Program Overview
Seventeenth International Conference on Numerical Combustion

(April 4, 2019)

Sunday Mai 5

	Registration
	Welcome Reception

Monday Mai 6

	Plenary Lecture						
Morning Session	Turbulent Flames - Modeling 1	Droplets, and spray combustion 1	Numerical Methods 1	Reduction methodology	Ignition I	Internal Combustion Engines	MS1 Filtered Density Function (FDF) Methods for Turbulent Reactive Flows 1
	Lunch Break						
Midday Session	Turbulent Flames - Physics 1	Combustion Dynamics and Instabilities 1	MS2 Mini-Symposium on Verification and Validation of Combustion DNS	MS3 Numerical modeling and simulation of combustion in porous media	Ignition, Quenching and others	Internal Combustion Engines, and Stationary Combustion Systems	Supersonic combustion
Afternoon Session	Emissions - Soot	Combustion Dynamics and Instabilities 2	Numerical Methods 2	Reduced mechanisms and mechanism evaluation	Ignition II	MS1 Filtered Density Function (FDF) Methods for Turbulent Reactive Flows 2	Detonation

Tuesday Mai 7

	Plenary Lecture						
Morning Session	Turbulent Flames - Modeling 2	Droplets, and spray combustion 2	Numerical Methods 3	MS4 High Performance Computing, towards high throughput kinetics and combustion model development 1	Gas Turbines	MS1 Filtered Density Function (FDF) Methods for Turbulent Reactive Flows 3	MS5 Algorithms, Applications and Software for Combustion Modeling on GPU and Hybrid Architectures
	Lunch Break						
Midday Session	Turbulent Flames - Modeling 3	MS6 Modelling challenges and regime features in distributed combustion	MS7 Progress in Radiation Modeling in Combustion Systems 1	MS4 High Performance Computing, towards high throughput kinetics and combustion model development 2	MS8 Combustion Noise 1	MS9 The role of intrinsic instabilities in the simulation of premixed combustion 1	MS10 Progress and Challenges in Predictive Modeling of Fires 1
Afternoon Session	Laminar Flames 1	MS11 Numerical modelling and simulation of detonations in high-energy explosives	MS12 Eulerian-Based Moment Closure Methods for the Numerical Modelling of Disperse Sprays	MS13 Untangling numerics and modeling: Viability of Explicit Filtering for Reacting LES	MS8 Combustion Noise 2	MS9 The role of intrinsic instabilities in the simulation of premixed combustion 2	MS10 Progress and Challenges in Predictive Modeling of Fires 2
	Dinner - City Hall						

Wednesday Mai 8

	Plenary Lecture						
Morning Session	Turbulent Flames - Physics 2	Droplets, spray, and heterogeneous combustion	Numerical Methods 4	Reaction kinetics modeling	Software Engineering and High Performance Computing	Detonation and explosion	MS14 Combustion and Data Sciences: Artificial Intelligence and Machine Learning for analyzing reacting flows
	Lunch Break						
Midday Session	Laminar Flames 2	MS7 Progress in Radiation Modeling in Combustion Systems 2	MS15 Numerical modeling of combustion instabilities	MS16 New Techniques in Computational Kinetics 1	MS17 Towards Consensus on the Studies of Flame Acceleration (FA) and Deflagration-to-Detonation Transition (DDT) 1	MS18 Nano-Particle Synthesis from Flames 1	MS19 Combustion and Data Sciences: Novel Concepts in Data Analysis
Afternoon Session	MS1 Filtered Density Function (FDF) Methods for Turbulent Reactive Flows 4	Heterogeneous combustion	Fires, Real Gas Effects and Supercritical Combustion	MS16 New Techniques in Computational Kinetics 2	MS17 Towards Consensus on the Studies of Flame Acceleration (FA) and Deflagration-to-Detonation Transition (DDT) 2	MS18 Nano-Particle Synthesis from Flames 2	MS20 Combustion and Data Sciences: Emerging Opportunities

Monday, May 6 - Morning Session

Turbulent Flames - Modeling 1 - Monday, May 6 - Morning Session

64	Large-eddy simulation of premixed turbulent combustion using a convolutional neural network	Andrea Seltz, Pascale Domingo, Luc VERVISCH
299	Analysis of local extinction and re-ignition in partially-premixed flames using an improved LES/FPV model	Xudong Jiang, Junjun Guo, Yan Xiong, Pengfei Li, Zhaohui Liu
212	Evaluation of the extended flamelet/progress variable model for NO prediction in pulverized coal flames	Chunguang Zhao, Kun Luo, Ruipeng Cai, Jiangkuan Xing, Zhengwei Gao, Haiou Wang, Jianren Fan
352	Influence of different kinetic mechanisms on the simulation results of a single-injector GOX/GCH4 combustion chamber using the DLR TAU-Code with a flamelet combustion model	Jan van Schyndel, Victor Zhukov, Oschwald Michael, Tim Horchler
60	A strategy to couple Thickened Flame Model and adaptive mesh refinement for the LES of turbulent premixed combustion	Cédric Mehl, Shuaishuai Liu, Yee Chee See, Olivier Colin
382	Computational Benefits of High-Order Discretizations and Adaptive Mesh Refinement Applied to Large-Eddy Simulation of Turbulent Premixed Flames	Lucie Freret, Clinton Groth
148	Computational study of anode baking process to reduce NOx	Prajakta Nakate, Domenico Lahaye, Cornelis Vuik

Droplets, and spray combustion 1 - Monday, May 6 - Morning Session

39	Numerical study of multicomponent spray flame propagation	Varun Shastry, Quentin Cazeres, Eleonore Riber, Bénédicte Cuenot
91	Modeling droplet evaporation and secondary breakup for simulations of spray combustion	Constantin Sula, Holger Grosshans, Miltiadis V. Papalexandris
99	Analysis of multiphase MMC coupling using DNS of an evolving droplet-laden double shear layer	Marvin Sontheimer, Oliver Stein, Andreas Kronenburg
113	CFD simulations of bio-slurry entrained flow gasification	Quentin Fradet, Niranjan Fernando, Marina Braun-Unkhoff, Uwe Riedel
227	Evaporation modeled by multi-component theory for condensed energetic materials, and the curious case of water	D. Scott Stewart, Moshe Matalon
294	Numerical simulation of a laminar counterflow kerosene surrogate combustion field employing a multi-component fuel droplet evaporation model	Nozomu Hashimoto, Yushin Naito, Kinya Saito, Jun Hayashi, Noriaki Nakatsuka, Fumiteru Akamatsu, Osamu Fujita
143	The effect of Stefan flow on heat transfer coefficient of a reactive spherical particle in gas flow	Thamali Rajika Jayawickrama, Kentaro Umeki, Nils E.L.Haugen, Matthaus U.Babler

Numerical Methods 1 - Monday, May 6 - Morning Session

77	Acceleration of reacting flow simulation using a hybrid method based on sparse matrix techniques and cell agglomeration	Qing Xie, Zhuyin Ren
103	Hybrid lattice Boltzmann/finite-difference solver for combustion at low Mach numbers	Seyed Ali Hosseini, Nasser Darabiha, Dominique THEVENIN
260	Towards understanding the afterburning of randomly distributed metal particles following the detonation of a condensed phase energetic material	Bohoon Kim, Sanghun Choi, Jack Yoh
282	Molecular level simulations of combustion processes using the DSMC method	Shrey Trivedi, R. Stewart Cant, John K. Harvey
336	Numerical Simulation of One-Dimensional Detonations with Non-Ideal Equations of State	Katherine Pielemeier, Joseph Powers
290	Minimum error adaptation of One-parameter Family of Integration Formulae for Chemical Kinetic ODEs	Youhi Morii, Eiji Shima, Kaoru Maruta
402	An Efficient hybrid CPU/GPU implementation for Time-Implicit Integration of Arrhenius Combustion Kinetics	Anne Felden, Marcus Day, John Bell

Reduction methodology - Monday, May 6 - Morning Session

62	RCCE Species Selection Under Kinetic Uncertainty	Esteban Cisneros, Carlos Pantano, Jonathan Freund
92	Global Quasi-Linearization (GQL) reduced chemistry for the auto-ignition process of CH4 , C2H2 and C2H4 combustion systems	Chunkan Yu, Viatcheslav Bykov, Ulrich Maas
100	Dynamical study of the plasma-assisted oxidation of diluted hydrocarbons after a nanosecond pulse discharge using its reduced-order representation	Aurelie Bellemans, Zak Eckert, Fabrizio Bisetti
118	A reduced virtual chemistry model for soot formation prediction in flames	Hernando MALDONADO COLMAN, Nasser Darabiha, Benoît Fiorina
222	Comparing mechanism reduction methods with pyMARS: Python-based Model Automatic Reduction Software	Phillip Mestas, Kyle Niemeyer
224	Improvement of ethanol chemical kinetics mechanisms for predicting high pressure, low temperature thermal ignition	Augusto Pacheco, Amir Oliveira, Leonel Cancino

