Linda Gesenhues: The EuroHPC Joint Undertaking: Leading the Way in European Supercomputing</b> Location: <a href="#">Wolfgang-Paul-Saal</a> Chair: <a href="#">Sohel Sebastian Herff</a> Chair: <a href="#">Andreas Lintermann</a>			
10:00am - 10:30am	<b>Break-6: Coffee Break</b> Location: <a href="#">Foyer</a>			
10:30am - 12:00pm	<p><b>MS9-3: Computational Fluid Dynamics with High-Order Spectral Element Methods on GPUs</b> Location: <a href="#">Wolfgang-Paul-Saal</a> Chair: <a href="#">Mathis Bode</a> Chair: <a href="#">Hendrik Nicolai</a></p> <p>10:30am - 10:50am <b>Unraveling turbulent NH3/H2 flames using high performance GPU computing: A series of spectral element method-based high-fidelity DNS</b> <a href="#">Driss Kaddar</a>, <a href="#">Hendrik Nicolai</a>, <a href="#">Vinzenc Schuh</a>, <a href="#">Antonia Bähr</a>, <a href="#">Christos Emmanouil Frouzakis</a>, <a href="#">Mathis Bode</a>, <a href="#">Christian Hasse</a></p> <p>10:50am - 11:10am <b>Portable Linear Solvers for High-Order Spectral Element Methods on GPUs</b> <a href="#">Yu-Hsiang M. Tsai</a>, <a href="#">Gregor Olenik</a>, <a href="#">Andreas Herten</a>, <a href="#">Mathis Bode</a>, <a href="#">Hartwig Anzt</a></p> <p>11:10am - 11:30am <b>NEKCRF: A NOVEL GPU-ACCELERATED FINITE-RATE-CHEMISTRY SOLVER AND APPLICATION TO HYDROGEN</b> <a href="#">Mathis Bode</a>, <a href="#">Christos Frouzakis</a>, <a href="#">Ananias Tomboulides</a></p> <p>11:30am - 11:50am <b>LARGE-SCALE ENGINE DIRECT NUMERICAL SIMULATIONS WITH NEKRS: A MULTI-CYCLE DATABASE</b> <a href="#">Bogdan A. Danciu</a>, <a href="#">Christos E. Frouzakis</a>, <a href="#">Mathis Bode</a></p>	<p><b>OT1: Academic Flows</b> Location: <a href="#">Curtius-Raum</a> Chair: <a href="#">Rakesh Sarma</a></p> <p>10:30am - 10:50am <b>THREE-DIMENSIONAL PARALLEL SIMULATIONS OF THE SCOUR AROUND MULTIPLE CYLINDERS</b> <a href="#">Miguel Uh Zapata</a>, <a href="#">Reymundo Itza Balam</a>, <a href="#">Damien Pham Van Bang</a></p> <p>10:50am - 11:10am <b>Numerical study of the particle-bed interaction dynamics in viscous fluids using a combined constraint/impulse-based approach</b> <a href="#">Hozan Ibrahim</a>, <a href="#">Kathin Skinder</a>, <a href="#">Gunther Brenner</a></p> <p>11:10am - 11:30am <b>HYPERSONIC FLOW PAST AN OPEN CAVITY USING HPC AND OPEN-SOURCE SOFTWARE</b> <a href="#">David Emerson</a>, <a href="#">Jian Fang</a>, <a href="#">Benzi John</a></p>	<p><b>OT2: Aerospace</b> Location: <a href="#">Schumpeter-Raum</a> Chair: <a href="#">Alvaro Moure</a></p> <p>10:30am - 10:50am <b>ON THE FLOW AROUND A RIGID OSCILLATING AIRFOIL</b> <a href="#">Carlos Rubio Téllez</a>, <a href="#">Juan Carlos Cajas García</a></p> <p>10:50am - 11:10am <b>HEMLAB ALGORITHM APPLIED TO DELTA WING GEOMETRY AND 5th GENERATION FIGHTER MODEL</b> <a href="#">Huseyin Akgun</a>, <a href="#">Mehmet Sahin</a></p> <p>11:10am - 11:30am <b>HEMLAB ALGORITHM APPLIED TO 7th AIAA CFD DRAG PREDICTION WORKSHOP</b> <a href="#">Ibrahim Asar</a>, <a href="#">Mehmet Sahin</a></p>	<p><b>OT3: Numerical Methods</b> Location: <a href="#">Matini-Raum</a> Chair: <a href="#">Christian Lagemann</a></p> <p>10:30am - 10:50am <b>Parallel-in-time, Spectral deferred correction, Incompressible Navier-Stokes equations</b> <a href="#">Abdelouahed Ouardghi</a>, <a href="#">Robert Speck</a></p> <p>10:50am - 11:10am <b>COMPARISON OF EDDY-VISCOSITY MODELS IN MODELLING A SIMPLIFIED REACTOR VESSEL AUXILIARY COOLING SYSTEM</b> <a href="#">Wei Wang</a>, <a href="#">Bo Liu</a>, <a href="#">Greg Cartland-Glover</a>, <a href="#">Jundi He</a>, <a href="#">Charles Moulinec</a>, <a href="#">Stefano Rolfo</a>, <a href="#">Shuisheng He</a></p> <p>11:10am - 11:30am <b>MULTIGRID ACCELERATED PROJECTION METHOD ON GPU</b> <a href="#">Tzu-Hsuan Chiu</a>, <a href="#">Chao-An Lin</a></p> <p>11:30am - 11:50am <b>Parallel unstructured conservative level-set (UCLS) method for liquid-vapour phase change phenomena</b> <a href="#">NESTOR BALCAZAR ARCINIEGA</a>, <a href="#">JOAQUIM RIGOLA</a>, <a href="#">ASSENSI OLIVA</a></p>
12:00pm - 12:10pm	<b>Closing Session</b> Location: <a href="#">Foyer</a>			
12:10pm - 1:30pm	<b>Lunch-3: Lunch Break</b> Location: <a href="#">Foyer</a>			



**1:30pm**  
-  
**2:30pm**

**Closed Session: ParCFD Organizer Meeting**  
Location: **Matini-Raum**