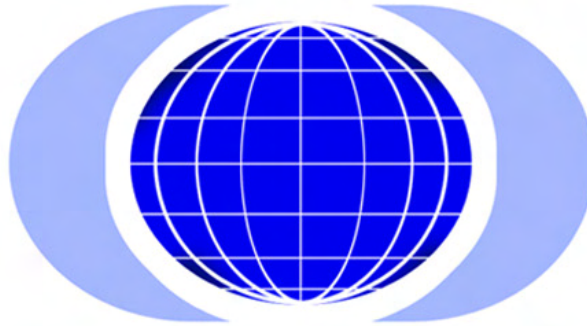


University of California, Irvine

July 24-29, 2011



**23rd International Colloquium on the
Dynamics of Explosions and Reactive Systems**

TECHNICAL PROGRAM

AND

ABSTRACTS

Jul. 25 (Mon)		Jul. 26 (Tue)		Jul. 27 (Wed)		Jul. 28 (Thu)		Jul. 29 (Fri)	
8:00	Registration	8:30	S3-I Mini Plenary	8:30	Special S4-I	9:00	Special S5-I	9:00	Special S7-I
8:45	Welcome	9:10	Regular R5	9:10	Regular R9	9:25	Regular R11	9:25	Regular R14
9:15	Plenary	9:35		9:35		9:50	Topical Review	9:50	
10:00	Regular R1	10:00	Poster-I	10:00	Break	10:15		10:15	Break
10:25	Special S1-I	10:25		10:25	Regular R10	10:40	Break	10:45	Regular R15
10:50	Break	10:50		10:55	Special S4-II	11:10	Poster-II and WIP	11:10	Special S7-II
11:15	Break	11:15	Break	11:20		11:35		11:35	
11:45	Regular R2	11:45	Regular R6	11:45		12:00	Lunch	12:00	Lunch
12:10	Special S1-II	12:10			Lunch and free time	12:00		12:00	
12:35		12:35				13:30	Regular R12	13:30	Regular R16
13:00	Lunch	13:00	Lunch			13:55	Topical Review	13:55	Topical Review
14:30	Regular R3	14:30	Regular R7			14:20		14:20	
14:55	Special S2-I	14:55				14:45		14:45	
15:20		15:20				15:10	Break	15:10	Break
15:45	Break	15:45	Break			15:40	Regular R13	15:40	Regular R17
16:15	Regular R4	16:15	Regular R8			16:05	Special S6-II	16:05	
16:40	Special S2-II	16:40				16:30		16:30	
17:05		17:05				16:55		16:55	
Young Researcher Pub Night				Return 9:00 PM		Conference Dinner		Farewell Party	

Technical Program Information

Audio-Visual Equipment

All of the presentation rooms are equipped with a computer, a projector and screen. Authors may use their own computer if they prefer. As always, it is the author's responsibility to be sure that their presentation runs smoothly. Either load the presentation before the session and test the conference computer or test your own computer. Host students and technical staff will be available to assist in a limited way, if needed, but please make sure your presentation operates as you expect ahead of time.

Practice Rooms

There are no formal practice rooms set aside at the conference, but if you are concerned about your connection to the Audio Visual equipment, please test the connection at the breaks, or before and after the technical sessions.

Poster Sessions

Two poster sessions will be presented in Pacific Ballroom D; the posters will be up for most of the day, but authors are asked to please be available for questions and comments during the formal poster session periods:

Poster I
Tuesday, July 26, 10:25 - 11:45 AM

Poster II and WIP
Thursday, July 28, 10:40 – 12:00

Instructions regarding the size of the posters are available on the website. The appropriate material for hanging the posters will be provided. We are planning mostly on clipping single sheets to 36" x 48" vertical poster board, but you may use other methods if you need them. Please let the information desk know if you have any special needs.

Posters should be installed by 9:00 AM. Tuesday posters need to be removed at the end of the afternoon break (16:15). The Thursday posters should be installed again by 9:00 AM but they will need to be removed a bit earlier (14:30) to allow preparation of the Ballroom for the conference dinner that will be in the same room.

08:00	Registration			
08:45	Welcome and Plenary (Gaetano Continillo)			
09:15	(PL1) 357 Dynamics of Physical Explosion: A Tribute to Professor Boris Gelfand (Sergey P. Medvedev)			
	(S1) – Toward a Better Understanding of Shock-Tube Flows and Ignition Behaviors – I (Eric L. Petersen)	(R1A) – DDT – I (V. N. Gamezo)	(R1B) – Heterogeneous / Multiphase Reactive System–I (Allen L. Kuhl)	(R1C) – Premixed Flames – I (Steven S. Shy)
10:00	9 R. Cook, ...	74 G. Ciccarelli, ...	329 K. Balakrishnan,	61 H. Zhang, ...
10:25	10 W. Ren, ...	234 R. Porowski, ...	246 Y. Gan, ...	70 T. Cheng, ...
10:50	81 D. Ignatenko, ...	313 A. Susa, ...	150 S. Goroshin, ...	159 M. Hori, ...
11:15	Break			
	(S1) – Toward a Better Understanding of Shock-Tube Flows and Ignition Behaviors – II (Eric L. Petersen)	(R2A) – DDT – II (A. Koichi Hayashi)	(R2B) – Heterogeneous / Multiphase Reactive System–II (Allen L. Kuhl)	(R2C) – Premixed Flames – II (B. Fiorina)
11:45	110 C. Aul, ...	27 M. Liberman, ...	53 V. Leschevich, ...	260 M. Magar, ...
12:10	163 K. Heufer, ...	76 K. Vollmer, ...	265 D. Frost, ...	328 G.B. Chen, ...
12:35	231 S. Medvedev, ..	310 M. Kuznetsov, .	43 B. Shaw, ...	127 M. Goswami, ...
13:00	Lunch			
	(S2) – Shock Induced Ignition –I (Eric L. Petersen)	(R3A) – DDT – III (A. Koichi Hayashi)	(R3B) – Flame Instability and Acceleration (M. Kuznetsov)	(R3C) – Premixed Flames – III (Paul Ronney)
14:30	31 I. Stranic, ...	41 V. Karlin, ...	288 T. Ikawa, ...	256 G. Gauthier, ...
14:55	54 B. Akih-Kumgeh,	207 M. Fukuda, ...	119 Y. -J. Zhu, ...	227 C. C. Liu, ...
15:20	104 J. Herzler, ...	330 V. Gamezo, ...	28 M. Ivanov, ...	269 M. Short, ...
15:45	Break			
	(S2) – Shock Induced Ignition–II (Eric L. Petersen)	(R4A) – DDT – IV (Luc Bauwens)	(R4B) – Criticality of Diffusion Flames (Arnaud Mura)	(R4C) – Premixed Flames and Laminar Flame Speeds (R. K. Cheng)
16:15	188 O. Mathieu, ...	56 T. Ogawa, ...	50 R. Nozaki, ...	152 N. Malik, ...
16:40	203 M. Fikri, ...	270 S. Jackson, ...	182 J. S. Park, ...	210 T. Szabó
17:05	342 C. Tobin, ...	261 M. C. Gwak, ...	131 A. Fartouk, ...	298 E. Varea, ...
17:30	End of Technical Sessions			
18:00	Special Young Researcher Session			

08:00 Registration**08:45 (PL1) Welcome and Plenary Lecture****Pg. 45***Session Chair : Gaetano Continillo***Pacific Ballroom D**

09:00 Welcome

09:15 357 Dynamics of Physical Explosions: A Tribute to Professor Boris Gelfand
*Sergey P. Medvedev***10:00 (S1) – Toward a Better Understanding of Shock-Tube Flows and Ignition Behaviors – I Pg. 45***Session Chair : Eric L. Petersen***Pacific Ballroom C**10:00 9 MMH Pyrolysis and Oxidation: Species Time-History Measurements behind Reflected Shock Waves
*R. D. Cook, S. H. Pyun, D. F. Davidson and R. K. Hanson*10:25 10 Temperature Time-History Measurements in a Shock Tube Using Diode Laser Absorption of CO₂ near 2.7 μ m
*Wei Ren, Sijie Li, David F Davidson and Ronald K Hanson*10:50 81 Auto-ignitions of Methane at Intermediate and High Temperatures
*D.G. Ignatenko, N. Joshi, V.V. Leschevich, V.V. Martynenko, O.G. Penyazkov, K.L. Sevrouk, S.I. Shabunya, A.V. Skilondz and V. Tangirala***10:00 (R1A) – DDT – I****Pg. 46***Session Chair : V. N. Gamezo***Pacific Ballroom AB**10:00 74 Role of Transverse Shock Waves on DDT in a Very Rough-Walled Channel
*G. Ciccarelli, C. Johansen and M. Kellenberger*10:25 234 Experimental and Computational Study on DDT for Hydrogen-Methane-Air Mixtures in Tube with Obstacles
*Rafal Porowski Andrzej Teodorczyk, Knut Vaagsaether and Dag Bjerketvedt*10:50 313 Oscillating Propagation of Near-limit Detonations of CH₄/O₂ System in a Small Diameter Tubes
*A. SUSA, S. Hasegawa, H. Yokoyama, T. Endo, Y. Ogawa, Y. Morii and N. Tsuboi***10:00 (R1B) – Heterogeneous / Multiphase Reactive System – I****Pg. 46***Session Chair : Allen L. Kuhl***Moss Cove AB**10:00 329 Ignition of Aluminum Particle Clouds Behind Reflected Shock Waves
*Kaushik Balakrishnan, Allen L. Kuhl, John B. Bell, and Vincent E. Beckner*10:25 246 Effects of Addition of Energetic Nanoparticles on Fuel Droplet Combustion at Dilute and Dense Particle Loading
*Yanan Gan and Li Qiao*10:50 150 Flame Fronts in Iron Suspensions Dominated by the Effect of Discreteness
Sam Goroshin, Francois-David Tang and Andrew J. Higgins

10:00 (R1C) – Premixed Flames – I

Pg. 47

Session Chair : Steven S. Shy

Woods Cove ABC

- 10:00 61 Outwardly Propagating Spherical Flames with Thermally Sensitive Intermediate Kinetics and Radiative Loss
Huangwei Zhang, Xialing Zhang and Zheng Chen
- 10:25 70 Characteristics of Laminar Premixed H₂/CO/CH₄/Air Opposed-jet Flames
T. S. Cheng, Y.-C. Chang, Y.-C. Chao, G.-B. Chen, Y.-H. Li and C.-Y. Wu
- 10:50 159 Weak Flame Responses to Octane Number and Pressure in a Micro Flow Reactor with a Controlled Temperature Profile
Mikito Hori, Akira Yamamoto, Hisashi Nakamura, Takuya Tezuka, Susumu Hasegawa and Kaoru Maruta