Ignition I - Monday, May 6 - Morning Session

38	Numerical study of centrifugal effects on premixed ignition and flames	Junjie Miao, Yuxin Fan
42	Ignition of a premixed methane-air flow over a turbulent backward-facing step by Direct Numerical Simulation	Paul POUECH, Florent DUCHAINE, Thierry POINSOT
55	Computation of the ignition probability map of a lean spray burner	Lorenzo Palanti, Simone Paccati, Antonio Andreini
162	Large-Eddy Simulation of Flame Dynamics during the Ignition of a Swirling Injector Unit and Comparison with Experiments	Karl Töpperwien, Théa Lancien, Guillaume Vignat, Kevin Prieur, Daniel Durox, Sébastien Candel, Ronan Vicquelin
312	Three-dimensional numerical simulation of FREI in a micro flow reactor with a controlled temperature profile	Keisuke Akita, Youhi Morii, Hisashi Nakamura, Takuya Tezuka, Kaoru Maruta
342	A parametric study of the effect of thermochemical conditions on the autoignition of transient methane jets using axisymmetric DNS	Miriam Rabacal, George Giannakopolous, Christos Frouzakis, Konstantinos Boulouchos
344	An exploratory parametric 2-D DNS study of prechamber ignition	Sotirios Benekos, George Giannakopoulos, Christos Frouzakis, Konstantinos Boulouchos

Internal Combustion Engines - Monday, May 6 - Morning Session

213	Zero-dimensional analysis of the end gas processes in SI engines using detailed chemical kinetics	Rafael Meier, Amir Antonio Martins Oliveira, Fernando Marcelo Pereira
279	Application of tabulated chemistry in CFD simulations of different types of internal combustion engines	Ferry Tap, Dmitry Goryntsev, Carsten Schmalhorst, Peter Priesching
296	A numerical investigation on the roots of combustion cyclic variation in a spark-ignited lean gas engine	Mahdi Ghaderi Masouleh, Karri Keskinen, Ossi Kaario, Heikki Kahila, Ville Vuorinen
326	An investigation of combustion modes in dual-fuel RCCI-like conditions under different levels of composition stratification	Shervin Karimkashi, Ville Vuorinen, Heikki Kahila, Ossi Kaario, Martti Larmi
392	Radiative heat transfer in large two-stroke marine diesel engines	Stefan Geringer, Michele Bolla, Chandan Paul, Daniel Haworth, Konstantinos Boulouchos
435	Prediction of combustion and soot emissions in gasoline, direct-injection engines using tabulated kinetics and a two-equation semi-empirical model	Tommaso Lucchini, Davide Paredi, Lorenzo Sforza, Gianluca D'Errico, Michele Bardi, Xavier Gautrot
437	Gasoline Internal combustion Engine Modelling Validation Focused on Spark Ignition	Gaëtan Desoutter, George Mallouppas, Stefano Duranti, Rickard Solsjö

MS1 Filtered Density Function (FDF) Methods for Turbulent Reactive Flows 1 - Monday, May 6 - Morning Session

439	LES via FDF: A review	Zhuyin Ren
388	An efficient LES-FDF approach with hybrid flamelet finite-rate chemistry	Martin Rieth, Jyh-Yuan Chen, Andreas Kempf
153	Investigation of subgrid-scale mixing for improving filtered density function approach for turbulent combustion	Chenning Tong, Wei Li, Mengyuan Yuan, Shuaishuai Liu
124	PDF/FDF Construction Based on the One-Dimensional Turbulence Model	Tarek Echekki
109	Scalar mixing models in LES/PDF of turbulent jet flames	Yue Yang, Jiaping You
272	A velocity-scalar joint filtered density function model for large-eddy simulation of two-phase flows	Xu Wen, Hanhui JIn, Kun Luo, Jianren Fan
416	Development of Filtered Density Function for Supercritical-Pressure Turbulent Flows	Reza Sheikhi, Fatemeh Hadi

Monday, May 6 - Midday Session

Turbulent Flames - Physics 1 - Monday, May 6 - Midday Session

73	Regimes of premixed turbulent auto-ignition and deflagration under gas-turbine reheat combustion conditions	Bruno Savard, Evatt Hawkes, Aditya Konduri, Haiou Wang, Jacqueline Chen
354	Statistical dependence of mixture fraction and progress variable in partially-premixed combustion.	Edward Richardson, Bruno Soriano
355	Turbulent flame structure derived from reaction field ridges	Robert Schießl, Viatcheslav Bykov
367	The ignition process of a premixed reactive jet in hot vitiated crossflow	Roberto Solana Pérez, Oliver Schulz, Nicolas Noiray
390	Direct Numerical Simulation of Multi-Injection Mixing and Combustion at Compression Ignition Engine Conditions	Martin Rieth, Marc Day, Marco Arienti, Hemanth Kolla, Jacqueline Chen
395	Physics-based turbulence forcing scheme for simulations of turbulent flames: extension to fully compressible flows	Guillaume Beardsell, Guillaume Blanquart

Combustion Dynamics and Instabilities 1 - Monday, May 6 - Midday Session

384	Computational investigation on the dynamics and stabilization of multiple ball-like flames at terrestrial gravity	Francisco E. Hernandez Perez, Zhen Zhou, Yuriy Shoshin, Jeroen A. van Oijen, L. Philip H. de Goey, Hong G. Im
59	Simulating field-emission plasma mediation of microcombustion	Kyle Mackay, Jonathan Freund, Harley Johnson
96	Lattice-Boltzmann model for low-Mach reactive flows	Muhammad Tayyab, Yongliang Feng, Pierre Boivin
265	Computational Studies of Fluidized Bed in Stokes Regime	Michal Benes, Pavel Strachota, Miroslav Kolar, Jakub Solovský, Jakub Klinkovský, Žák Alexandr, Pavel Eichler
306	3D Computations of Combustion Limit Phenomena of Low Lewis Number Mixture under Gravity-free Condition	Takaki Akiba, Tomoya Okuno, Hisashi Nakamura, Takuya Tezuka, Susume Hasegawa, Roman Fursenko, Sergey Minaev, Masao Kikuchi, Kaoru Maruta
360	Numerical modelling of the hydrogen combustion using accurate Potential Energy Surfaces	João Brandão, César Mogo, Wenli Wang, Carolina Rio

MS2 Mini-Symposium on Verification and Validation of Combustion DNS - Monday, May 6 - Midday Session

110	Using the Taylor-Green vortex as a benchmark for combustion DNS	Dominique THEVENIN
413	Methods and algorithms used for the benchmark, with emphasis on a high-order discontinuous Galerkin code	Kihiro Bando, Eric Ching, Michael Sekachev, Matthias Ihme
220	Taylor-Green vortex as a benchmark of DNS combustion codes: Results and comparisons for the non-reacting cases	Ghislain Lartigue
120	Taylor-Green vortex as a benchmark of DNS combustion codes: Results and comparisons for the reacting cases	Abouelmagd Abdelsamie
424	Verification and Validation of Combustion DNS : Results and comparisons concerning computing times	Benedicte Cuenot, Gabriel Staffelbach
134	Discussion of Verification and Validation of Combustion DNS	Jacqueline Chen

MS3 Numerical modeling and simulation of combustion in porous media - Monday, May 6 - Midday Session

418	Flame-structure analysis of porous media combustion through pore-resolving simulations	Sadaf Sobhani, Joseph Ferguson, Matthias Ihme
346	Propagation of premixed hydrogen flames in a canonical porous media	Francois Muller, Thierry Schuller, Laurent Selle
255	Filtrational Gas Combustion in Porous Media and Micro Combustion	Sergey Minaev, Roman Fursenko, Vladimir Gubernov
198	Prediction of burning velocities and super-adiabatic flame temperatures during the combustion in porous inert media	Ilian Dinkov, Henning Bockhorn
199	Determination of dispersion coefficients of heat and mass for porous media by detailed numerical simulation	Christoph Wielnand, Zhou Jian, Christoph Weis, Peter Habisreuther, Dimosthenis Trimis

Ignition, Quenching and others - Monday, May 6 - Midday Session

149	Impact of dynamic combustion modelling in Large-Eddy Simulation of light-round in an annular combustor	Stefano Puggelli, Denis Veynante, Ronan Vicquelin
226	Examining Wall Quenching Phenomena Using Non-Adiabatic Physically-Derived Reduced-Order Manifolds	Austin Cody Nunno, Michael E. Mueller
275	LARGE EDDY SIMULATION OF LEAN BLOW-OFF IN A PREMIXED SWIRL STABILIZED FLAME	Pier Carlo Nassini, Daniele Pampaloni, Antonio Andreini
283	Quenching and flash-back of hydrogen flames on perforated plate burners	Nijso Beishuizen, Daniel Mayer
3	Gradient Trajectory Analysis of Turbulence Induced Extinction Events	Dominik Denker, Antonio Attili, Mathis Bode, Heinz Pitsch
249	Mirrored continuum and molecular dynamics simulations of deflagration in a nano-slab of HMX	Kibaek Lee, D. Scott Stewart, Kaushik Joshi, Santanu Chaudhuri

Internal Combustion Engines, and Stationary Combustion Systems - Monday, May 6 - Midday Session

32	LES of large flames in a steam cracking furnace with analytically reduced chemistry	Sreejith N A, Eleonore Riber, Benedicte Cuenot
264	Numerical Simulation of Oxyfuel Biomass Combustion in Fluidized Bed Boilers	Pavel Strachota
333	Modelling of cyclonic burner through tabulated chemistry with emphasis on heat transfer mechanisms	Giuseppe Ceriello, Giancarlo Sorrentino, Pino Sabia, Mara de Joannon, Antonio Cavaliere, Raffaele Ragucci
287	Performance of a Dump Diffuser Combustor at Various Realistic Inlet Conditions	Heyu Wang, Kai Hong Luo
440	A gradient-based approach to optimal ignition in swirling flames	Ubaid Ali Qadri

