

CFD25 GLOBAL

EXPLORING NEW FRONTIERS IN ENGINEERING

CONVERGE CFD Conference-Global | September 29-October 3, 2025 | Online



CFD25 CONFERENCE SCHEDULE – DAY ONE

Monday | September 29 | All times listed in CDT

8:00	WELCOME Kelly Senecal <i>Convergent Science</i>
8:05	KEYNOTE Designing Sustainable Solutions for Space Transportation Yohan Blacodon <i>MaiaSpace</i>
8:45	Enthalpy/Pressure Based Tabulation for Real Fluid Model Development Hassan Afailal <i>IFP Energies nouvelles</i>
9:10	Real Fluid Modeling Using Improved Neural Network Training Process Bruno Delhom <i>IFP Energies nouvelles</i>
9:35	Probability Modeling of Direct Initiation of Fuel-Air Detonation Using CONVERGE Jacob Leff <i>North Carolina State University</i>
10:00	Modeling Liquid Rocket Combustion in CONVERGE David Rowinski <i>Convergent Science</i>
10:25	Break
10:45	SPONSOR Take Your CONVERGE Simulations Further: Smart Post-Processing With UniPlot Adrien Laveau <i>ENORISE GmbH</i>
11:05	Accelerated Chemistry Solving for Combustion Using Neural Network: Accounting for Variable Timestep Damien Aubagnac <i>IFP Energies nouvelles</i>
11:30	Validation of CONVERGE CFD Capability in Laminar Hypersonic Double-Cone Flow: Comparison With CUBRC LENS Run 35 Data Junhyeong (Jay) Ahn <i>Penn State University Harrisburg</i>
11:55	Volume of Fluid Modeling of the Near-Nozzle Spray Behavior of a Non-Proprietary Aviation Pressure-Swirl Atomizer Austin Han <i>Argonne National Laboratory</i>
12:20	New Features and Improved Workflows on CONVERGE Horizon Josh Dariano <i>Convergent Science</i>

CFD25 CONFERENCE SCHEDULE – DAY TWO

Tuesday | September 30 | *All times listed in CDT*

- 8:00 **CFD Analysis of Pressure Variations on Airtight Platforms for Offshore Wind Turbines Monopile Foundation** | Anupam Gupta | *WSP*
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- 8:25 **Investigating Wake Interactions in Tandem Floating Wind Turbines: Insights Based on ALM Simulations** | Stefano Cioni | *Università degli studi di Firenze*
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- 8:50 **CFD CONVERGE Simulations of Oil and Gas Process Flow**
Rajesh Kumar | *IFP Energies nouvelles*
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- 9:15 **Modeling of Spark Ignition in Aerial Internal Combustion Engines Using Low Cetane Number Sustainable Aviation Fuels** | Sai Ranjeet Narayanan | *University of Minnesota Twin Cities*
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- 9:40 **An Adaptive Mesh Refinement Cell Size Estimation for Solving Turbulence in Reactive Systems**
Maxime Dagois | *IFP Energies nouvelles*
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- 10:05 **Simulation Approach for Two-Phase Flow of Air and Water in a Hydrogen PEM Fuel Cell's Flow Field and GDL** | Peng Zhao | *Intelligent Energy*
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- 10:30 **BREAK**
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- 10:45 **Numerical Investigation of Deflagration-to-Detonation Transition in Hydrogen-Oxygen Mixtures Using Detailed Chemistry in CONVERGE CFD**
Ramki Murugesan | *UL Research Institutes*
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- 11:10 **Simulations for R&D vs Production: Balancing Accuracy and Speed in the Gas Turbine and Burner Industries** | Sameera Wijeyakulasuriya | *Convergent Science*
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- 11:35 **Estimation of Hydrogen/Air Flame Acceleration Driven by 3-D Fully Developed Hydrodynamic and Thermo-Diffusive Instabilities** | Cédric Mehl | *IFP Energies nouvelles*
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- 12:00 **Numerical Simulation of a Fuel Flexible Porous Radiant Burner Using CONVERGE CFD Model**
Hricha Aryal | *West Virginia University*

CFD25 CONFERENCE SCHEDULE – DAY THREE

Wednesday | October 1 | All times listed in CDT

- 8:00 **KEYNOTE | Intelligent Energy's Hydrogen PEM Fuel Cell Product Development With CONVERGE CFD**
Novid Beheshti | *Intelligent Energy*
- 8:40 **Cooling Design Optimization of an Oil-Lubricated Rotary Sliding Vane Vacuum Pump**
James Willie | *CVS Engineering GmbH*
- 9:05 **DEMO | Turbomachinery Simulations With Cfturbo and CONVERGE**
Gero Kreuzfeld | *Cfturbo GmbH & Yajuvendra Shekhawat | Convergent Science*
- 9:40 **Numerical Study of Ammonia Spray Characteristics Under Diesel Engine-Relevant Conditions**
Revanth Kumar Reddy Settypalli | *Indian Institute of Technology Tirupati*
- 10:05 **Simulation of Intelligent Energy's Cooling Strategies of Hydrogen PEM Fuel Cells for Both Air-Cooled and Evaporatively-Cooled Products** | Muhammad Tayyab | *Intelligent Energy*
- 10:30 **BREAK**
- 10:45 **CFD – 3D Framework Proposal to Model Mixing, Combustion and NOx Emissions in a DI High Performance Hydrogen Engine** | Antonio Denny Baudone | *University of Modena and Reggio Emilia*
- 11:10 **CFD Modelling of Unstable Hydrogen/Air Flames in H2 Internal Combustion Engines Using CONVERGE**
Linlin Yang | *University of Oxford*
- 11:35 **Study of an Ultra-Lean Hydrogen Spark-Ignition Engine Using LES and Experiments to Investigate Combustion Variability** | Julien Steib | *IFP Energies nouvelles*
- 12:00 **Introducing a Fast Engine Combustion Analysis Tool for Diesel Engine Applications**
Shengbai Xie | *Convergent Science*
- 12:25 **Achieving Near-Zero Methane Emissions: A CFD and Experimental Investigation of PC-MCC in Heavy-Duty Natural Gas Engines** | Osama Nsaif | *Marquette University*
- 12:50 **The Impact of Fuel Injection Parameters on Two-Stroke Integral Compressor Engines**
Titilope Banji | *Colorado State University*