11:15 (B) – Coffee Break**11:45 (S1) – Toward a Better Understanding of Shock–Tube Flows and Ignition Behaviors – II** Pg. 48

Session Chair : Eric L. Petersen

Pacific Ballroom C

- 11:45 110 Interpretation of Low-Temperature, High-Pressure Ignition Data from a Shock Tube with Significant Pre-Ignition Pressure Rise
Christopher J. Aul, Eric L. Petersen, Henry Curran, Mustapha Fikri and Christof Schulz
- 12:10 163 Optical Investigation of Shock Induced Ignition of Different Biofuels
K.A. Heufer, H. Olivier, S.P. Medvedev, S.V. Khomik
- 12:35 231 Towards Consolidation of Hydrogen-Air Ignition Data from Shock Tube and Flow Reactor Experiments
Sergey P. Medvedev, Sergey V. Khomik, Aleksander K. Heufer and Herbert Olivier

11:45 (R2A) – DDT– II

Pg. 49

Session Chair : A. Koichi Hayashi

Pacific Ballroom AB

- 11:45 27 Deflagration-to-Detonation Transition in Highly Reactive Combustible Mixtures
M. A. Liberman, M. F. Ivanov, A. D. Kiverin, M. S. Kuznetsov, A. A. Chukalovsky, T. V. Rakhimova
- 12:10 76 Deflagration-to-Detonation Transition in Hydrogen-Air Mixtures with Concentration Gradients
K.G. Vollmer, F. Ettner and T. Sattelmayer
- 12:35 310 Effects of Shock Waves, Boundary Layer and Turbulence on Flame Acceleration and DDT in Highly Reactive Mixtures
M. Kuznetsov, J. Grune and I. Matsukov

11:45 (R2B) – Heterogeneous / Multiphase Reactive System – II

Pg. 50

Session Chair : Allen L. Kuhl

Moss Cove AB

- 11:45 53 Auto-ignition Conditions of Iron Micro Powders in Heated Oxygen
Vladimir V. Leschevich, Oleg G. Penyazkov and Jean-Christophe Rostaing
- 12:10 265 Interfacial Instabilities in Explosive Gas-Particle Flows
David L. Frost, Yann Gregoire, Samuel Goroshin and Fan Zhang

- 12:35 43 Models for Fast Combustion Waves in Nanocomposite Thermite Powders
Benjamin D. Shaw, Birce Dikici, & Michelle L. Pantoya

11:45 (R2C) – Premixed Flames – II

Pg. 51

Session Chair : B. Fiorina

Woods Cove ABC

- 11:45 260 Premature Flame Initiation in SI Engines: Modeling Studies on the Role of Residual Gas
M. Magar, R. Schießl and U. Maas
- 12:10 328 Effects of Hydrogen Peroxide on Methane Premixed Flames
Guan-Bang Chen, Yueh-Heng Li, Tsarng-Sheng Cheng, Hung-Wei Hsu and Yei-Chin Chao
- 12:35 127 Effect of Elevated Pressures on Laminar Burning Velocity of Methane+Air Mixtures
M. Goswami, S. Derks, K. Coumans, M.H. de Andrade Oliveira, A.A. Konnov, R.J.M Bastiaans, C.C.M Luijten and L.P.H de Goey

13:00 (L) – Lunch

14:30 (S2) – Shock Induced Ignition – I

Pg. 51

Session Chair : Eric L. Petersen

Pacific Ballroom C

- 14:30 31 Shock Tube Measurements of Ignition Delay Times for the Butanol Isomers
I. Stranic, D. P. Chase, J. T. Harmon, S. Yang, D. F. Davidson, R. K. Hanson.
- 14:55 54 Methyl and Ethyl Esters as Biodiesel Surrogates: Observations on Trends in Ignition Behavior
Benjamin Akih-Kumgeh, Jeffrey M. Bergthorson
- 15:20 104 Shock Tube Study of the Influence of NO_x on the Ignition Delay Times of Natural Gas at High Pressure
J. Herzler, C. Naumann

14:30 (R3A) – DDT – III

Pg. 52

Session Chair : A. Koichi Hayashi

Pacific Ballroom AB

- 14:30 41 ~~Effect of Radiation Preheating on Dynamics of Wrinkled Flames~~
~~Vladimir Karlin~~
- 14:55 207 Effect of Wall Conditions on DDT in Hydrogen-Oxygen Mixture
Motoki Fukuda, Edyta Dzieminska, A.Koichi Hayashi, Eisuke Yamada and Nobuyuki Tsuboi
- 15:20 330 One-dimensional Evolution of Fast Flames
V. N. Gamezo, A. Y. Poludnenko and E. S. Oran

14:30 (R3B) – Flame Instability and Acceleration

Pg. 53

Session Chair : M. Kuznetsov

Moss Cove AB

- 14:30 288 Short-term Prediction of Combustion Instability in a Lean Premixed Gas-turbine Combustor Using Nonlinear Time Series Analysis
Takuya Ikawa, Masahito Amano, Hiroshi Gotoda, Takaya Miyano, Shigeru Tachibana
- 14:55 119 3D Numerical Simulations of Spherical Flames Instability and Acceleration in Shock Accelerated Flows
Yuejin Zhu, Gang Dong, Baochun Fan, Yixin Liu

- 15:20 28 Hydrogen-Oxygen Flame Acceleration in Channels of Different Widths and Deflagration-to-Detonation Transitions for a Detailed Chemical Reaction Models
M. F. Ivanov, A. D. Kiverin, M. A. Liberman

14:30 (R3C) – Premixed Flames – III**Pg. 54***Session Chair : Paul Ronney***Woods Cove ABC**

- 14:30 256 Numerical Investigation of Premixed Flames Stabilized in a Narrow Duct with a Wall Temperature Gradient
G.P. Gauthier, G.M.G. Watson and J.M. Bergthorson
- 14:55 227 High-Pressure Turbulent Burning Velocity Measurements at Constant Reynolds Numbers
C. C. Liu, S. S. Shy, M. W. Peng, C. W. Chiu, Y. C. Dong
- 15:20 269 Variable Density Premixed Thick Flame Propagation in a Microchannel with Heat Conducting Walls
Mark Short and David A. Kessler

15:45 (B) – Coffee Break**16:15 (S2) – Shock Induced Ignition – II****Pg. 55***Session Chair : Eric L. Petersen***Pacific Ballroom C**

- 16:15 188 Oxidation of Selected Aromatics Behind Shock Waves
O. Mathieu, G. Pengloan, N. Chaumeix and C. -E. Paillard
- 16:40 203 High-pressure Shock Tube experiments of the ignition of 3-pentanone-doped n-heptane and iso-octane/air mixtures
Mustapha Fikri, Leonel R. Cancino, Michaela Hartmann and Christof Schulz
- 17:05 342 A High Temperature Shock Tube Study of n-Butylbenzene Oxidation
Colin Tobin, Kenji Yasunaga, John Simmie, Judith Würmel, Henry Curran, Olivier Mathieu

16:15 (R4A) – DDT– IV**Pg. 55***Session Chair : Luc Bauwens***Pacific Ballroom AB**

- 16:15 56 Flame Acceleration and Transition to Detonation in an Array of Cylinders
Takanobu Ogawa, Vadim N. Gamezo, Elaine S. Oran
- 16:40 270 Geometry-Specific Scaling of Detonation Parameters from Front Curvature
Scott I. Jackson and Mark Short
- 17:05 261 Numerical Simulation of Deflagration to Detonation Transition with Wall Cooling Effect in Ethylene-air Mixture
Min-cheol Gwak, Ki-hong Kim and Jack J. Yoh

16:15 (R4B) – Criticality of Diffusion Flames**Pg. 56***Session Chair : Arnaud Mura***Moss Cove AB**

- 16:15 50 Study on Ignition-like Behavior Caused by Interaction of Curved Diffusion Flames
Ryosuke Nozaki, Yuji Nakamura, Akio Kitajima
- 16:40 182 Determination of the Transition Threshold from Laminar Flat Flames to Turbulent Flames by a CO₂ Laser Irradiation Method
June Sung Park, Osamu Fujita, Yoshikazu Taniyama

- 17:05 131 A Multi-mixture Fraction Closure for Dilute Turbulent Diffusion Flame
Avner Fartouk, Pierre Plion, Arnaud Mura

16:15 (R4C) – Premixed Flames and Laminar Flame Speeds**Pg. 56***Session Chair : R. K. Cheng***Woods Cove ABC**

- 16:15 152 Premixed Flame Response to Disturbances in Pressure and Fuel Distributions
Nadeem A. Malik, R.P Lindstedt
- 16:40 210 Parameterization of Laminar Flame Speed Dependence on Pressure and Temperature in Hydrogen-air Mixtures
T. Szabó, J. Yáñez, A. Kotchourko, M. Kuznetsov, T. Jordan
- 17:05 298 Laminar Burning Velocity and Markstein Length Relative to Fresh Gases Determination for Isooctane-Ethanol Air Flames
E. Varea, A. Vandiel, V. Modica, B. Renou

17:30 End of Technical Sessions

18:00 Special Young Research Session and Pub Night*Session Chair : D. Dunn-Rankin***Moss Cove AB**