Supersonic combustion - Monday, May 6 - Midday Session

10	Detonation stabilization in supersonic combustible mixtures with suction of porous walls	Xiaodong Cai, Jianhan Liang
135	The Effect of Subsonic Confiner Flow on Detonation Propagation	Mark Short, Carlos Chiquete, James Quirk
136	Dynamics of Two-Phase Flows in Supersonic Combustion	FOLUSO LADEINDE
331	Turbulence-Combustion Interaction Role in Supersonic Flow Simulation	Anna Shiryaeva, Anton Nozdrachev
5	The influence of Kolmogorov scale on the wrinkling of turbulent premixed combustion	Savio Vianna, Tatiele Ferreira

Monday, May 6 - Afternoon Session

Emissions - Soot - Monday, May 6 - Afternoon Session

84	Quadrature-Based Moment Closure Methods for Soot Prediction in Laminar Diffusion Flames at Elevated Pressures	Jacques Yushi Xing, Clinton Groth, John Hu
132	NUMERICAL STUDY OF SOOT FORMATION IN CO-FLOW LAMINAR DIFFUSION FLAMES AT VARYING PRESSURES	Amin Mansouri, Seth Dworkin
239	Soot Particle Concentration Estimator Applied to a Transient Turbulent Non-premixed Jet Flame	Leonardo Zimmer, Seth Dworkin, Antonio Attili, Heinz Pitsch, Fabrizio Bisetti
317	Coupling of the stochastic field PDF method with FGM reduced mechanisms	Max Staufer, Ruud Eggels
309	Effect of EGR and Radiation on Soot Morphology in ECN Spray-A Combustion Chamber	Khaled Mosharraf Mukut, Somesh Roy
237	Study of the impact of soot sub-grid scales in an aero-engine model combustor at elevated pressure.	Livia Tardelli, Benedetta Franzelli, Nasser Darabiha, Denis Veynante

Combustion Dynamics and Instabilities 2 - Monday, May 6 - Afternoon Session

74	Analysis of premixed swirling flames dynamics and associated flame transfer function modeling	Fabien Dupuy, Marco Gatti, Laurent Gicquel, Thierry Schüller
301	Prediction of self-excited combustion dynamics in gas turbine model combustors using large eddy simulation	Daniel Fredrich, William Jones, Andrew Marquis
284	Large Eddy Simulations of thermoacoustic instability mechanisms in swirling spray flames	Ermanno Lo Schiavo, Davide Laera, Laurent Gicquel, Thierry POINSOT
286	Large-eddy simulation of premixed swirl flame dynamics under pulsating flow disturbances: mode identification and validation	Jinguo Sun, Shuiqing Li, Wei Cui
386	Dynamics of laminar premixed flames subjected to pressure fluctuations: the importance of detailed chemistry	Guillaume Beardsell, Andrei Kanavalau, Guillaume Blanquart
151	On the occurrence of high-frequency thermoacoustic instabilities in a single jet tubular combustor	Vahid Sharifi, Christian Beck, Andreas Kempf
247	Non-reflective Boundary Conditions for Thermoacoustic Simulations	Omer Rathore, Salvador Navarro-Martinez

Numerical Methods 2 - Monday, May 6 - Afternoon Session

168	Adaptive Exponential and Non-Exponential Splitting Methods for Solving Quenching-Combustion Modeling Equations	Qin Sheng
230	Simulating Multidimensional Reacting Flow with the Discontinuous Galerkin Method	Ryan Johnson, Andrew Kercher, Gabriel Goodwin, Andrew Corrigan, David Kessler
232	An hp-adaptive Discontinuous Galerkin Ordinary Differential Equation Solver for Chemical Source Term Integration	Andrew Kercher, Ryan Johnson, Andrew Corrigan
332	Investigation of Double-Conditional Moment Closure approach for dual-fuel combustion	Bruno S Soriano, Edward S Richardson, Omar Seddik, Sushant Pandurangi, Yuri M. Wright
252	A numerical strategy for unsteady simulation of low Mach number reacting flows subject to electric fields	Lucas Esclapez, Valentina Ricchiuti, John Bell, Marc Day
262	Focusing and dispersion error for convection-diffusion-reaction equation	Soumyo Sengupta, Tapan Sengupta, Jyothi Kumar Puttam, Vajjala Suman
393	Prediction of the soot particle size distribution in a turbulent non-premixed flame with the LES-PBE-PDF approach	Binxuan Sun, Stelios Rigopoulos

Reduced mechanisms and mechanism evaluation - Monday, May 6 - Afternoon Session

65	Reduction of methane/dimethyl-ether reaction mechanism by using characteristic timescales and entropy production analyses	Sylvia Porras, Viatcheslav Bykov, Ulrich Maas
93	Modelling of entrained flow gasification using ethylene glycol as a surrogate for bio-slurries	Niranjan Fernando, Quentin Fradet, Marina Braun-Unkhoff, Uwe Riedel
203	Combustion Modeling in Solid Rocket Motor Plumes	Tobias Ecker, Sebastian Karl, Klaus Hannemann
215	Optimization of chemical mechanisms for MILD conditions	Andrea Bertolino, Magnus Fürst, Alessio Frassoldati, Alessandro Parente
298	Development of Skeletal Kinetic Mechanisms at Various Conditions for Methane Combustion	Hossein Janbazi, Kevin Roderigo, Andreas Kempf, Irenäus Wlokas
363	A comprehensive modelling study of ignition delay time characteristics of gaseous hydrocarbons and their blends over a wide range of working conditions	Mohammadreza Baigmohammadi, Sergio Martinez, Henry Curran, Andrzej Pekalski

Ignition II - Monday, May 6 - Afternoon Session

116	Numerical study on premixed cool flame initiation and propagation	Yiqing Wang, Zheng Chen
375	Numerical Investigation of Ignition Processes in a Transient Counterflow Configuration	Zhen Sun, Arne Scholtissek, Wang Han, Christian Hasse
280	Supervised Machine Learning Dual Fuel Ignition with a Glass Box - High Dimensional Model Representation (HDMR)	Wang Han, Zhen Sun, Arne Scholtissek, Christian Hasse
380	Kinetic Model for Studying the Effect of Higher Hydrocarbons on the Natural Gas Ignition	Snehasish Panigrahy, Ahmed Mohamed, Henry Curran, Gilles Bourque
389	Thermal diffusivity effect on ethanol preignition in a shock tube	Minh Bau Luong, Miguel Figueroa-Labastida, Aliou Sow, Francisco E. Hernández Pérez, Aamir Farooq, Hong Im
415	Detailed computational investigation of fluid mechanical behavior in rapid compression machines	Scott Goldsborough, Christos Frouzakis, Yuri M. Wright
394	Mild ignition: experimental observations and numerical predictions	Scott Goldsborough, Jeffrey Santner

MS1 Filtered Density Function (FDF) Methods for Turbulent Reactive Flows 2 - Monday, May 6 - Afternoon Session

324	Deep Learning of PDF/FDF of Turbulence Closure	Maziar Raissi, Hessam Babaee, Peyman Givi
246	LES-PDF modelling in Compressible Turbulent Reacting Flows using the Eulerian Stochastic Fields Method	Salvador Navarro-Martinez, Yuri Almeida
217	On the accuracy of the stochastic field method for estimating scalar statistics within the scope of the LES-transported PDF approach	Fabian Sewerin
119	LES-based modelling of turbulent particle-laden flows	Cristian Marchioli
98	Progress Toward Accurate and Affordable Combustion Simulations with PDF/FDF Methods for Supersonic Combustion Applications	Tomasz Drozda, Andrew Norris
381	Spectral Element-hp and Discontinuous Galerkin Methods for LES-FDF in Complex Flows	Shervin Sammak, Aidyn Aitzhan, Arash Nouri, Peyman Givi
67	A GPU-Accelerated FDF Simulator	Medet Inkarbekov, Aidyn Aitzhan, Shervin Sammak, Aidarkhan Kaltayev, Peyman Givi

Detonation - Monday, May 6 - Afternoon Session

56	Numerical simulation of detonation initiation in multifocused systems	Alexander Lopato, Pavel Utkin, Anatoly Vasil'ev
137	Dynamics of detonation in condensed-phase explosives near the failure limit	Stephen Voelkel, Carlos Chiquete, Mark Short
145	Confinements effects on condensed-phase, steady-state detonation propagation	Carlos Chiquete, Mark Short, Stephen Voelkel
181	The Influence of Light-Stiff Confining Materials on the Detonation of Highly Non-Ideal Explosives	Eduardo Lozano, Gregory Jackson, Vilem Petr
200	Real gas effects on the cellular structure of gaseous detonations at elevated pressures	Josue Melguizo-Gavilanes, Said Taileb, Ashwin Chinnayya
201	Quenching limits of multidimensional detonation waves confined by an inert layer	Said Taileb, Josue Melguizo-Gavilanes, Ashwin Chinnayya
235	Shock-to-Detonation Transition of Submillimeter Nitromethane Films	Ryan Houim, Alberto Hernández, D. Scott Stewart