CFD25 CONFERENCE SCHEDULE – DAY FOUR

Thursday | October 2 | All times listed in CDT

- 8:00 **Numerical Analysis of the Combustion Process in a Hydrogen-Fueled Pre-Chamber Combustion Engine** | Fabio Mortellaro | *Ferrari S.p.A.*
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- 8:25 **A Machine Learning Based Optimization Framework for High Fidelity Engine Design With Application to a Hydrogen Port Fuel Injection Engine**
Isuru Wickramaarachchi | *University of Moratuwa*
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- 8:50 **Modeling Low-Pressure Direct Hydrogen Injection Dynamics Using LES and RANS**
Rafael Menaca | *King Abdullah University of Science and Technology*
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- 9:15 **Further Development of C3Mech: Version 4, MechCore and MechLite**
Henry Curran | *University of Galway*
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- 9:40 **From Fuel Surrogate Optimization to Automatic Reduced Mechanism Generation**
Shuaishuai Liu | *Convergent Science*
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- 10:05 **SPONSOR | Next-Gen Graphics Performance: How Vulkan Transforms Tecplot 360 & FieldView for Faster, Smarter CAE Post-Processing** | Yves-Marie Lefebvre | *Tecplot*
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- 10:25 **BREAK**
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- 10:45 **Last Developments on an ECFM Formulation for the High Karlovitz Regime**
Olivier Colin | *IFP Energies nouvelles*
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- 11:10 **A Thermodiffusive Instability Aware Artificially Thickened Flame Model: From Laminar Instabilities to Internal Combustion Engines**
Benjamin Traut | *Simulation of Reactive Thermo-Fluid Systems (STFS), TU Darmstadt*
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- 11:35 **NH₃-H₂ ICE Combustion Simulations Using ECFM Model in CONVERGE**
Riccardo Sola | *Politecnico di Torino*
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- 12:00 **2D CFD of Lean Premixed Hydrogen-Air Flame Quenching Under Locomotive Engine Conditions**
Patrick O'Donnell | *Argonne National Laboratory*
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- 12:25 **Hydrogen Combustion Modeling: From Laboratory Flame Speeds to SI-PFI Engine CFD Simulation** | Ji-Woong Park | *Aramco Americas: Aramco Research Center - Detroit*
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- 12:50 **Large Eddy Simulations of Ammonia Diesel Dual Fuel Spray Ignition and Flame Dynamics**
Harsimran Singh | *University of Illinois at Chicago*

CFD25 CONFERENCE SCHEDULE – DAY FIVE

Friday | October 3 | All times listed in CDT

- 8:00 **KEYNOTE | The Future of Simulation: Developing Innovative Models for New Applications**
Keith Richards | *Convergent Science*
- 8:40 **Recent ICE Development Between Waseda University and Industries Using CONVERGE: Case Studies From On-Road to Marine, Genset ICEs** | Ratnak Sok | *Waseda University*
- 9:05 **Modelling and Analysis of Passive Pre-Chamber Jet Ignition Applied to a Motorcycle PFI ICE to Enhance Efficiency, Performance, and Emissions**
Mahmoud Abouhaib & Harvey Pringle | *Coventry University*
- 9:30 **Numerical Methodology for Modeling Ammonia Combustion in Spark-Ignition Engines With Pre-Chamber Ignition**
Josep Gomez-Soriano | *CMT - Clean Mobility & Thermofluids, Universitat Politècnica de València*
- 9:55 **Multidimensional Modeling of TWC Using Detailed Surface Kinetics**
Mickael Silva | *Aramco Americas: Aramco Research Center - Detroit*
- 10:20 **Tabulated Particulate Mimic Soot Model Coupled to Simplified Chemistry for Diesel RANS Simulations** | Zhaoyu Luo | *Convergent Science*
- 10:45 **BREAK**
- 11:00 **Critical Analysis and Improvement of CFD Heat Transfer Predictions in High Power Density Engines**
Avinash Ravikumar | *Clemson University*
- 11:25 **Computational Validation of Diesel Combustion in a Compression Ignition Engine**
Shailendra Rana | *University of Massachusetts Lowell*
- 11:50 **3D Simulation of a 5-Stroke Engine Using CONVERGE CFD**
Kurt Stuart | *Southern Illinois University*
- 12:15 **Using CFD to Develop Reduced-Order Models for Prediction of Dispersion of Flammable Refrigerants** | Dean Edwards | *Oak Ridge National Laboratory*
- 12:40 **CLOSING** | Kelly Senecal | *Convergent Science*