	(S3) – Dynamics of Large Scale Fire and Explosions – I <i>(C. Fernandez-Pello, & J. Puttock)</i>	(R5A) – Detonation Limits and Engine <i>(Piotr Wolanski)</i>	(R5B) – Shock Induced Combustion and Detonation <i>(O. Penyazkov)</i>	(R5C) – Blow-off and Extinction <i>(F. Baillot)</i>
08:30	333 <i>T. Blanchat, ...</i>			
09:10	221 <i>B. Magnussen,</i>	268 <i>M. Okamura, ..</i>	13 <i>J. Verreault, ...</i>	195 <i>M. Hirota, ...</i>
09:35	236 <i>A. Osorio, ...</i>	187 <i>N. Tsuboi, ...</i>	243 <i>S. Ilya, ...</i>	264 <i>K. Fujiwara, ...</i>
10:00	103 <i>H. Y. Wang, ...</i>	106 <i>D. Schwer, ...</i>	274 <i>T. Segawa, ...</i>	299 <i>M. Nishioka, ...</i>
10:25	132 <i>F. Ferrero, ...</i>	Poster-I: (D) 20, 25, 47, 64, 69, 86, 95, 100, 107, 114, 120, 121, 125, 130, 173, 190, 196, 217, 222, 228, 232, 258, 262, 266, 282, 286, 322, 331, 336; (E) 46, 72, 118, 189, 239, 281; (F) 12, 21, 30, 55, 82, 94, 109, 111, 169, 171, 183, 185, 200, 202, 204, 223, 290, 300, 323, 325, 332, 334, 340		
10:50	68 <i>Z. B. Chen, ...</i>			
11:15	Break			
	(S3) – Dynamics of Large Scale Fire and Explosions– II <i>(J.Wen & S.Dorofeev)</i>	(R6A) – Detonation Dynamics and Structure – I <i>(L. Bauwens)</i>	(R6B) – Gas Turbine Combustors <i>(Steven S. Shy)</i>	(R6C) – Electric Aspects of Combustion <i>(Paul Ronney)</i>
11:45	138 <i>J. Puttock, ...</i>	112 <i>M. Gui, ...</i>	102 <i>A. Ruiz, ...</i>	206 <i>A. Chukalovsky,</i>
12:10	250 <i>A. Poludnenko, .</i>	116 <i>S. Maeda, ...</i>	233 <i>P. Therkelsen, .</i>	302 <i>S. Karnani, ...</i>
12:35	247 <i>H. Pedersen, ..</i>	136 <i>C. Leung, ...</i>	314 <i>M. Akbarzadeh,</i>	201 <i>M. Belhi, ...</i>
13:00	Lunch			
	(S3) – Dynamics of Large Scale Fire and Explosions – III <i>(J.Wen & S.Dorofeev)</i>	(R7A) – Detonation Dynamics and Structure – II <i>(A. Matsuo)</i>	(R7B) – Dynamics of Ignition <i>(Detlef Markus)</i>	(R7C) – Laser Diagnostics <i>(R. Schießl)</i>
14:30	226 <i>M. Hadjipanayis,</i>	146 <i>J. Verreault,..</i>	32 <i>J. Regele, ...</i>	77 <i>C. Letty</i>
14:55	14 <i>P. Middha, ...</i>	242 <i>J. H.S. Lee, ...</i>	218 <i>O. Penyazkov,..</i>	90 <i>W. Meier</i>
15:20	44 <i>A. Kuhl, ..</i>	63 <i>K. Mazaheri, ...</i>	122 <i>C. Cardin, ...</i>	166 <i>N. Nakatsuka, .</i>
15:45	Break			
	(S3) – Dynamics of Large Scale Fire and Explosions–IV <i>(J.Wen & S.Dorofeev)</i>	(R8A) – Detonation Cell Structure – I <i>(Hoi Dick Ng)</i>	(R8B) – Detonation Initiation <i>(S. Medvedev)</i>	(R8C) – Diagnostics <i>(R. Schießl)</i>
16:15	148 <i>J. Chao, ...</i>	162 <i>B. Borzou, ...</i>	147 <i>B. Zhang, ...</i>	83 <i>M. Harker, ...</i>
16:40	149 <i>C. Bauwens, ..</i>	275 <i>K. Ishii, ...</i>	279 <i>A. Jesuthasan,..</i>	179 <i>D. Markus, ...</i>
17:05	283 <i>A. Heidari, ...</i>	280 <i>R. Mével, ...</i>	199 <i>H. Yamashita, .</i>	216 <i>J. Hayashi, ...</i>
17:30	301 <i>B. Fakandu, ..</i>	324 <i>M. Asahara, ..</i>	96 <i>Q. Wang, ...</i>	80 <i>C. Arndt, ...</i>
17:55	327 <i>R. K. Zipf, Jr., ..</i>	326 <i>M. Short, ...</i>	272 <i>S. Ishihara, ...</i>	139 <i>G. Agafonov, ...</i>
18:20	End			

08:30 (S3) – Dynamics of Large Scale Fire and Explosions – I**Pg. 59***Session Chair : Carlos Fernandez-Pello and Jonathan Puttock***Pacific Ballroom C**

- 08:30 333 (Mini Plenary: 40 min) Summary of the Phoenix Series Large Scale LNG Pool Fire Experiments
Thomas Blanchat, Paul Helmick, Richard Jensen, Anay Luketa, Regina Deola, Jill Suo-Anttila, Jeffery Mercier, Timothy Miller, Allen Ricks, Richard Simpson, Byron Demosthenous, Sheldon Tieszen, Michael Hightower
- 09:10 221 (Invited Talk) Computation of Large Scale Fires in Complex Geometries - a Means to Safeguard People and Structural Integrity in the Oil and Gas Industry
Bjørn F. Magnussen
- 09:35 236 Flame Spread Characteristics of Fire Retardant Fabrics
Andres F. Osorio, Chris Lautenberger, Carlos Fernandez-Pello, David Urban, Gary Ruff
- 10:00 103 Mathematical Modelling of a Large-Scale Ventilated Tunnel Fire
Hui Ying Wang
- 10:25 132 Prevention of the Explosion of Acetylene Cylinders Involved in Fire: Experiments and Simulations
F. Ferrero, M. Beckmann-Kluge, M. Kreißig, U. Schmidtchen, K. Holtappels
- 10:50 68 The Extension of Eddy Dissipation Concept in the Framework of Large Eddy Simulation and the Subsequent Modification
Z.B.Chen, J.X.Wen, B.P.Xu and S.Dembele

09:10 (R5A) – Detonation Limits and Engine**Pg. 60***Session Chair : Piotr Wolanski***Pacific Ballroom AB**

- 09:10 268 Numerical Investigation of H₂-O₂ Layered Detonation in Narrow Channel
Masatsugu Okamura, Akiko Matsuo
- 09:35 187 Numerical Simulation on Two-Dimensional Detonation Including Boundary Layer Effects
Nobuyuki Tsuboi, Youhi Morii, A. Koichi Hayashi, Mitsuo Koshi
- 10:00 106 Fuel Effects on Rotating Detonation Engines
Douglas A. Schwer, Kailas Kailasanath

09:10 (R5B) – Shock Induced Combustion and Detonation**Pg. 61***Session Chair : Oleg G. Penyazkov***Moss Cove AB**

- 09:10 13 Cellular Structure in an Oblique Detonation Wave
Jimmy Verreault, Matei I. Radulescu, Andrew J. Higgins
- 09:35 243 Numerical Modelling of Shock-to-Detonation Transition in Methane - Air Mixture
Ilya Semenov, Pavel Utkin, Nikita Demidov, Ilda Akhmedyanov
- 10:00 274 Numerical Investigation of Shock-Induced Combustion around a Cylindrical Body
Taku Segawa, Akiko Matsuo

09:10 (R5C) – Blow-off and Extinction**Pg. 62***Session Chair : Françoise Baillot***Woods Cove ABC**

- 09:10 195 Influences of Ultrasonic Waves on Blow-off Limits of Lifted Jet Flames
Mitsutomo Hirota, Takuya Tsuji, Yuji Nakamura, Tsutomu Saito

- 09:35 264 Experimental Study on near Extinction Behavior of Microflame in Preheated Air
Kakeru Fujiwara, Yuji Nakamura
- 10:00 299 Study on the Effect of Premixed Gas Addition on the Anti-Blow-Off Performance of Jet Diffusion Flame
Makihito Nishioka, Kosuke Miyazaki, Hiroki Takayama, Akane Uemichi

10:25 Poster Session I**Pg. 108***Session Chair : C. Regis Bauwens***Pacific Ballroom D****11:15 (B) – Coffee Break****11:45 (S3) – Dynamics of Large Scale Fire and Explosions – II****Pg. 63***Session Chair : Jennifer Wen and Sergey Dorofeev***Pacific Ballroom C**

- 11:45 138 (Invited Talk) DDT in Highly-congested Environments-the Buncefield Vapour Cloud Explosion
J.S. Puttock, A. Pekalski
- 12:10 250 (Invited Talk) Deflagration-to-Detonation Transition in Unconfined Media
A.Y. Poludnenko, T.A. Gardiner, E.S. Oran
- 12:35 247 Modelling of Flame Acceleration due to Intrinsic Instabilities in Industrial Scale Explosions
Helene H. Pedersen, Prankul Middha, Trygve Skjold, Kees van Wingerden, Bjørn J. Arntzen

11:45 (R6A) – Detonation Dynamics and Structure – I**Pg. 64***Session Chair : Luc Bauwens***Pacific Ballroom AB**

- 11:45 112 Periodic Oscillation and Fine Structure of Wedge-Induced Oblique Detonation Waves
Mingyue Gui, Baochun Fan, Zhihua Chen
- 12:10 116 Visualization of the Initiation and Stabilization Process of an Oblique Detonation Wave Around a Projectile
Shinichi Maeda, Jiro Kasahara, Akiko Matsuo
- 12:35 136 Coherent High Frequency Instabilities of Detonations
C. Leung, M.I. Radulescu, G.J. Sharpe

11:45 (R6B) – Gas Turbine Combustors**Pg. 65***Session Chair : Steven S. Shy***Moss Cove AB**

- 11:45 102 Effects of the Recess Length of a Coaxial Injector on a Transcritical LO₂/H₂ Jet Flame
A. Ruiz, T. Schmitt, L. Selle, B. Cuenot and T. Poinsot
- 12:10 233 Extension of LSI Functionality for Gas Turbine Applications
P. L. Therkelsen, D. Littlejohn, R. K. Cheng
- 12:35 314 Effect of Fuel Nozzle Geometry on the Stability of Non-premixed Turbulent Methane Flame
Mohsen Akbarzadeh and Madjid Birouk

11:45 (R6C) – Electric Aspects of Combustion**Pg. 66***Session Chair : Paul Ronney***Woods Cove ABC**

- 11:45 206 Two-dimensional Modeling of the Ignition Length Decrease in Hydrogen Mixture with Oxygen Excited in Electric Discharge
A.A.Chukalovsky, K.K.Klopovsky, M.A.Liberman, Yu.A.Mankelevich, N.A.Popov, O.V.Proshina and T.V.Rakhimova
- 12:10 302 Simulated Gravity Using Electric Fields in Microgravity Combustion
S. Karnani, D. Dunn-Rankin, F. Takahashi, Z-G. Yuan, D. Stocker
- 12:35 201 Numerical Simulation of the Effect of the Ion-driven Wind on Flame Stability
Memdouh Belhi, Pascale Domingo, Pierre Vervisch

13:00 (L) – Lunch**14:30 (S3) – Dynamics of Large Scale Fire and Explosions – III****Pg. 67***Session Chair : Jennifer Wen and Sergey Dorofeev***Pacific Ballroom C**