Tuesday, May 7 - Morning Session

Turbulent Flames - Modeling 2 - Tuesday, May 7 - Morning Session

101	Direct Numerical Simulation and modeling of highly diluted combustion in spark ignition engines	Edouard Suillaud, Karine Truffin, Olivier Colin, Denis Veynante
129	A Filtered Optimized Chemistry model to account for subgrid scale flame wrinkling in the formation of pollutants	Cédric Mehl, Mélody Cailler, Renaud Mercier, Vincent MOUREAU, Benoît Fiorina
347	LES model for CO emissions in stationary gas turbines at part load conditions	Konstantin Kleinheinz, Lukas Berger, Mathis Bode, Antonio Attili, Heinz Pitsch
158	Data-driven subfilter turbulence models and analysis in turbulent combustion	Jonathan F. MacArt, Justin A. Sirignano, Jonathan B. Freund
338	Scalar subgrid distributions in a generic turbulent FWI configuration in the context of ESFi modeling	Alija Bevrnja, Guido Künne, Johannes Janicka, Amsini Sadiki, Christian Hasse
140	Large Eddy Simulations of turbulent flame stabilization by Nanosecond Repetitively Pulsed discharges	Yacine BECHANE, Nasser DARABIHA, Vincent MOUREAU, Christophe LAUX, Benoît Fiorina
216	Development of a two-level OH-PLIF model for LES for comparison with raw OH-Fluorescence images.	Patricia Domingo-Alvarez, Ghislain Lartigue, Vincent MOUREAU, Grisch Frédéric, Pierre Benard

Droplets, and spray combustion 2 - Tuesday, May 7 - Morning Session

111	LES of turbulent spray flame using virtual chemistry	Constantin Nguyen Van, Renaud Mercier, Benoit Fiorina
186	Numerical Investigation of Impinging Spray Flame-Wall Heat Transfer in Compression-Ignition Engine	Abhishek L. Pillai, Takuya Murata, Takato Ikedo, Ryo Masuda, Ryoichi Kurose
191	LES analysis of ambient temperature effect on diesel spray ignition in methane-air mixtures	Bulut Tekgul, Heikki Kahila, Ossi Kaario, Ville Vuorinen
193	A numerical and experimental study of droplet combustion in gravity environment	Ming He, Chong Yan, Ying Piao
263	Numerical Simulation of MILD Combustion with Liquid Fuel Spray using FGM	ChunLoon Cha, HoYeon Lee, SangSoon Hwang
349	LES of n-heptane swirl spray flame using a flamelet method	Ambrus Both, Daniel Mira, Oriol Lehmkuhl

Numerical Methods 3 - Tuesday, May 7 - Morning Session

97	A simulation concept for fast and accurate NOx description in shaft furnaces	Werner Rudolf Pollhammer, Christoph Spijker, Michael Koller, Gernot Hackl, Harald Raupenstrauch
130	A numerically efficient model for gas fired heat-up processes	Zlatko Raonic, Harald Raupenstrauch, Christoph Spijker, Franz Edler, Werner Rudolf Pollhammer
231	Faster Simulation Methods for One-Dimensional Laminar Flames	Simon Lapointe, Russell Whitesides, Matthew McNenly
146	Modeling of a direct fired reduction reactor with a flamelet equilibrium hybrid model including transient reactive particles for design studies	Franz Edler, Harald Raupenstrauch, Christoph Spijker, Werner Rudolf Pollhammer, Zlatko Raonic
188	Modeling and simulation of quasi-two-dimensional flamelet model for a three-feed non-premixed combustion system	YU Panlong, Watanabe Hiroaki, Yuri Isao, Nishida Hiroyuki, Kitagawa Toshiaki
318	Hybrid Flamelet Progress Variable tabulated chemistry approach/Eulerian Stochastic Field method for non-premixed oxyfuel jet flames	Rihab Mahmoud, Mehdi Jangi, Benoît Fiorina, Amsini Sadiki

MS4 High Performance Computing, towards high throughput kinetics and combustion model development 1 - Tuesday, May 7 - Morning Session

438	From molecular to application level: opportunities and challenges for a fully integrated system	Heinz Pitsch, Liming Cai
419	Predictive Automated Combustion Chemistry: A DOE-Exascale Project	Stephen Klippenstein, Andreas Copan, Sarah Elliott, Matthew Johnson, Murat Keceli, Yi-Pei Li, Kevin Moore, Ruben Van de Vivjer, Yunchao Wu, Carlo Cavallotti, Yuri Georgievskii, Bill Green, Ahren Jasper, Tianfeng Lu, Judit Zádor, Ray Bair, Al Wagner, Justin Wozniak, Matteo Pelucchi
434	Numerical approaches to fuel development	Roger Cracknell, Sandro Gail, Abhinav Verma
436	Chemical Kinetic Models for Enhancing Gas Turbine Performance and Flexibility	Felix Güthe
432	Large Eddy Simulation of Knocking Combustion in Direct Injection Spark Ignited Engines	Marco Günther, Max Mally, Stefan Pischinger
267	Quantum ESPRESSO community code: the challenge of continuous software innovation for High Performance Computing.	Carlo Cavazzoni
391	Efficient tool for optimization of chemical kinetics using Dakota and OpenSMOKE++	Magnus Fürst, Andrea Bertolino, Alberto Cuoci, Alessio Frassoldati, Alessandro Parente

Gas Turbines - Tuesday, May 7 - Morning Session

44	Investigation of a lean preheated high pressure jet flame with heat losses using LES	Pascal Gruhlke, Hossein Janbazi, Irenäus Wlokas, Christian Beck, Andreas Kempf
155	LES prediction of soot in gas turbines using a sectional soot model coupled to a thickened flame combustion model	olivier colin, Damien Aubagnac-Karkar, Ahmad El Sayed
160	Detailed kinetic scheme effect on Large-Eddy Simulations of the PRECCINSTA burner	Pierre Benard, Ghislain Lartigue, Vincent MOUREAU, Renaud Mercier
187	Simulation of syngas combustion in a model geometry relevant for industrial gas turbines	Rikard Gebart, Nikolaos Papafilippou, Daniel Lörstad
405	Analysis of flame surface density and flame wrinkling from swirling CH4/air and CO2-diluted premixed flames	Arthur Degenève, Ronan Vicquelin, Clément Mirat, Paul Jourdaine, Thierry Schuller
87	Design and Numerical Simulation of a Micro-Gas Turbine Combustor	Ping Zhang, Yunpeng Liu, Jinghua Li, Yingwen YAN

MS1 Filtered Density Function (FDF) Methods for Turbulent Reactive Flows 3 - Tuesday, May 7 - Morning Session

50	Quantifying kinetic uncertainty in LES/FDF simulations using active subspaces	Zhuyin Ren
45	Simulation of Turbulent Flames using Stochastic Eulerian Field TPDF Methods	Michael Pfitzner, Maximilian Hansinger, Julian Zips
48	Hybrid Large Eddy Simulation/Filtered Density Function Approaches: Mass Consistency Issues and Mixing Models Prospects	Cesar Celis, Luís Fernando Figueira da Silva
178	Transported PDF/FDF modeling of mixing and molecular diffusion in turbulent combustion	Haifeng Wang
107	Towards the coupling of a hybrid Lagrangian FDF-LES methodology in a dynamic adaptive mesh refinement environment.	Abgail Paula Pinheiro, Jessica Guarato Santos, Alex José Elias, Millena Martins Villar, Marcelo M. R. Damasceno, João Marcelo Vedovoto
43	Higher-order methods for filtered mass density function models.	Gustaaf Jacobs, Ben Cohen, Haresh Natarjan, Peyman Givi
348	The Prospects of Quantum Computing tor FDF/PDF Simulation	Guanglei Xu, Andrew Daley, Rolando Somma, Peyman Givi

MS5 Algorithms, Applications and Software for Combustion Modeling on GPU and Hybrid Architectures - Tuesday, May 7 - Morning Session

61	Combustion Simulation Software for Extreme-Scale Multiphysics Simulations on Emerging Platforms	James Sutherland, Josh McConnell
248	Balancing CPU and accelerator performance in HPC simulations of low Mach reacting flows	Marc Day, Anne Felden, Steven Reeves, Ray Grout, Francois Hamon
406	Detailed Kinetics Coulped to CFD on CPU/GPU Platforms	Russell Whitesides, Matthew McNenly
221	ODE integrators suitable for chemical kinetics on GPUs and other accelerators	Kyle Niemeyer, Nicholas Curtis
70	Higher Order Moment Tensors for Combustion Analysis: GPU Acceleration of Tensor Kernels	Hemanth Kolla, Jed Duersch, Konduri Aditya, Jacqueline H. Chen
133	DNS of Autoignition of Diesel Surrogate Fuel in a Turbulent Jet at High Pressure with S3D-Legion on Titan/Summit	Jacqueline Chen, Elliott Slaughter, Wonchan Lee, Aditya Konduri, Hemanth Kolla, Alex Aiken, Sean Treichler, Mike Bauer, Giulio Borghesi
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Turbulent Flames - Modeling 3 - Tuesday, May 7 - Midday Session

88	Assessing multi-regime combustion characteristics using a novel burner configuration	Sandra Hartl, Sebastian Popp, David Butz, Dirk Geyer, Robert S. Barlow, Andreas Dreizler, Christian Hasse
144	Investigation of the thickened flame model behavior for non-premixed flames	Giunio De Luca, Thomas Schmitt, Denis Veynante
266	Evaluation of the non premixed Filtered Tabulated Chemistry for LES model on a turbulent non premixed piloted methane jet flame	Pedro Obando Vega, Alessandro Parente, Axel Coussement, Amsini Sadiki
176	Defining a Generalized Progress Variable in the Physically-Derived Reduced-Order Manifolds Modeling Formulation	Bruce A. Perry, Alex G. Novoselov, Michael E. Mueller
281	Large Eddy Simulation of an Opposed Jet Turbulent Flame	Yu Gong, William Jones, Andrew Marquis
292	Assessment of finite-rate chemistry models for highly turbulent jet flames	Arthur Péquin, Zhiyi Li, Alberto Cuoci, Alessandro Parente

MS6 Modelling challenges and regime features in distributed combustion - Tuesday, May 7 - Midday Session

329	Ignidiffusive reactive structures in distributed combustion	Giancarlo Sorrentino, Pino Sabia, Raffaele Ragucci, Mara de Joannon, Antonio Cavaliere
197	Prediction of temperature statistics in a lab-scale flameless combustion furnace.	Dirk Roekaerts, Xu Huang, Mark Tummers, Eric van Veen
319	Modeling MILD combustion with Flamelet-Generated Manifolds	Jeroen van Oijen, Aromal Vasavan
251	Advances in the eddy dissipation concept for improved prediction in distributed combustion regimes	Michael Evans, Paul Medwell, Alessandro Parente
189	Large Eddy Simulation of MILD combustion with implicit combustion models	Zhiyi Li, Alberto Cuoci, Alessandro Parente
57	LES/TPDF investigation of flame stabilization in the jet-in-hot-coflow flame under MILD conditions	Hua Zhou, Tianwei Yang, Zhuyin Ren

MS7 Progress in Radiation Modeling in Combustion Systems 1 - Tuesday, May 7 - Midday Session

228	Effects of gas radiative property models on high-pressure turbulent jet diffusion flames	Jean-Louis CONSALVI
372	RECENT ADVANCES IN NON-UNIFORM GAS RADIATION MODELING: A USER'S PERSPECTIVE	Frederic Andre
316	Effects of K-value Solution Schemes on Radiation Heat Transfer Modeling for Oxy-Fuel Combustion Using the Full-Spectrum Correlated K-distribution Method	Yuying LIU, Guanghai Liu, Fengshan Liu, Jean-Louis CONSALVI
171	Modeling Radiative Heat Transfer in High-Pressure Combustion Systems	Daniel Haworth
79	TURBULENCE-RADIATION INTERACTION IN LARGE-EDDY SIMULATION OF A BLUFF-BODY STABILIZED TURBULENT NON-PREMIXED FLAME	Pedro Coelho, Flavia Miranda, Johannes Janicka
185	Improving radiation heat transfer treatment in FireFOAM	Ivam Sikic, Siaka Dembele, Jennifer Wen

MS4 High Performance Computing, towards high throughput kinetics and combustion model development 2 - Tuesday, May 7 - Midday Session

223	Rate-rules for the low-temperature oxidation of alkylbenzenes	Yasuyuki Sakai, Yusuke Asano, Akira Miyoshi
427	Data-based research: A way to generate new chemical information for model development	Kai Moshammer, Xiaoyu He, Rachel Griggs, Nils Hansen
320	Towards Autonomous Kinetic Model Development: Automated Data Selection, Generation, and Integration	Michael Burke
165	Towards an automated and generalized approach to the validation of kinetic models	Alessandro Stagni, Matteo Pelucchi, Gabriele Scalia, Alberto Cuoci, Barbara Pernici, Tiziano Faravelli
431	DataBench: indicators and metrics to assess benchmarks to evaluate Big Data technologies - A focus on scientific domains	Barbara Pernici
305	New trends in High Performance Computing: from commodity clusters to exascale machines	Marco Verdicchio

MS8 Combustion Noise 1 - Tuesday, May 7 - Midday Session

194	Combustion noise of a turbulent premixed jet flame	Holger Nawroth, Oliver Paschereit
195	Sound sources of generic laminar and turbulent flames	Konrad Pausch, Sohel Herff, Wolfgang Schröder
196	Combustion Noise Simulation with Acoustic Perturbation Equations in a Discontinuous Galerkin Setup	Kilian Lackhove, Johannes Janicka, Christian Hasse
202	Resolvent Analysis for predicting direct combustion noise	Thomas Kaiser, Lutz Lesshafft, Kilian Oberleithner
208	Spectral response of heat release in LES combustion modeling	Thorsten Zirwes, Feichi Zhang, Peter Habisreuther, Henning Bockhorn, Dimosthenis Trimis
209	Thermoacoustics of a turbulent swirl flame	Sohel Herff, Konrad Pausch, Wolfgang Schröder

MS9 The role of intrinsic instabilities in the simulation of premixed combustion 1 - Tuesday, May 7 - Midday Session

80	Nonlinear Dynamics of Expanding Premixed Flames	Shikhar Mohan, Moshe Matalon
47	Non linear dynamics of premixed flames in a Hele-Shaw burner	Basile Radisson, Christophe Almarcha, Elias Al Sarraf, Joël Quinard, Bruno Denet
46	Flame Curvature Distribution in High Pressure Turbulent Bunsen Premixed Flames	Michael Pfitzner, Markus Klein, Maximilian Hansinger, Nilanjan Chakraborty
270	Pressure induced hydrodynamic instability in methane-air premixed flames	Rachele Lamioni, Pasquale Eduardo Lapenna, Lukas Berger, Konstantin Kleinheinz, Antonio Attili, Heinz Pitsch, Francesco Creta
401	Flame-generated Turbulence and the Resulting Intrinsic Instability of High-speed Turbulent Premixed Flames	Alexei Poludnenko, Laura O'Neill, Jessica Chambers, Kareem Ahmed, Vadim Gamezo
167	The signature of flame instabilities on the transport of curvature in turbulent premixed flames	Markus Klein, Nilanjan Chakraborty, Ahmad Alqallaf

MS10 Progress and Challenges in Predictive Modeling of Fires 1 - Tuesday, May 7 - Midday Session

257	Fire Growth Modeling - on Gas Phase Flow, Combustion and Heat Transfer	Yi Wang, Ning Ren, Prateep Chatterjee, Oluwayemisi Oluwole, Alex Krisman, Karl Meredith, Sergey Dorofeev
177	LES/Transported PDF modeling of a turbulent vertical wall fire	Jie Tao, Haifeng Wang
142	Flamelet modeling of combustion-radiation interactions in turbulent buoyant diffusion flames	Van Minh Le, Alexis Marchand, Rui Xu, Salman Verma, Thomas Rogaume, Franck Richard, Jocelyn Luche, Arnaud Trouve
407	Modeling soot-radiation interactions in buoyant fire plumes	John Hewson
89	High-fidelity simulation of a small-scale pool fire with soot and thermal radiation	Bifen Wu, Xinyu Zhao
376	The Study of Fire at Small Scales Using Adaptive Mesh Refinement	Caelan Lapointe, Nicholas Wimer, Marc Day, Amanda Makowiecki, Jeffrey Glusman, John Daily, Gregory Rieker, Peter Hamlington

Tuesday, May 7 - Afternoon Session

Laminar Flames 1 - Tuesday, May 7 - Afternoon Session

81	The Influence of Alignment of Mixture Fraction and Generalized Progress Variable Gradients on Multi-Modal Flame Structure	Alex G. Novoselov, Michael P. Whitmore, Temistocle Grenga, Bruce Perry, Michael E. Mueller
83	Numerical study of stationary advancing and retreating edge flames in inclined opposed jets with finite heat release	Benjamin Shields, Jonathan Freund, Carlos Pantano
315	Self-similarity of pressurized counterflow flames	Evrim Solmaz, Fabrizio Bisetti
335	Stabilization of lean premixed H2-air flames	Faizan Habib Vance, Y. Shoshin, L.P.H. de Goey, J.A. van Oijen
117	Numerical investigation of methane/air premixed flame near the wall with conjugate heat transfer : Effect of temperature swing heat insulation	Reo Kai, Ryo Masuda, Takato Ikedo, Ryoichi Kurose
102	Impact of soot radiative properties in coupled simulation of a laminar sooting flame.	Kevin Torres Monclard, Ronan Vicquelin, Olivier Gicquel

MS11 Numerical modelling and simulation of detonations in high-energy explosives - Tuesday, May 7 - Afternoon Session

337	Electromagnetic pulses generated by detonations	Louisa Michael, Nikolaos Nikiforakis
422	Effect of hot-spot clusters on shock-to-detonation transition (SDT) in nitromethane with air-filled cavities	XiaoCheng Mi, Louisa Michael, Nikolaos Nikiforakis, Andrew J. Higgins
423	A high-resolution Godunov method with HLLC Riemann solver for a two-phase model of reactive flow	Michael Hennessey, Ash Kapila, Donald Schwendeman
105	Hydrodynamic simulations of the Henson-Smilowitz detailed kinetics model of HMX	Tariq Aslam
128	Simulations of chemical kinetics and thermodynamics of HMX decomposition within Henson-Smilowitz model	Kirill Velizhanin
86	Simulations of HMX Thermal Decomposition using Detailed Kinetics Models Coupled to Statistical Mechanics Based Equations of State	Jeffery Leiding

MS12 Eulerian-Based Moment Closure Methods for the Numerical Modelling of Disperse Sprays - Tuesday, May 7 - Afternoon Session