- 14:30 226 Radiation Based Initiation of Vapour Cloud Explosions
M. A. Hadjipanayis, F. Beyrau and R. P. Lindstedt
- 14:55 14 Effect of Initial Temperature on FA and DDT in H₂-air Mixtures: CFD Simulations & Validation against Experimental Data
Prankul Middha
- 15:20 44 Spherical Combustion Clouds in Explosions
Allen L. Kuhl, John B. Bell, Vincent E. Beckner and Kaushik Balakrishnan

14:30 (R7A) – Detonation Dynamics and Structure – II**Pg. 68***Session Chair : Akiko Matsuo***Pacific Ballroom AB**

- 14:30 146 Oscillations in Shock-Induced Combustion near Conical Projectiles
Jimmy Verreault, Andrew J. Higgins
- 14:55 242 Response of Cellular Detonations of Finite Perturbations
John H.S. Lee, Yannick Fortin
- 15:20 63 Numerical Study of Detonation Structure in a Channel with Porous Wall
K. Mazaheri, M. Sabzpooshani, Y. Mahmoudi, M. I. Radulescu

14:30 (R7B) – Dynamics of Ignition**Pg. 68***Session Chair : Detlef Markus***Moss Cove AB**

- 14:30 32 Acoustic Timescale Detonation Initiation in 2-D and its Relationship with the 1-D Description
Jonathan D. Regele, David R. Kassoy, Oleg V. Vasilyev
- 14:55 218 Auto-ignition at Shock-Wave Collisions in Hydrogen-Air Detonation
Oleg G. Penyazkov, Kirill L. Sevrouk, Khaled Alhusan
- 15:20 122 Experimental Analysis of Laser-Induced Spark Ignition of Lean Turbulent Premixed Flames
C. Cardin, B. Renou, G. Cabot, A. Boukhalfa

14:30 (R7C) – Laser Diagnostics**Pg. 69***Session Chair : R. Schießl***Woods Cove ABC**

- 14:30 77 Laser Spark Ignition and Flame Expansion in Swirl Burners Fuelled with n-heptane Sprays
C. Letty, E. Mastorakos, M. Juddoo, W. O'Loughlin, A. R. Masri
- 14:55 90 High-Speed Imaging Diagnostics Applied to the Study of Auto-Ignition of Methane Jets in a Hot Coflow
W. Meier, C.M. Arndt, J. Gounder, I. Boxx, K. Marr
- 15:20 166 Detection of Soot Incandescence and PAHs Fluorescence at the Proximity of the Inverse Diffusion Flames by Using Laser Diagnostics
Noriaki Nakatsuka, Yasushi Imoto, Jun Hayashi, Miki Taniguchi, Kenichi Sasauchi, Fumiteru Akamatsu

15:45 (B) – Coffee Break**16:15 (S3) – Dynamics of Large Scale Fire and Explosions – IV****Pg. 70***Session Chair : Jennifer Wen and Sergey Dorofeev***Pacific Ballroom C**

- 16:15 148 Estimating Blast Effects from an Accidental Release of High-Pressure Silane
J. Chao, C.R. Bauwens, S.B. Dorofeev
- 16:40 149 Effect of Vent Deployment Pressure and Panel Inertia on Vented Gaseous Explosions
C. Regis Bauwens, Sergey B. Dorofeev
- 17:05 283 Numerical Simulations of Large Scale Hemispherical and Pancake Cloud Detonation
A. Heidari, J.X. Wen
- 17:30 301 Explosion Venting and Mixture Reactivity Influences in a Small Vessel
B.M. Fakandu, R.M. Kasmani, G.E. Andrews, H.N. Phylaktou
- 17:55 327 Preliminary Large-scale DDT Experiments at NIOSH Lake Lynn Laboratory
R. K. Zipf, Jr., V. N. Gamezo, M. J. Sapko, W. P. Marchewka, K. M, Mohamed, E. S. Oran, D. A. Kessler, E. S. Weiss, J.D. Addis, F.A. Karnack, D.D. Sellers

16:15 (R8A) – Detonation Cellular Structure – I**Pg. 72***Session Chair : Hoi Dick Ng***Pacific Ballroom AB**

- 16:15 162 Influence of the Reaction-to-Induction Length Ratio on the Stability of Cellular Detonations
Bijan Borzou, Brian Maxwell, Matei I. Radulescu
- 16:40 275 On Cellular Pattern Formation in Detonation Propagation
Kazuhiro Ishii, Yuta Okitsu, Koji Morita, Shogo Sayama
- 17:05 280 Application of a Laser Induced Fluorescence Model to the Numerical Simulation of Detonation Waves
Rémy Mével, Dmitry Davidenko, Florian Pintgen, Joanna Austin, Joseph Shepherd
- 17:30 324 Detailed Shock Configuration of Cylindrical Cellular Detonation
Makoto Asahara, Nobuyuki Tsuboi, A. Koichi Hayashi, Eisuke Yamada
- 17:55 326 The Role of Cellular Structure on Increasing the Detonability Limits of Three-Step Chain-Branching Detonations
Mark Short, Charles B. Kiyanda, James J. Quirk, Gary J. Sharpe

16:15 (R8B) – Detonation Initiation**Pg. 73***Session Chair : Sergey P. Medvedev***Moss Cove AB**

- 16:15 147 Direct Measurement and Relationship between Critical Tube Diameter and Critical Energy for Direct Detonation Initiation
Bo Zhang, Hoi Dick Ng and John H.S. Lee
- 16:40 279 Near-limit Propagation of Detonations in Annular Channels
Anne Jesuthasan, Aloïs Joassard, Hoi Dick Ng, John H.S. Lee
- 17:05 199 Visualization Study of Detonation Initiations Behind Reflected Shock Waves Using a High Speed Video Camera
Hiroki Yamashita, Jiro Kasahara, Akiko Matsuo
- 17:30 96 High Speed Stereoscopic Shadowgraph and Its Digital 3D Reconstruction
Q. Wang, Y. Zhang
- 17:55 272 Onset of Detonation by Forced Ignition behind an Incident Shock Wave
S. Ishihara, T. Kojima, K. Ishii, H. Kataoka

16:15 (R8C) – Diagnostics**Pg. 74***Session Chair : R. Schießl***Woods Cove ABC**

- 16:15 83 Measurements of the Three Dimensional Structure of Flames at Low Turbulence
M.R. Harker, M. Lawes, C.G.W. Sheppard, N. Tripathi and R. Woolley
- 16:40 179 Investigation of the Ignition by Repetitive Streamer Discharges Using Time-resolved OH LIF Measurements
Detlef Markus, Aljoscha Hallermann, Tim Langer, Frank Lienesch, Ulrich Maas
- 17:05 216 Effects of the Width of Droplet Size Distribution on Soot Formation in Spray Flame
Jun Hayashi, Junichi Fukui, Noriaki Nakatsuka, Fumiteru Akamatsu
- 17:30 80 Influence of Heat Release on Swirl Flow Dynamics From High Speed Laser Measurements in a Gas Turbine Model Combustor
Christoph M. Arndt, Adam M. Steinberg, Isaac G. Boxx, Wolfgang Meier, Manfred Aigner
- 17:55 139 Effect of Iron Pentacarbonyl on Soot Formation behind Shock Waves
G. L. Agafonov, V. N. Smirnov and P. A. Vlasov

18:20 End

	(S4) – Supercritical Combustion – I <i>(J. Oefelein)</i>	(R9A) – Detonation Cellular Structure–II <i>(Mark Short)</i>	(R9B) – Flame Ignition and Quenching – I <i>(E. Mastorakos)</i>	(R9C) – Premixed Flames Structures <i>(F. Baillot)</i>
08:30	213 <i>S. Candel, ...</i>			
09:10	244 <i>I. Leyva, ...</i>	67 <i>C. Johansen, ..</i>	11 <i>S. Ahmed, ...</i>	22 <i>H. C. Lin, ...</i>
09:35	335 <i>G. Ribert, ...</i>	73 <i>F. Ettner, ...</i>	60 <i>S. Bane, ...</i>	93 <i>G. Garcia-Soriano</i>
10:00	338 <i>K. J. Kim, ...</i>	145 <i>H. D. Ng, ...</i>	172 <i>C. C. Liu, ...</i>	307 <i>M. Shimura, ...</i>
10:25	Break			
	(S4) – Supercritical Combustion – II <i>(H. G. Sung)</i>	(R10A) – Detonation with Confinement <i>(B. C. Fan)</i>	(R10B) – Flame Ignition and Quenching – II <i>(E. Mastorakos)</i>	(R10C) – Flame Structures <i>(R. K. Cheng)</i>
10:55	341 <i>J. Bellan</i>	37 <i>A. Chinnayya, ...</i>	92 <i>Q. Wang, ...</i>	194 <i>K. Takase,</i>
11:20	284 <i>J. Oefelein, ...</i>	51 <i>L. Munier</i>	339 <i>B. Colcord, ...</i>	66 <i>T. Dunstan, ...</i>
11:45	181 <i>L. Hakim, ..</i>	59 <i>N. Polley, ...</i>	319 <i>P. Sharma,...</i>	178 <i>A. Uemichi, ...</i>
12:10	End			

08:30 (S4) – Supercritical Combustion – I**Pg. 76***Session Chair : Joseph C. Oefelein***Pacific Ballroom C**

- 08:30 213 (Topical Review: 40 min) Progress in Transcritical Combustion : Experimentation, Modeling and Simulation
S. Candel, T. Schmitt, N. Darabiha
- 09:10 244 Shear Coaxial Jets Subjected to an External Acoustic Field
Ivett A. Leyva, Doug Talley, Sophonias Teshome, Juan Rodriguez, Jeffrey Graham
- 09:35 335 Supercritical Fluid Flow in Rocket Motor Engines
Guillaume Ribert, Hongfa Huo, Vigor Yang
- 10:00 338 Theoretical and Numerical Investigation for Kerosene Mixing in a Swirl Injector at Supercritical Conditions
Kuk-Jin Kim, Jun-Young Heo, Hong-Gye Sung, Vigor Yang

09:10 (R9A) – Detonation Cellular Structure – II**Pg. 77***Session Chair : Mark Short***Pacific Ballroom AB**

- 09:10 67 Large Eddy Simulation of Flame Acceleration in an Obstructed Channel
Craig Johansen and Gaby Ciccarelli
- 09:35 73 Mach Reflection in Detonations Propagating through a Gas with a Mixture Gradient
F. Ettner, K.G. Vollmer and T. Sattelmayer
- 10:00 145 Geometrical Characterization of the Reaction Front in Gaseous Detonations Using Fractal Theory
Hoi Dick Ng, Hamid Ait Abderrahmane, Kevin R. Bates, Nikos Nikiforakis

09:10 (R9B) – Flame Ignition and Quenching – I**Pg. 77***Session Chair : E. Mastorakos***Moss Cove AB**