157	Combination of Kinetic-Based Moment Methods and realizable numerical methods for droplet-laden flows resolution to predict solid rocket motor instabilities	Valentin DUPIF, Joël DUPAYS, Frédérique Laurent, Marc Massot
164	An Eulerian-Eulerian Approach for Predicting Liquid Fuel Sprays in the Dense- and Disperse-Spray Regions	Tim Leung, Andy Wang, Lucie Freret, Clinton Groth, John Hu
204	Towards two-phase flow unified modeling in injection systems	Ruben Di Battista, Pierre Cordesse, Samuel Kokh, Marc Massot
253	A Fifteen-Moment Model for Evaporating Polydisperse Sprays	James McDonald, Mathieu Giroux, Francois Forgues, Lucian Ivan
278	Hybrid method for the description of evaporating sprays	Frédérique Laurent, Dennis Dunn, Aymeric Vié, Roxane Letournel, Marc Massot
288	A moment method using algebraic closures for combustion applications in dilute regime	Enrica Masi, Olivier Simonin

MS13 Untangling numerics and modeling: Viability of Explicit Filtering for Reacting LES - Tuesday, May 7 - Afternoon Session

421	Explicit Filtering for Reacting LES: Perspectives on its Need and Viability	Timothy Gallagher
58	Interaction of Numerical and Modelling errors in the context of LES using implicit filtering	Markus Klein
303	Presentation and Analysis of Explicitly Filtered LES for Canonical Flame Experiments	Andreas Kempf, Amirhossein Bertels
378	Comparing Residual and Solution Filtering Approaches to the Explicitly-filtered LES of Reactive Flows	Ayaboe Edoh, Timothy Gallagher, Venkateswaran Sankaran
297	Is Filtering Necessary? Dynamical Systems Formulation of LES	Venkat Raman, Maryam Akram

MS8 Combustion Noise 2 - Tuesday, May 7 - Afternoon Session

210	LES of combustion noise from a turbulent premixed jet flame	Feichi Zhang, Thorsten Zirwes, Peter Habisreuther, Henning Bockhorn, Dimosthenis Trimis
211	Two way hybrid LES/CAA approach with time domain impedance boundary conditions	Federico Lo Presti, Francesca Di Mare
214	Active Flow Control of the Precessing Vortex Core in a Swirl-stabilized Combustor: Impact on Flame dynamics	Finn Lückoff, Moritz Sieber, Oliver Paschereit, Kilian Oberleithner
357	Identification of Combustion Noise and Flame Dynamics of Confined Turbulent Flames - Power Spectral Distributions from experiment and LES	Thierry Schuller, Renaud Gaudron, Marco Gatti, Clement Mirat, Malte Merk, Camilo Silva, Stefan Jaensch, Wolfgang Polifke
359	Identification of Combustion Noise and Flame Dynamics of Confined Turbulent Flames - Identification of flame dynamics and combustion noise source terms	Wolfgang Polifke, Malte Merk, Camilo Silva, Stefan Jaensch, Renaud Gaudron, Marco Gati, Clement Mirat, Thierry Schuller

MS9 The role of intrinsic instabilities in the simulation of premixed combustion 2 - Tuesday, May 7 - Afternoon Session

161	Propagation of premixed flames in the presence of Darrieus-Landau and Thermal Diffusive instability.	Francesco Creta, Moshe Matalon, Navin Fogla, Pasquale Eduardo Lapenna, Rachele Lamioni
308	Interaction of thermodiffusive and Darrieus-Landau instabilities in lean premixed hydrogen flames	Lukas Berger, Konstantin Kleinheinz, Antonio Attili, Heinz Pitsch
127	On the effect of geometry and dimensionality on the intrinsic premixed flame instabilities	Christos Frouzakis, Christos Altantzis, George Giannakopoulos, Ananias Tomboulides, Konstantinos Boulouchos
139	Effects of preferential diffusion and density ratio on bluff-body flame stabilization	Yu Jeong Kim, Francisco Hernandez Perez, Bok Jik Lee, Hong Im
285	Diffusive-thermal instabilities of premixed H2/O2/inert freely propagating and burner stabilized flames.	Vladimir Gubernov, Viatcheslav Bykov, Ulrich Maas

MS10 Progress and Challenges in Predictive Modeling of Fires 2 - Tuesday, May 7 - Afternoon Session

184	Computational Modeling of Compartment Fires for Aircraft Safety	Danyal Mohaddes, Matthias Ihme, Jason Damazo, Philipp Boettcher, Brad Moravec
131	Prediction of compartment fire toxicity using a two-step fast chemistry scheme	Randall McDermott, Kevin McGrattan, Jason Floyd
175	Modeling smoldering of real fuels in wildland fires	W. Jayani Jayasuriya, Tejas Mulky, Kyle Niemeyer
76	Predictive CFD simulations of pool fires	Bart Merci
122	Modelling thermoplastics in FireFoam	Alex Krisman, Karl Meredith, Yi Wang
268	Numerical Modelling of Cable Fires	Lukas Arnold

Wednesday, May 8 - Morning Session

Turbulent Flames - Physics 2 - Wednesday, May 8 - Morning Session

54	Towards the Distributed Burning Regime in Turbulent Premixed Flames	A J Aspden, M S Day, J B Bell
276	Turbulent burning velocity in premixed jet flames at varying Reynolds and constant Karlovitz numbers	Antonio Attili, Stefano Luca, Fabrizio Bisetti, Heinz Pitsch
141	Strain rate variation at the onset of bending in premixed turbulent flame propagation	Girish Nivarti, Shrey Trivedi, Denis Veynante, Stewart Cant
72	Fractal Analysis of Turbulent Premixed Flames	Kedar G. Bhide, S. Sreedhara
154	The scaling of the surface area of turbulent premixed spherically expanding flames with Reynolds number	Tejas Kulkarni, Romain Buttay, Houssem Kasbaoui, Antonio Attili, Fabrizio Bisetti
150	The interactions of premixed flames and spatially developing boundary layer turbulence using direct numerical simulation	Zhuo Wang, Haiou Wang, Guo Chen, Kun Luo, Jianren Fan
396	Direct numerical simulations of finite-thickness cross sections of turbulent reacting jets	Chandru Dhandapani, Guillaume Blanquart

Droplets, spray, and heterogeneousÂ combustion - Wednesday, May 8 - Morning Session

35	Numerical study on the laminar flame velocity of hydrogen-air combustion under water spray effects	Guodong GAI, Sergey KUDRIAKOV
126	Computational study of aluminum droplet combustion using a 1D unsteady approach	Mathieu Muller, Dmitry Davidenko, Vincent Giovangigli
289	Thermal conversion of large wood particles	Inge Haberle, Nils Haugen, Øyvind Skreiberg
300	SIMULATION OF THERMALLY THICK WOOD PARTICLES COMBUSTION WITH AN EULERIAN-LAGRANGIAN METHOD	Jingyuan Zhang, Tian Li, Henrik Ström, Terese Løvås
334	catalytic combustion of methane on platinum: a case study for RMG-Cat	Katrin Blondal, Jelena Jelic, Emily Mazeau, Felix Studt, Richard West, Franklin Goldsmith
409	A Reactor Network Approach for Grate Combustion Plants based on Detailed Chemistry	Netzer Corinna, Tian Li, Terese Løvås, Lars Seidel, Fabian Mauß
379	An Uncertainty Quantification study on a reduced-order char combustion model for burnout predictions in a drop tube furnace	Salvatore Iavarone, Jeremy Thornock, Sean Smith, Philip Smith, Francesco Contino, Alessandro Parente

Numerical Methods 4 - Wednesday, May 8 - Morning Session

106	Asynchronous computing algorithm for solving PDEs on hybrid architectures	Konduri Aditya, Hemanth Kolla, Jacqueline Chen
125	Implementation of a conservative level set method for compressible two-phase flow simulation in a high-order finite volume code with Adaptive Mesh Refinement	Girish Nivarti, Stewart Cant
192	A directional ghost-cell immersed boundary method for low-Mach reacting flows in complex geometries	Cheng Chi, Abouelmagd Abdelsamie, Dominique THEVENIN
240	Computational Modeling of Multi-material Energetic Materials	Alberto M. Hernández, D. Scott Stewart
313	The interaction of an oblique shock wave with material interfaces	Christopher Romick
358	Adaptive Mesh Refinement for LES of Premixed Turbulent Methane Flames in the Thin Reaction Zones Regime	Ral Bielawski, Clinton Groth, Ömer Gülder
368	Predicting Lean Premixed Hydrogen Flames in Closed Vessels using a Mesh-Independent Large-Eddy Simulation Model in Conjunction with Anisotropic Adaptive Mesh Refinement	Ryan Taylor, Clinton P. T. Groth, Rita Liang, Lucian Ivan

Reaction kinetics modeling - Wednesday, May 8 - Morning Session

66	Scalability Strategies for Automated Reaction Mechanism Generation	Agnes Jocher, Nick Vandewiele, Kehang Han, Mengjie Liu, William Green
238	An ignition delay time and kinetic modeling study of 1- and 2-pentene	Shijun Dong, Henry Curran
341	Validation of a detailed kinetic mechanism for monopropellant combustion	Mark Fuller, Franklin Goldsmith
414	Autoignition behavior of iso-olefins	S. Scott Goldsborough, Kuiwen Zhang, William Pitz, Dongil Kang, Brianna Wagner
243	Unwrapping the pressure-dependence hidden in chemical kinetic models	Malte Döntgen, Dzmitry Firaha, Kai Leonhard
307	Ab initio reaction models from hybrid reactive molecular dynamics and quantum chemistry simulations	Lukas Krep, Malte Döntgen, Felix Schmalz, Wassja Kopp, Leif Kröger, Kai Leonhard
350	New Mixture Rules for Pressure-Dependent Reactions for Implementation in Combustion Codes	Lei Lei, Michael Burke

Software Engineering and High Performance Computing - Wednesday, May 8 - Morning Session

30	High-fidelity Simulation on Spray Combustion in Aero-engine Combustors by MPP	Bo Zhang, Bing Wang
242	HPC Implementation of Flame Particle Tracking for Studying Laminar and Turbulent Flame Dynamics	Thorsten Zirwes, Feichi Zhang, Peter Habisreuther, Jordan A. Denev, Henning Bockhorn, Dimosthenis Trimis
205	CALIF3S-P^{2}REMICS : an high performance CFD toolbox for high speed flames computation	Laura Gastaldo, Jean-Claude Latché
41	Large Eddy simulation and conjugate heat transfer to study heat transfer enhancement in ribbed rocket engines walls	luc potier, florent duchaine
90	Coupling and Benchmarking of Conditional Moment Closure model with OpenFOAM to analyse Industrial Problems	Pranit Gaikwad, S. Sreedhara
399	Towards a dynamic model adaptive combustion closure using LEM, ODT, and HiPS	Tommy Starick, Juan A. Medina M., Heiko Schmidt
241	Dynamic adaptation of tetrahedral-based meshes for the simulation of turbulent premixed flames	Vincent MOUREAU, Pierre Benard, Ghislain Lartigue, Renaud Mercier

Detonation and explosion - Wednesday, May 8 - Morning Session

254	A two-dimensional Euler formulation to model velocity deficits and gasdynamic structure in hydrogen detonations	Brian Maxwell, Qiang Xiao, Matei Radulescu
365	A Shockwave Closure Model for the 5-Equation Continuum Mixture Model for Compressible Flows	John Bdzil, Ashwani Kapila
400	Initiation of Spontaneous Detonation in Highly Compressible Turbulence	Colin Towery, Alexei Poludnenko, Peter Hamlington
218	The Influence of Thermal Radiation on Layered Dust Explosions	Swagnik Guhathakurta, Ryan Houim
233	Numerical simulation of explosion in an ethanol stockage scenario	Rogério Gonçalves dos Santos, Tatiele Dalfior Ferreira, Savio Vianna
385	Reactive Simulations of Shock-Induced Chemistry in Homogenous Explosives	Svjetlana Stekovic, H. Keo Springer, Mithun Bhowmick, Dana D Dlott, D Scott Stewart

MS14 Combustion and Data Sciences: Artificial Intelligence and Machine Learning for analyzing reacting flows - Wednesday, May 8 - Morning Session

369	A-priori analysis of data-driven closure models trained from a reacting DNS of a Low-Swirl Burner	Shashank Yellapantula, Marc T. Henry de Frahan, Ryan King, Ray Grout, Marc Day
425	A convolutional neural network-based efficiency function for sub-grid flame-turbulence interaction in LES	Corentin Lapeyre, Antony Misdariis, Nicolas Cazard, Victor Xing, Denis Veynante, Thierry POINSOT
356	Integrating Data-Based Tools into Physics-Based Model Development for Turbulent Combustion	Michael E. Mueller, Bruce A. Perry, A. Cody Nunno, Jonathan F. MacArt, Lukas Berger
245	In-situ source term learning in a partially stirred reactor	Shivam Barwey, Venkat Raman
180	Building Robust PCA-Based Kinetic Models for Combustion with Supervised Machine Learning	Elizabeth Armstrong, James Sutherland
362	Modeling combustion using direct numerical simulation data and deep learning on supercomputers	Mathis Bode, Dominik Denker, Konstantin Kleinheinz, Heinz Pitsch
293	Discussion: prospects and challenges for using machine learning in combustion research	Ray Grout, Shashank Yellapantula

Wednesday, May 8 - Midday Session

Laminar Flames 2 - Wednesday, May 8 - Midday Session

361	Performance analysis of an implicit, fully-coupled method for simulating reactive flows	Nicholas Deak, Fabrizio Bisetti
51	Steady and unsteady behaviours of methane/air counterflow non-premixed flames based on REDIM reduced chemistry	Felipe Minuzzi, Chunkan Yu, Ulrich Maas
68	Asymptotic analysis to the effect of temperature gradient on the propagation of triple flame	Faisal Almalki
63	The role of gravity in the asymmetry of flames in narrow combustion chambers	Kevin Bioche, Amanda Pieyre, Guillaume Ribert, Franck Richecoeur, Luc VERVISCH
377	Application and Comparison of Chemistry Tabulation Techniques for Laminar Methane-Air and Jet A-Air Co-Flow Flames at Elevated Pressures	Marthinus C. S. de Beer, Clinton Groth, John Hu
441	Flame picture reconstruction of a sooting flame	Victor Chernov

MS7 Progress in Radiation Modeling in Combustion Systems 2 - Wednesday, May 8 - Midday Session

85	Radiation Monte Carlo in Turbulent Combustion Media	Michael Modest
78	Monte Carlo methods based on null collision algorithms for radiative heat transfer calculations	Mouna El Hafi
82	Comparison and Assessment of Moment Closure Methods for Predicting Radiative Heat Transfer in High-Pressure Laminar Co-Flow Diffusion Flames	Joachim A. R. Sarr, Clinton Groth, John Hu
95	Influence of Spectral Particle Properties on Radiative Heat Transfer in Combusting Systems	Cihan Ates, Rainer Koch, Hans-Jörg Bauer
156	Modeling radiative absorption and anisotropic scattering by water droplets in large-scale fire simulations	Oluwayemisi Oluwole, Karl Meredith, Yi Wang
420	Account for wall non-grayness in spectral solution of thermal radiation in participating media	Hadi Bordbar

MS15 Numerical modeling of combustion instabilities - Wednesday, May 8 - Midday Session

430	Control of intrinsic thermoacoustic instabilities using hydrogen fuel	Abdulla Ghani
314	Numerical solution of nonlinear eigenvalue problems in thermoacoustics	Philip Buschmann, Georg Mensah, Jonas Moeck
429	Resolvent Analysis: A Way to Extract Flame Transfer Functions out of Mean Flow Data?	Thomas Ludwig Kaiser, Lutz Lesshafft, Kilian Oberleithner
323	LES for the modeling of combustion instabilities in rocket engines	Robin Nez, David Marchal, Thomas SCHMITT, Sébastien Ducruix
366	The role of flame propagation and autoignition in sequential combustor flame dynamics	Oliver Schulz, Roberto Solana Pérez, Nicolas Noiray
291	Statistical learning by data assimilation in reacting flows	Luca Magri, Hans Yu, Matthew Juniper, Wolfgang Polifke, Nguyen Anh Khoa Doan

MS16 New Techniques in Computational Kinetics 1 - Wednesday, May 8 - Midday Session

302	Automated Construction of High-Fidelity Fuel Chemistry Models: Status & Challenges	William Green
412	When Prompt Dissociation Matters	Nicole Labbe
183	RCDriver: Driving high-level thermochemistry and kinetics computations	Sarah Elliott, Murat Keceli, Andreas Copan, Carlo Cavallotti, Yuri Georgievski, Henry Schaefer, Stephen Klippenstein
408	Chemical Reaction Mechanisms: New Exploration Methods	Jeremy Harvey
370	Genesys: building kinetic models from first principles	Ruben Van de Vijver, Florence Vermeire, Guy Marin, Kevin Van Geem
428	From Electronic Structure to Temperature and Pressure Dependent Rate Constants: EStokTP. A Code for Automatically Predicting the Thermal Kinetics of Reactions	Carlo Cavallotti, Matteo Pelucchi, Yuri Georgievskii, Stephen Klippenstein

MS17 Towards Consensus on the Studies of Flame Acceleration (FA) and Deflagration-to-Detonation Transition (DDT) 1 - Wednesday, May 8 - Midday Session

159	Role of Chemical Kinetics in Flame Acceleration in Narrow Channels	Viatcheslav Bykov, Andrey Koksharov, Mike Kuznetsov, Victor Zhukov
52	Propagation of Symmetric and Non-symmetric Flames in Channels: The Differential Diffusion and Compressibility Effects.	Anne Dejoan, Carmen Jiménez, Vadim Kurdyumov
75	Influence of the Heat-Losses on Fast and Slow Flame Propagation in Long Narrow Channels From a Closed End	Vadim Kurdyumov, Moshe Matalon
37	Deflagration-to-Detonation Transition: Numerical Issues	Leonid Kagan, Andrey Koksharov, Peter Gordon, Gregory Sivashinsky
259	Universal Mechanism of the Unconfined Deflagration-to-Detonation Transition in Terrestrial Chemical Systems and Type Ia Supernovae	Kareem Ahmed, Alexei Poludnenko, Jessica Chambers, Vadim Gamezo, Brian Taylor
14	Flame acceleration and transition to detonation in hydrogen-based microfoams and foamed emulsions	Alexey Kiverin, Ivan Yakovenko, Alexey Korshunov, Boris Kichatov