- 09:10 11 Ignition Probability of Lean Premixed Bluff-Body Flames
S. F. Ahmed, E. Mastorakos
- 09:35 60 Spark Ignition of Kerosene-Air Mixtures
Sally P. M. Bane, Stephanie A. Coronel, Philipp A. Boettcher, Joseph E. Shepherd
- 10:00 172 A New Look at Global Quenching of Premixed Flames by Turbulence
C. C. Liu, S. S. Shy, M. W. Peng, Y. C. Dong

09:10 (R9C) – Premixed Flames Structures**Pg. 78***Session Chair : K. Maruta***Woods Cove ABC**

- 09:10 22 A Stable Premixed Methane/Air Sub-Lean Flame Stabilized by Lean Sandwich Flames
Ho-Chuan Lin, Yueh-Heng Li and Yei-Chin Chao
- 09:35 93 Burning Velocity of Premixed Flame Tips: Experimental and Numerical Study
G. Garcia-Soriano, F. J. Higuera, J. L. Castillo, P. L. Garcia-Ybarra
- 10:00 307 Measurement of Flame and Flow Structures of Turbulent Jet Premixed Flame by Simultaneous Triple-Plane PLIF and Dual-Plane Stereoscopic PIV
Masayasu Shimura, Ayane Johchi, Gyung-Min Choi, Kaoru Iwamoto, Mamoru Tanahashi, Toshio Miyauchi

10:25 (B) – Coffee Break

10:55 (S4) – Supercritical Combustion – II**Pg. 79***Session Chair : H. G. Sung***Pacific Ballroom C**

- 10:55 341 Species Mixing under Supercritical Pressure Conditions
Josette Bellan
- 11:20 284 Low Temperature Injection Dynamics and Turbulent Flame Structure in High-Pressure Supercritical Flows
Joseph C. Oefelein, Guilhem Lacaze
- 11:45 181 Numerical Simulation of Cryogenic Flames under High Frequency Acoustic Modulation
L. Hakim, T. Schmitt, S. Ducruix and S. Candel

10:55 (R10A) – Detonation with Confinement**Pg. 80***Session Chair : Baochun Fan***Pacific Ballroom AB**

- 10:55 37 Computational Study of Detonation-wave Propagation in Narrow Channels
Ashwin Chinnayya and Abdellah Hadjadj
- 11:20 51 Experimental Study of Closed Volume Detonation
Laurent Munier
- 11:45 59 Experimentally Observed Methods of Re-initiation During Detonation Diffraction into a Confined Volume
Nolan Polley, Miles Q. Egbert, Eric L. Petersen

10:55 (R10B) – Flame Ignition and Quenching – II**Pg. 81***Session Chair : E. Mastorakos***Moss Cove AB**

- 10:55 92 3D Visualisation of Diffusion Flame Structure and Dynamics under Acoustic Excitation
Qian Wang, Yang Zhang, Hao Jie Tang, Min Zhu
- 11:20 339 Flame Stabilization with Fuel Injection into a Cavity Adjacent to a Curved, Converging Air-flow Channel
Ben J. Colcord, Feng Liu and William A. Sirignano
- 11:45 319 Parametric Numerical Studies on Auto-Ignition around a Single Fuel Droplet
Pratyush Sharma, Robert Schießl, Ulrich Maas

10:55 (R10C) – Flames Structures**Pg. 82***Session Chair : R. K. Cheng***Woods Cove ABC**

- 10:55 194 Radiative Extinction Characteristics of Low-Lewis-Number Counterflow Premixed Flame in Microgravity and Its Correlation with Flame Ball
Koichi Takase, Hisashi Nakamura, Takuya Tezuka, Susumu Hasegawa, Xing Li, Philip Wang, Kaoru Maruta
- 11:20 66 Flame Surface Density Measurements in Interacting Premixed Flames Using Experiment and DNS
T.D. Dunstan, F. T. C. Yuen, E. Mastorakos, N. Swaminathan, K. N. C. Bray
- 11:45 178 Numerical Study on Ultra-Lean Premixed Flame in Swirl Flow with Recirculating of Burned Gas including Active Radicals
Akane Uemichi, Yasuo Kondo, Makihito Nishioka

12:10 End

	(S5) – Detonation Analog – I (A. Higgins)	(R11A) – Detonation Propagation (J. Chao)	(R11B) – Detonation Structure: General (V. N. Gamezo)	(R11C) – Turbulent Premixed Flames (V. McDonell)
09:00	289 Aslan Kasimov	71 X. -D. Zhang, ...	108 M. Liu, ..	184 W.Ramaekers,
09:25		98 M. Wakita, ..	58 T. Honda, ...	126 V. Robin, ...
09:50	277 C. Kiyanda, ...	193 H. Nakayama, .	219 G. Cheng, ...	273 I. Ahmed, ...
10:15	137 M. Radulescu, .	278M.Lopez-Aoyagi	259 D. -R. Cho, ...	186 P. Auzillon, ...
10:40	Break			
	(S5) – Detonation Analog – II (A. Higgins)	Poster Session II with WIP (Francesco S. Marra)		
11:10	251 N. Sirmas, ...	Poster-II: (D) 52, 160, 208, 225, 295; (F) 6, 7, 15, 35, 36, 39, 40, 48, 75, 87, 170, 175, 191, 212, 215, 241, 263, 294, 311, 321 WIP: (D) 353, 360, 363, 366, 368; (E) 347, 349; (F) 343, 344, 345, 346, 348, 355, 358, 361, 362, 364, 365, 367, 369, 374, 380		
11:35	320 A. Higgins, ...			
12:00	Lunch			
	(S6) – Verification and Validation of Detonation Simulation – I (M. Radulescu and J. Powers)	(R12A) – Detonation Front Structure (E. S. Oran)	(R12B) – Detonation Initiation and Transmission (A. Matsuo)	(R12C) – Turbulent Non-Premixed and Stratified Flames (F. Baillot)
13:30	Topical Review J. Powers	134 B. Khasainov, ..	65 J.-S. Grondin, ..	235 R. Vicquelin, ..
13:55	156R.Bhattacharjee	214 B. Khasainov, ..	99 W. -C. Kuo, ...	168 M. Pasternak, ..
14:20	293 J. Ziegler, ...	267 D. Kessler, ...	115 B. Maxwell, ...	142 S. Malkeson, ..
14:45	62 K. Mazaheri, ..	240 L. Maley, ...	128 S. Khomik, ...	123 J. Tillou, ...
15:10	Break			
	(S6) – Verification and Validation of Detonation Simulation – II (M. Radulescu and J. Powers)	(R13A) – High Speed Flames (J. Chao)	(R13B) – Chemical Kinetics and Reaction Dynamics – I (U. Mass)	(R13C) – Hydrogen Combustion (O. Penyazkov)
15:40	89 L. Cole, ...	165 R. Porowski, ...	276 J. Melguizo-Gavilanes, ...	174 H. Lee, ...
16:05	29 M. Papalexandris, ...	167 W. -K. Kim, ...	285 Bert Debusschere,.	249 N. Rezaeyan, ..
16:30	33 C. Romick,...	291 G. Cheng, ...	304 F. Marra, ...	238 U. Niemann, ...
16:55		229 S. Golovastov, .	198 V. Bykov, ...	248 F. Welzel, ...
17:20	End			

09:00 (S5) – Detonation Analog – I**Pg. 84***Session Chair : John H. S. Lee***Doheny Beach AB**

- 09:00 289 *(Topical Review: 50 min) On Detonation Analogs*
Aslan Kasimov
- 09:50 277 *Dynamic Behaviour of Analog Detonation Systems*
C.B. Kiyanda, H.D. Ng
- 10:15 137 *Non-linear Dynamics and Route to Chaos in Fickett's Detonation Analogue*
Matei I. Radulescu, Justin Tang

9:00 (R11A) – Detonation Propagation**Pg. 84***Session Chair: J. Chao***Pacific Ballroom AB**

- 09:00 71 *Experimental and Numerical Study on Detonation Propagating in an Annular Cylinder*
Xudong Zhang, Baochun Fan, Zhenhua Pan, Mingyue Gui, Zhihua Chen
- 09:25 98 *Planar Toroidal Detonation Propagation through Gradual Expanding Channel*
Masashi Wakita, Masayoshi Tamura, Akihiro Terasaka, Kazuya Sajiki, Tsuyoshi Totani and Harunori Nagata
- 09:50 193 *Study on Detonation Waves Propagating through Curved Channels*
H. Nakayama, T. Moriya, J. Kasahara, A. Matsuo, Y. Sasamoto and I. Funaki
- 10:15 278 *Stability of Chain Branched Detonation Waves with Slow Initiation*
Megumi Lopez-Aoyagi, Josue Melguizo-Gavilanes and Luc Bauwens

9:00 (R11B) – Detonation Structure: General**Pg. 85***Session Chair : V. N. Gamezo***Moss Cove AB**

- 09:00 108 *Three Dimensional Simulation for the Effects of Fuel Injection Patterns in Rotating Detonation Engine*
Meng Liu, Jian-Ping Wang
- 09:25 58 *Experiments on Hydrodynamic Stability of Laser-Driven Detonations in Nitrogen and Helium Gases*
Tomohisa Honda, Akira Kawaguchi, Yoshiki Hanta, Akio Susa, Shinichi Namba, Takuma Endo, Hiroyuki Shiraga, Keisuke Shigemori and Mayuko Koga
- 09:50 219 *Detonation Characteristics in Tube Filled with the Binary Fuels H₂/C₃H₈-Air Mixtures*
Guanbing Cheng, Ratiba Zitoun, Pascal Bauer
- 10:15 259 *Reynolds Number Effects on the Structure and Stability of Highly Unstable Detonation Wave*
Deok-Rae Cho, Kiha kang, Jae-Ryul Shin, Jeong-Yeol Choi

9:00 (R11C) – Turbulent Premixed Flames**Pg. 86***Session Chair : V. McDonell***Woods Cove ABC**

- 09:00 184 *Subgrid Analysis of DNS of Stratified Bunsen Flames*
W.J.S. Ramaekers, J.A. van Oijen, L.P.H. de Goey
- 09:25 126 *Algebraic Models for Turbulent Transports in Flames : Applications to Stagnating and 2D Premixed Flames*
Vincent Robin, Arnaud Mura, Michel Champion
- 09:50 273 *Effects of Mean Curvature on Flame Propagation*
I. Ahmed, N. Swaminathan

- 10:15 186 A Filtered Tabulated Chemistry Model for LES of Partially-premixed Flames
P. Auzillon, O. Gicquel, N. Darabiha, D. Veynante, B. Fiorina