MS18 Nano-Particle Synthesis from Flames 1 - Wednesday, May 8 - Midday Session

36	Gas-phase synthesis of functional nanoparticles: From fundamental experiments to process development	Christof Schulz
108	Sectional Large Eddy Simulations of the SpraySyn Flame for Nanoparticle Synthesis	Jonas Kirchmann, Johannes Sellmann, Oliver Stein, Irenäus Wlokas, Andreas Kronenburg, Andreas Kempf
114	A hybrid stochastic/sectional approach for simulating soot dynamics	Alexandre Bouaniche, Pascale Domingo, Luc VERVISCH
353	Modeling of bi-component droplet evaporation for use in spray combustion simulations	Praveen Narasu, Fulong Zhao, Eva Gutheil
173	Numerical study of titania nanoparticle production in 1-D premixed methane/air flames.	Jean-Maxime Orlac'h, Nasser Darabiha, Denis Veynante, Benedetta Franzelli
295	The resolution of nano-particle size distribution dynamics in turbulent flames using detailed chemical kinetics	Peter Lindstedt, Panagiotis Simatos

MS19 Combustion and Data Sciences: Novel Concepts in Data Analysis - Wednesday, May 8 - Midday Session

138	A Unified Description of Flame Topologies at Different Turbulent Combustion Regimes Using Computational Singular Perturbation	Stathis Tingas, Hong Im
166	CSP-TSR analysis of a laminar methane/oxygen non-premixed flame impinging on a cold wall	Pietro Paolo Ciottoli, Riccardo Malpica Galassi, Lorenzo Angelilli, Mauro Valorani
225	Feature extraction in combustion applications	Giuseppe D'Alessio, Gianmarco Aversano, Kamila Zdybał, Alberto Cuoci, Alessandro Parente
311	Modal decomposition of reacting flows in a model gas turbine	Temistocle Grenga, Konstantin Kleinheinz, Antonio Attili, Heinz Pitsch
339	Effect of the training dataset and data preprocessing on adaptive-chemistry simulations	Giuseppe D'Alessio, Gianmarco Aversano, Alberto Cuoci, Alessandro Parente

Wednesday, May 8 - Afternoon Session

MS1 Filtered Density Function (FDF) Methods for Turbulent Reactive Flows 4 - Wednesday, May 8 - Afternoon Session

170	LES/FDF Simulations of Turbulent Jet Flames Using FGM	Vasu Jaganath, Michael Stoellinger
112	Large-Eddy Simulation of the Cambridge swirled stratified flame series using FGM and Lagrangian FDF	Seung-Jin Baik, Eray Inanc, Andreas Kempf
69	LES/PDF simulations of swirling turbulent premixed flames	Hasret Turkeri, Xinyu Zhao, Stephen B. Pope, Metin Muradoglu
53	LES/PDF simulation of Cambridge/Sandia turbulent stratified flames with differential diffusion	Metin Muradoglu, Hasret Turkeri, Xinyu Zhao, Stephen B. Pope
403	Evaluation of turbulent combustion models for Large Eddy Simulation of flame stabilization assisted by auto-ignition in a geometrically simplified reheat gas turbine combustor	Andrea Gruber, Jonas Krüger, Hasret Turkeri, Xinyu Zhao, Oliver Schulz, Nicolas Noiray, Bénédicte Cuenot, Thierry Poinsot, Aditya Konduri, Jacqueline Chen
219	Application of LES/FMDF Model to Complex Combustion Systems	Farhad Jaberi, AbdulAhad Validi, Zhaorui Li
373	A finite particle method based filtered density function approach for the large eddy simulation of turbulent multiphase flows	Sean Garrick, Everett Wenzel

Heterogeneous combustion - Wednesday, May 8 - Afternoon Session

343	On using volume averaging method with closure for Euler-Lagrange simulations of laminar flame propagation in dust clouds	Mohamed Belerrajoul, Yohan Davit, Fabien Duval, Michel Quintard, Olivier Simonin
374	CFD simulation of pulverized biomass conversion using spheroidal approximation	Ning Guo, Ángel David García Llamas, Tian Li, Kentaro Umeki, Rikard Gebart, Terese Løvås
404	Effect of particle size and dispersed phase mass fraction on burning velocity calculation in FLACS-DustEx	Maryam Ghaffari
147	A model for dust deflagrations, considering inner particle transport effects	Christoph Spijker, Harlad Raupenstrauch, Hannes Kern
182	An evaluation study of different treatments of coal devolatilization in predicting combustion characteristics of a stagnation coal flame	Jiangkuan Xing, Haiou Wang, Kun Luo, Chunguang Zhao, Yun Bai, Jianren Fan
258	Resolved Simulations of Coal Ignition under Pressurized Oxy-fuel Combustion Environment	Hongying Yu, Junjun Guo, Pengfei Li, Zhaohui Liu
273	The effect of turbulence on the reactant mass transfer to pulverized char	Nils Erland L. Haugen, Jonas Kruger, Ewa Karchniwy, Patrycja Zareba, Terese Løvås, Tian Li, Adam Klimanek

Fires, Real Gas Effects and Supercritical Combustion - Wednesday, May 8 - Afternoon Session

40	Large Eddy Simulation of thermal runaway in a Lithium-ion battery module	Shubham Agarwal, Matthieu Lekyo, Florent Duchaine
49	Modeling Gas Radiation Feedback and Evaluating its Effect on Flame Spread Over Solid Fuels	Subrata (Sooby) Bhattacharjee, Kenneth Dong
271	Numerical simulation of cryogenic flows under high-pressure conditions	Stefan Fechter, Tim Horchler, Sebastian Karl, Klaus Hannemann
234	Large eddy simulations of the UMD line burner with the conditional moment closure method	Boris Kruljevic, Ivana Stankovic, Bart Merci
325	Unsteady simulations of liquid/gas interfaces using the second gradient theory	Davy Nayigizente, Thomas SCHMITT, Sébastien Ducruix
206	Comparison of Detailed Chemistry and Flamelet Combustion Modeling in a H2/LOx Subscale Combustion Chamber	Tim Horchler, Stefan Fechter, Sebastian Karl, Klaus Hannemann
340	Analysis of Flux Construction Techniques for Gas-Liquid Flow Systems at Supercritical Pressures	Joseph Oefelein, Matthew Harvazinski, Venkateswaran Sankaran, Charles Merkle

MS16 New Techniques in Computational Kinetics 2 - Wednesday, May 8 - Afternoon Session

104	KinBot: An efficient reaction pathway explorer	Judit Zádor, Ruben Van de Vijver
387	AutoTST: automated transition state theory calculations for high-throughput calculation of chemical kinetics	Richard West, Nathan Harms
207	Reaction Pathfinding using Strings and Graphs	Paul Zimmerman
229	Seeking Saddle Points with Sella	Eric Hermes, Judit Zádor
327	Automating rate constants for barrierless reactions	Franklin Goldsmith, Xi Chen

MS17 Towards Consensus on the Studies of Flame Acceleration (FA) and Deflagration-to-Detonation Transition (DDT) 2 - Wednesday, May 8 - Afternoon Session

417	Effect of thermal-chemical fuel properties and surface conditions on premixed flame acceleration in unobstructed and obstructed pipes	V'yacheslav Akkerman
274	Effect of Gas Expansion on the Interaction of a Premixed Flame with a Periodic Shear Flow	Damir Valiev, Ruixue Feng, Andrea Gruber, Jacqueline Chen
411	Flame acceleration and DDT in presence of energy losses and steam condensation	Mike Kuznetsov, Jorge Yanez, Alexander Lelyakin
410	Flame propagation regimes and flame instability in a thin layer geometry	Mike Kuznetsov, Joachim Grune
322	Flame propagation and DDT over groove obstacles	Edyta Dzieminska, Shota Yamamoto, Noboyuki Tsuboi, A. Koichi Hayashi
261	Numerical analysis on detonation and detonation application using adaptive mesh refinement	A. Koichi Hayashi, Nobuyuki Tsuboi, Xinmeng Tang, Edyta Dzieminska

MS18 Nano-Particle Synthesis from Flames 2 - Wednesday, May 8 - Afternoon Session

321	Detailed and Reduced Reaction Schemes for Iron Oxide Nanoparticle Synthesis Flames	Monika Nanjaiah, Hans Jünger, Matthieu R. Lalanne, Igor Rahinov, Andreas Kempf, Irenäus Wlokas
310	Characterisation of the SpraySyn burner by LES	Efim Borukhovich, Andreas Kempf
364	Dual Population Balance Monte Carlo Simulation for Nanoparticle Synthesis in Spray Flame Pyrolysis with Supporting from DNS	Ivan Skenderovic, Abouelmagd Abdelsamie, Dominique Thévenin, Frank Einar Kruis
398	Prediction of particle size distribution in flames with a discretised population balance and a conservative finite volume method	ANXIONG LIU, Stelios Rigopoulos
426	Statistical Modeling of Aerosol Dynamics in a Turbulent Flame	Achim Wick, Raymond Langer, Antonio Attili, Heinz Pitsch

MS20 Combustion and Data Sciences: Emerging Opportunities - Wednesday, May 8 - Afternoon Session

123	Deep Learning for Combustion Instability Diagnostics	Soumik Sarkar
256	Adaptive low-rank tensor compression algorithms for generating, managing, and analyzing large scale scientific data.	Alex Gorodetsky
244	Data-poor problems in combustion sciences	Malik Hassanaly, Venkat Raman
169	Data-based modeling for closed-loop control of combustion engines	Thivaharan Albin
433	Nonlinear system identification using sparsity-promoting techniques	Eurika Kaiser, Steven Brunton, J Nathan Kutz
277	Data assimilation for a level set premixed flame model: making a qualitative model quantitatively accurate	Matthew Juniper, Hans Yu, Luca Magri