10:40 (B) – Coffee Break

11:10 (S5) – Detonation Analog – II

Pg. 87

Session Chair : *John H. S. Lee*

Doheny Beach AB

- 11:10 251 Molecular Dynamics Simulations of Detonations
Nick Sirmas, Matei Radulescu
- 11:35 320 Shock-like and Detonation-like Waves in One-dimensional Lattice Chains
Andrew Higgins

11:10 Poster Session II and WIP

Pg. 126

Session Chair : *Francesco S. Marra*

Pacific Ballroom D

12:00 Lunch

13:30 (S6) – Verification and Validation of Detonation Simulation – I

Pg. 87

Session Chair : *M. Radulescu and J. Powers*

Doheny Beach AB

- 13:30 (Topical Review) Outstanding Issues in Verification and Validation of Compressible Reacting Flow Calculations
J.M. Powers
- 13:55 156 Detonation Wave Attenuation by a Cylinder and the Subsequent Re-initiation Regimes
R. Bhattacharjee, G. Maines, L. Maley and M.I. Radulescu
- 14:20 293 Verification and Direct Numerical Simulation of Irregular Hydrocarbon Detonations
Jack L. Ziegler, Ralf Deiterding, Joseph E. Shepherd, D. I. Pullin, G. Blanquart
- 14:45 62 Diffusion in Gaseous Detonations
K. Mazaheri, Y. Mahmoudi, M. I. Radulescu

13:30 (R12A) – Detonation Front Structure

Pg. 88

Session Chair : *E. S. Oran*

Pacific Ballroom AB

- 13:30 134 Three-Dimensional Structure of Detonations in Suspensions of Aluminum Particles
B. Khasainov, F. Viro, B. Veyssiere
- 13:55 214 Parametric Study of Double Cellular Detonation Structure
B.A. Khasainov, F. Viro, H.-N. Presles, D. Desbordes
- 14:20 267 Detonation Propagation through a Gradient in Fuel Composition
D.A. Kessler, V.N. Gamezo, E.S. Oran
- 14:45 240 Experimental Implementation of a Converging Diverging Nozzle Technique to Study Shock Reflections in Reactive Gases
L. Maley, J. Armstrong and M.I. Radulescu

13:30 (R12B) – Detonation Initiation and Transmission**Pg. 89***Session Chair : Akiko Matsuo***Moss Cove AB**

- 13:30 65 The Onset of Detonation in Mixtures with Regular and Irregular Detonation Cellular Structures
J.-S. Grondin, J.H.S. Lee
- 13:55 99 Effects of Nitrogen Dilution on Detonation Transmission across a Sudden Expansion in a Millimeter-scale Channel
Wei-Chun Kuo, Po-Yuan Chiu, Ming-Hsun Wu
- 14:20 115 Critical Ignition in Rapidly Expanding Flows Described by a Power Law
B.M. Maxwell, M.I. Radulescu
- 14:45 128 On Some Conditions of Detonation Initiation behind a Multi-Orifice Plate
S.V. Khomik, B. Veyssiere, V. Montassier, S.P. Medvedev, G.L. Agafonov

13:30 (R12C) – Turbulent Non-Premixed and Stratified Flames**Pg. 90***Session Chair : F. Baillot***Woods Cove ABC**

- 13:30 235 A Turbulent Combustion Model for Jet Flames Issuing in a Vitiated Coflow
Ronan Vicquelin, Benoit Fiorina and Olivier Gicquel
- 13:55 168 Time Dependent Based Mixing Time Modelling for Diesel Engine Combustion Simulations
M. Pasternak, F. Mauss, F. Lange
- 14:20 142 Statistical Analysis and Modelling of Turbulent Fuel Mass Fraction Flux in Turbulent Stratified Flames Using Direct Numerical Simulations
Sean P. Malkeson, Nilanjan Chakraborty
- 14:45 123 Large-Eddy Simulation of an Auto-Igniting Liquid Diesel-Type Spray
J. Tillou, C. Angelberger, J. B. Michel, A. Robert, L. Martinez, S. Richard, D. Veynante

15:10 (B) – Coffee Break**15:40 (S6) – Verification and Validation of Detonation Simulation – II****Pg. 91***Session Chair : M. Radulescu and J. Powers***Doheny Beach AB**

- 15:40 89 Stability of Flame-Shock Coupling in Detonation Waves: 1D Dynamics
Lord K. Cole, Ann R. Karagozian, Jean-Luc Cambier
- 16:05 29 Numerical Study of Detonation Suppression with Chemical Inhibitors
Miltiadis V. Papalexandris and Quentin Steisel
- 16:30 33 Verified Calculation of Nonlinear Dynamics of Viscous Detonation
Christopher M. Romick, Tariq D. Aslam and Joseph M. Powers

15:40 (R13A) – High Speed Flames**Pg. 92***Session Chair : J. Chao***Pacific Ballroom AB**

- 15:40 165 Experimental Study on Premixed Flame Propagation in Small Channel
Rafal Porowski, Andrzej Dabkowski, Andrzej Teodorczyk, Felipe Alfonso Galvis Millan
- 16:05 167 Effects of Hydrogen Addition on Flame Propagation and Blast Wave Generation during Explosion of Methane-air Mixtures
Woo-Kyung Kim, Toshio Mogi, Ritsu Dobashi

- 16:30 291 High-speed Camera Visualizations of Flame Acceleration in a Square Channel with Obstacles: the Case of Binary Fuels H_2/C_3H_8 -Air mixture
Guanbing Cheng, Ratiba Zitoun, Yves Sarrazin, Alain Claverie, Pierre Vidal, Bernard Veyssiere, Pascal Bauer
- 16:55 229 Influence of Diaphragm on Self-Ignition of Hydrogen at Spontaneous Release into Air
Sergey Golovastov, Victor Golub, Dmitry Baklanov, Vladimir Bocharnikov

15:40 (R13B) – Chemical Kinetics and Reaction Dynamics – I**Pg. 93***Session Chair : Ulrich Mass***Moss Cove AB**

- 15:40 276 Shock-induced Ignition for Simplified Chain-branching Kinetics
Josue Melguizo-Gavilanes, Mingjun Tian, Luc Bauwens, Zhenhua Pan
- 16:05 285 Computational Singular Perturbation with Non-Parametric Tabulation of Slow Manifolds for Time Integration of Stiff Chemical Kinetics
Bert Debusschere, Youssef Marzouk, Habib Najm, Dimitris Goussis, Mauro Valorani
- 16:30 304 Non-linear Response to Periodic Forcing of Methane-air Global and Detailed Kinetics in Perfectly Stirred Reactors
Francesco Saverio Marra, Emanuele Martelli
- 16:55 198 An Analysis of the Attractive Properties of REDIM Manifolds for Model Reduction
Viatcheslav Bykov, Ulrich Maas

15:40 (R13C) – Hydrogen Combustion**Pg. 94***Session Chair : Oleg G. Penyazkov***Woods Cove ABC**

- 15:40 174 Self-ignition and Flame Propagation of Pressurized Hydrogen by Sudden Release through a Tube
Hyoungh Jin Lee, Sei Hwan Kim, Yeong Ryeon Kim, In-Seuck Jeung
- 16:05 249 Influence of Lewis Number and Expansion on Jet Ignition
N. Rezaeyan, L. Bauwens, M. Radulescu, F.F. Fachini
- 16:30 238 Extinction and Auto-Ignition of C_3 and C_4 Alcohols in Laminar Nonpremixed Flows
Ulrich Niemann, Kalyanasundaram Seshadri, Forman A. Williams
- 16:55 248 Limiting Values for the Ignition of Hydrogen/Air Mixtures by Mechanically Generated Ignition Sources
F. Welzel, M. Beyer, C. -P. Klages

17:20 End

	(S7) – Supersonic Combustion – I (A. Higgins)	(R14A) – Detonation and High Speed Flames: Applications (T. Endo)	(R14B) – Chemical Kinetics and Reaction Dynamics – II (U. Riedel)	(R14C) – Reacting Flow Dynamics – I (T. Dunstan)
09:00	296 V. Yang, ...	88 R. Zhou, ...	16 K. Urness, ...	79 M. Akram, ...
09:25	318 C. Segal, ..	211 P. Wolański	57 Y. Mizobuchi, ...	91 H. -W. Ge, ...
09:50	117 K. Takita	158 S. -W. Lo, ...	176 O. Skrebkov, ..	105 S. Amzin, ...
10:15	Break			
	(S7) – Supersonic Combustion – II (J.Y. Choi and V. Yang)	(R15A) – Explosion and Blast (S. Medvedev)	(R15B) – Chemical Kinetics and Reaction Dynamics – III (O. Mathieu)	(R15C) – Reacting Flow Dynamics – I (T. Dunstan)
10:45	155 K. -C. Lin, ...	38 E. Del Prete,...	312 Y. -H. Li, ..	135 C. Merlin, ...
11:10	45 S. Tomioka, ...	42 E. Fedina, ...	26 T. Kathrotia, ...	164 P. Gillon, ...
11:35	161 S. Yang,	305 S. Jackson, ...	252 M. Hilbig,	224 T. Hirasawa, ..
12:00	Lunch			
	(S7) – Supersonic Combustion – III (J.Y. Choi and V. Yang)	(R16A) – Accidental Explosions and Energetic Materials (C. R. Bauwens)	(R16B) – Multiphase Detonation (M. Short)	(R16C) – Numerical Development (F. S. Marra)
13:30	34 C. Fureby, ..	253 D.Castellanos,	18 K. Balakrishnan,.	101 C. Safta, ...
13:55	97 L. Gomet, ..	257 J. Damazo, ...	205T. Shimada, ..	78 C. Schrödinger, .
14:20	154 J. -Y.Choi, ...	8 R. Ball, ...	17 A. Ishihara, ...	192 D. Tudorache,..
14:45		297 Y. Charron-Tousignant,	315 R. C. Ripley	197 M. Folusiak, ...
15:10	Break			
		(R17A) – Meso - scale Combustion (M. -H. Wu)	(R17B) – Flame Extinction (A. Mura)	(R17C) – Numerical Simulations (F. S. Marra)
15:40		237 G.Watson, ...	84 J. Min, ...	19 A. Teraji, ...
16:05		306 C. -H. Chen, ...	316 K. Seshadri, ...	151 N. Malik, ...
16:30	End			

09:00 (S7) – Supersonic Combustion – I**Pg. 96***Session Chair : J.Y. Choi and V. Yang***Pacific Ballroom C**

- 09:00 296 Hypersonic Proulsion and Supersonic Combustion: Review on Current Status for the Future
Vigor Yang and Jeong-Yeol Choi
- 09:25 318 Injection Schemes for Improved Flameholding in Supersonic Flow
Corin Segal and Qiuya Tu
- 09:50 117 Ignition by Plasma Jet in Supersonic Flow
Kenichi Takita

9:00 (R14A) – Detonation and High Speed Flames: Applications**Pg. 96***Session Chair: Takuma Endo***Pacific Ballroom AB**

- 09:00 88 Thermodynamic Performance Numerical Simulation of Rotating Detonation Engine
Rui Zhou and Jian-ping Wang
- 09:25 211 Rotating Detonation Wave Stability
Piotr Wolański
- 09:50 158 Numerical Study of the Noise Generation by a Rifle Shooting with Suppressor
Shi-Wei Lo, Chang-Hsien Tai, Jyh-Tong Teng and Yong-Jhou Lin

9:00 (R14B) – Chemical Kinetics and Reaction Dynamics – II**Pg. 97***Session Chair : Uwe Riedel***Moss Cove AB**

- 09:00 16 Hydrogen Rich Syngas Oxidative Catalytic Activity of Nickel and Inconel
Kimberly N. Urness, John W. Daily and G. Barney Ellison
- 09:25 57 Effects of Flame Curvature on Chemical Reactions in Rich Hydrogen-Air Premixed Flame
Yasuhiro Mizobuchi, Tadao Takeno, Shingo Matsuyama, Junji Shinjo, Satoru Ogawa
- 09:50 176 Vibrational Nonequilibrium and Electronical Excitation in the Hydrogen-Oxygen Reaction
Oleg V. Skrebkov

9:00 (R14C) – Reacting Flow Dynamics – I**Pg. 98***Session Chair : T. D. Dunstan***Woods Cove ABC**

- 09:00 79 Experimental Studies on the Dynamics of Premixed Methane-Air Flames in Various Aspect Ratio Channels
Mohammad Akram, Sudarshan Kumar
- 09:25 91 Joint Velocity-Scalar PDF Modeling of Turbulent Spray Flows
Hai-Wen Ge and Eva Gutheil
- 09:50 105 Conditional Moment Closure for Turbulent Premixed Flames
S. Amzin, N. Swaminathan, J. W. Rogerson, J. H. Kent

10:15 (B) - Coffee Break

10:45 (S7) – Supersonic Combustion – II**Pg. 99***Session Chair : J.Y. Choi and V. Yang***Pacific Ballroom C**

- 10:45 155 Exploration on Unsteady and Transient Combustion Phenomena in High-Speed Air-Breathing Propulsion
Kuo-Cheng Lin, Vigor Yang
- 11:10 45 Interaction Phenomena in Supersonic Combustors
Sadatake Tomioka, Ryo Masumoto
- 11:35 161 Scramjet Engine Research of KARI : Ground Tests of Engines and Components
Soo Seok Yang, Sang Hun Kang, Yang Ji Lee

10:45 (R15A) – Explosion and Blast**Pg. 100***Session Chair : Sergey P. Medvedev***Pacific Ballroom AB**

- 10:45 38 Numerical Simulation and Experimental Investigation of Blast Wave Mitigation in Dry Aqueous Foams
E. Del Prete, L. Domergue, J.-F. Haas, A. Chinnayya, A. Hadjadj
- 11:10 42 Investigating Ground Effects on Mixing and Afterburning During a TNT Explosion
Ekaterina Fedina and Christer Fureby
- 11:35 305 Planar Blast Scaling with Condensed-Phase Explosives in a Shock Tube
Scott I. Jackson

10:45 (R15B) – Chemical Kinetics and Reaction Dynamics – III**Pg. 100***Session Chair : Oliver Mathieu***Moss Cove AB**

- 10:45 312 Effect of Catalyst Segmentation with Cavities on Combustion Enhancement of Multi-Fuels in a Micro Channel
Yueh-Heng Li, Guan-Bang Chen, Tsarng-Sheng Cheng, Yei-Chin Chao
- 11:10 26 Reaction Kinetics Mechanism for Chemiluminescent Species
Trupti Kathrotia, Uwe Riedel
- 11:35 252 Computer Aided Detailed Mechanism Generation for Large Hydrocarbons: n-Decane
Martin Hilbig, Lars Seidel, Xiaoxiao Wang, Fabian Mauss and Thomas Zeuch

10:45 (R15C) – Reacting Flow Dynamics – II**Pg. 101***Session Chair : T. D. Dunstan***Woods Cove ABC**

- 10:45 135 Large Eddy Simulation and Experimental Study of a Trapped Vortex Combustor
C. Merlin, P. Domingo, L. Vervisch, J. Burguburu, G. Cabot, B. Renou
- 11:10 164 Stability of Laminar Diffusion Flames of Methane in an Oxygen-enriched Air Co-jet
P. Gillon, M. Chahine, B. Sarh, V. Gilard, J.N. Blanchard
- 11:35 224 Impact of Flame-Flame Interaction in Identical Two Non-premixed Microflames
Taro Hirasawa, Kunihiko Gotanda, Hiroki Masuda, Yuji Nakamura

12:00 Lunch

13:30 (S7) – Supersonic Combustion – III**Pg. 102***Session Chair : J.Y. Choi and V. Yang***Pacific Ballroom C**

- 13:30 34 Modeling Supersonic Combustion
C. Fureby and V. Sabel'nikov
- 13:55 97 Influence of the Residence and Scalar Mixing Time Scales in Non Premixed Combustion in Supersonic Turbulent Flows
Laurent Gomet, Vincent Robin, Arnaud Mura
- 14:20 154 Numerical Study of H₂+CO Turbulent Combustion with Supersonic Coflow in Confined Geometries
Jeong-Yeol Choi and Vigor Yang

13:30 (R16A) – Accidental Explosions and Energetic Materials**Pg. 103***Session Chair : C. Regis Bauwens***Pacific Ballroom AB**

- 13:30 253 Simulating Dust Explosion Venting Through Ducts
Diana Castellanos, Trygve Skjold, Kees van Wingerden, Rolf K. Eckhoff and Sam Mannan
- 13:55 257 Deformation of Coated Stainless Steel Tubes from Reflected Detonation
J. Damazo, J.E. Shepherd, K. Chow-Yee, J. Karnesky
- 14:20 8 Nonclassical Thermal Runaway: The Bhopal Disaster and Liquid Hydroperoxide Explosives
R. Ball
- 14:45 297 Activation Effects on the Deflagration Speeds in Ni-Al
Y. Charron-Tousignant, B. Barrett, M. Yandouzi, M. Radulescu, A. Weck, J.J. Lee

13:30 (R16B) – Multiphase Detonation**Pg. 104***Session Chair : Mark Short***Moss Cove AB**

- 13:30 18 An Empirical Model for the Ignition of Aluminum Particle Clouds Behind Blast Waves
Kaushik Balakrishnan, Allen L. Kuhl, John B. Bell, Vincent E. Beckner
- 13:55 205 Numerical Study on the Ethanol/Air Two-phase Detonation
Takashi Shimada, Eisuke Yamada, A.Koichi Hayashi and Nobuyuki Tsuboi
- 14:20 17 The Burning Surface Temperature and Boiling Point of Ammonium Nitrate
Atsushi Ishihara
- 14:45 315 Effect of Aerodynamic Breakup on Combustion of Aluminum Particles from Heterogeneous Explosives
Robert C. Ripley and Fan Zhang

13:30 (R16C) – Numerical Development**Pg. 105***Session Chair : Francesco Saverio Marra***Woods Cove ABC**

- 13:30 101 A High-Order AMR Algorithm for Chemically Reacting Flows
Cosmin Safta, Jaideep Ray, Habib N. Najm
- 13:55 78 Numerical Studies of the Influence of Turbulence and Coherent Structures on Flame and Emission Characteristics in Lean Premixed Combustion
C. Schrödinger, C. O. Paschereit, M. Oevermann
- 14:20 192 Development of a Chemical Kinetics Tabulation Method for the Prediction of Diesel Engine Pollutants
D.E.Tudorache, P. Auzillon, L. Thobois, N. Darabiha, R. Vicquelin, O. Gicquel, B. Fiorina

14:45 197 Graphics Processors as a Tool for Rotating Detonation Simulations
Michal Folusiak, Karol Swiderski, Arkadiusz Kobiera, Piotr Wolanski

15:10 (B) – Coffee Break

15:40 (R17A) – Mesoscale Combustion

Pg. 106

Session Chair : Ming-Hsun Wu

Pacific Ballroom AB

15:40 237 The Effect of Mixture Composition on Stabilized Flames in a Meso-scale Channel with a Wall Temperature Gradient
Graeme M.G.Watson, Jeffrey M. Bergthorson

16:05 306 Effects of Scale on Non-Adiabatic Swiss-roll Heat-Recirculating Combustors
Chien-Hua Chen and Paul Ronney

15:40 (R17B) – Flame Extinction

Pg. 106

Session Chair : Arnaud Mura

Moss Cove AB

15:40 84 Experimental Investigation on Flame Extinction Process of Non-premixed CH₄/air Flames in an Air-diluted Coflow by CO₂, N₂ or Ar
Jiesheng Min, Françoise Baillet

16:05 316 Rate Ratio Asymptotic Analysis of the Structure and Mechanisms of Extinction of Nonpremixed CH₄/N₂-O₂/N₂O/N₂ Flames
Kalyanasundaram Seshadri, Xue-Song Bai, Forman A. Williams

16:20 (R17C) – Numerical Simulations

Pg. 107

Session Chair : Francesco Saverio Marra

Woods Cove ABC

15:40 19 2D Direct Numerical Simulation of Intermediate Species Diffusion in Low Temperature Oxidation Process
Atsushi Teraji, Takahiro Morikawa, Takashi Ishihara, Yukio Kaneda

16:05 151 A Numerical Study of the Markstein Hypothesis in Finite Thickness Flames with Realistic Chemistry
Nadeem A. Malik

16:30 End

Paper #20: Kinetics of Drop Shattering Behind Detonation Wave*A. G. Girin***Paper #25: Detonation Initiation by a Temperature Gradient for a Detailed Chemical Reaction Models***A. D. Kiverin, A. A. Chukalovsky, M. F. Ivanov, M. A. Liberma***Paper #47: The Influence of Initial Temperature on Detonation Structure***Lin Zhi-yong, Liu Shi-jie, Liu Wei-dong, Zhou Jin***Paper #64: Triple Points Collision in Unstable Detonations***Y. Mahmoudi, K. Mazaheri, M. I. Radulescu***Paper #69: A Dataset of Critical Energy for Direct Initiation of Spherical Detonations in Some Hydrocarbon-Oxygen Mixtures***Bo Zhang, Hoi Dick Ng and John H.S. Lee***Paper #86: Experimental Demonstration of a Multi-Tube Pulse Detonation Engine with a Rotary Valve***Han Qixiang, Zhang Yadong, Zhang Qi, Wang Jiahua***Paper #95: Experimental Study of DDT in Hydrogen-Air behind a Single Obstacle***Gaathaug A. V., Bjerketvedt D. and Vaagsaether K.***Paper #371 (was 100): Numerical Simulation of Deflagration and Initiation of Detonation***S. N. Martyushov, T. Elperin, O. Igra***Paper #107: Three Dimensional Simulation of Rotating Detonation Engine without Inner Wall***Shao Ye-Tao, Wang Jian-Ping***Paper #114: Spontaneous Ignition of Hydrogen Jets in the Presence of Reflected Shock Waves***Maxwell, B. M., Tawagi, P., Radulescu, M. I.***Paper #120: A Study on Deflagration to Detonation Transition in Injected Hydrogen/Air Mixtures***Masanori Yabe, Masaki Naitoh, Teruo Yoshihashi, Tetsuro Obara and Shigeharu Ohyagi***Paper #121: Numerical Simulation of Pulse Detonation Engine Working Process Initiated by Small Energy***WANG Wei, FAN Wei, Qiu Hua, YUAN Cheng, PENG Changxin, YAN Chuanjun***Paper #125: Simulation of Detonation Wave Passage through Cloud of Chemically Inert Solid Particles***Fedorov A.V., Tropin D.A.***Paper #130: Experimental Study of Flame Acceleration and Deflagration-To-Detonation Transition***Kong-Qian SUN, Yi-Ning ZHANG, Kun GUO***Paper #173: Physics of Detonation Propagation in Rotating Detonation Engine***Takayuki Yamada, Yuho Uemura, Nobuyuki Tsuboi, A. Koichi Hayashi and Eisuke Yamada***Paper #190: Moving-Component-Free Pulse-Detonation Combustors and Their Use in Ground Applications***T. Endo, A. Susa, T. Akitomo, T. Okamoto, K. Kanekiyo, Y. Sakaguchi, H. Yokoyama, S. Kato, A. Mitsunobu and T. Takahashi***Paper #196: Surface Chemical Reaction of Laser Ablated Aluminum Sample for Detonation Initiation***Chang-hwan Kim, Ardian B. Gojani and Jack J. Yoh*

Paper #217: **Comparison of Conditions of Direct Detonation Initiation by Spark with one by Pulsed Arc According to the Gradient Mechanism of Ya.B. Zeldovich**
Korytchenko K. V., Poklonskiy E. V., Galak O. V.

Paper #222: **Effect of an Axial Electric Field on Detonations**
Vsevolods Kamenskihs and John H.S. Lee

Paper #228: **Effect of Transmission of Detonation from Smaller to Larger Tube on the Performance of PDE**
Abhishek R. Bhat, N Harish, P. J. Paul

Paper #232: **On the Detonation Structure in Ozone**
Aslan Kasimov, Vladimir Shargatov

Paper #258: **Formation of Detonation in Confined Moving Regions**
V.A. Levin, I.S. Manuylovich, V.V. Markov

Paper #262: **Numerical Simulation of the Oblique Detonation Waves in Different Regimes Initiated by Conical Projectile**
Jeong-Yeol Choi, Jimmy Verreault, Andrew J Higgins

Paper #266: **Generation of Detonation Due to Kinetic Energy of the Supersonic Flow**
V.A. Levin, I.S. Manuylovich, V.V. Markov

Paper #282: **Drag Coefficients of Hypervelocity Spherical Projectile Initiating Oblique Detonation Wave**
Jeong-Yeol Choi, Shinichi Maeda, Jiro Kasahara, Akiko Matsuo

Paper #286: **Deflagration to Detonation Transition in Narrow Channel with For-chamber**
Golub V.V, Baclanov D.I., Ivanov K.V., Krivokoritov M.S

Paper #322: **The Transmission Behavior of the Over-driven Detonation across the Mixture with the Abrupt Area Change**
Yao-Chung Hsu, Kung-Ming Chung, Yei-Chin Chao

Paper #331: **Detonation Initiation by Gradient Mechanism in Propane-Oxygen and Propane-Air Mixtures**
A.E. Rakitin, I.B. Popov, A.Yu. Starikovskiy

Paper #336: **Numerical Simulation of Detonation Propagation in Ducts with Obstacles**
Cheng Wang, Wenhui Han, Jianguo Ning

10:25 Poster Session I - Explosion/Fire**Pg. 117**

Paper #46: **Numerical Study of Interactions between Blast Wave and Moving Bodies in Ambient and Indoor Areas**
Lo, Shi-Wei, Tai, Chang-Hsien, Teng, Jyh-Tong and Lai, Ching-Chung

Paper #72: **Buncefield: Reconciliation of Evidence with Mechanisms of Blast**
James Venart

Paper #118: **Mitigation of Vapour Cloud Explosions - A Review**
Kees van Wingerden

Paper #189: **Limiting Oxygen Concentrations - Process Safety by Oxygen Monitoring**
K. Holtappels, V. Schröder, A. Pekalski, H.-P. Schildberg

Paper #239: **Analysis of Mobilisation and Explosion Problems in Gas and Dust Mixtures**
JR García-Cascales, F Vera García, R Otón-Martínez, A Bentaib, N Meynet

Paper #373 (was281): **Vented Gas Explosion in Small Vessels of L/D of 2.4**
Fakandu, B.M., Sattar, H., Phylaktou, H.N. and Andrews, G.E.

10:25 Poster Session I - Flame**Pg. 118**

Paper #12: **Studies on Methanol, Ethanol and Biomethanol Flame Structure**
Akimasa Tsutsumi, Makihito Nishioka and Keiichi Hori

Paper #21: **Two-Phase Spray in a Wake of Shattering Fuel Drop**
A. G. Girin

Paper #30: **Polydispersed Initiation of a Dust Suspension in a Partitioned Structure**
J.M. Pascaud

Paper #55: **Soot Formation from Laminar Ethylene/Air Diffusion Flames at Pressures from 1 to 8 atm**
Hongsheng Guo, Zhongzhu Gu, Kevin A. Thomson, Gregory J. Smallwood

Paper #82: **The Investigation of the N₂O Catalytic Decomposition for Hybrid Rocket Ignition**
Hung-Wei Hsu, Meng-Chun Hsu, Tsung-Sheng Lee, Guan-Bang Chen, Yei-Chin Chao

Paper #94: **The Structure of Nonpremixed Ethanol Flames**
Tej Newman-Lehman, Vaibhav Kumar Sahu, Vasudevan Raghavan Kalyanasundaram Seshadri and Forman A. Williams

Paper #109: **An Approach to Construction of Universal Global Kinetic Mechanisms of Hydrocarbons Combustion**
Ivan A. Zaev, Igor V. Prokopovich

Paper #111: **High-Temperature Decomposition of Nitromethane in the Shock Waves at Pressures 0.15-36 atm and Hypothesis of the Isomerisation in Its Decomposition Mechanism**
Nikolai M. Kusnetsov, Yuri P. Petrov, Stanislav V. Turetskii

Paper #169: **Empirical Reduction of Dynamical Reactor Models via Chaos Sampling: Comparison with Classic Reduction Methods**
Katarzyna Bizon, Joanna Smuła and Gaetano Continillo

Paper #171: **Hydrogen Peroxide Thermal Decomposition: new Features**
Nabiha Chaumeix, Servane Pichon, Laurent Catoire, Claude Paillard

Paper #183: **On the Critical Conditions of Hybrid Dusts Ignition**
Regul'skaya O. S., Vovchuk Ya. I.

Paper #185 (372): **Fast Deflagration in the Smooth Tube in Hydrogen-Oxygen Mixture**
Dziemińska, E., Fukuda, M., Hayashi, A.K., Tsuboi, N. and Yamada, E.

Paper #200: **Ignition by Electric Spark and by Laser-Induced Spark of Ultra-lean CH₄/air and CH₄/CO₂/air mixtures**
Joffrey Biet, Marie Ndem, Mahmoud Idir, Nabiha Chaumeix

Paper #202: **Transient Interactive Flamelets with Tabulated Chemistry**
Anders Borg, Harry Lehtiniemi and Fabian Mauss

Paper #204: **Chemically Unstable Gases - MITD of Ethylene Oxide Mixtures**
Enis Askar, Aydan Acikalin and Volkmar Schroeder

Paper #223: **Performance, Fuel-Flexibility and Emissions Characteristics of a 4.97cc Wankel Rotary Engine for Portable Power**

Chris D. McCoy, Nicholas Maiden, Mario Sánchez Sanz, Juan Ramón Arias, Ángel Velázquez, Carlos Fernandez-Pello and Albert P. Pisano

Paper #290: Experimental Investigation of Flame Propagation in Turbulent Propane-Air Mixtures and Dust-Air Suspensions

Trygve Skjold and Diana Castellanos

Paper #300: Computational Model of a Biomass Cookstove

Jennifer L. Jones, Ashok Gadgil, Carlos Fernandez-Pello

Paper #323: Turbulent Premixed Methane-Air Jet Flames: A Numerical Study

M. Chekired, M.S. Boulahlib, Z. Nemouchi

Paper #325: Predictive Flame Propagation Model for Stochastic Reactor Model Based Engine Simulations

Simon Bjerkborn, Cathleen Perlman, Karin Fröjd and Fabian Mauss

Paper #332: Plasma Assisted Ignition below Self-Ignition Threshold in Hydrogen-Air and Hydrocarbon-Air Mixtures

L.Wu, J. Lane, N.P. Cernansky, D.L. Miller, A.A. Fridman, A.Yu. Starikovskiy

Paper #334: Solid Rocket Motor Internal Ballistics Using a Least-Distance Surface-Regression Method

C. H. Chiang, Y. H. Hwang

Paper #340: Numerical Investigation of Supersonic Combustion of the Hyshot II in the Shock Tunnel

Chih-Peng Chen, Dun C. Liu, Guan-Bang Chen and Ruey-Hung Chen

11:10 Poster Session II - Detonation**Pg. 126**

Paper #52: Numerical Study of Shock-Flame Interaction and Deflagration-to-Detonation Transition in H₂-O₂ Mixtures Using a Detailed Chemical Reaction Model

A. D. Kiverin, M. F. Ivanov, M. A. Liberman

Paper #160: The Determination of Atmospheric Pressure Linear Burning Rates of Solid Propellants Formulations

Frederick Paquet, Hoi Dick Ng

Paper #208: Experiment Research on Continuous Detonation Engine

Jianping Wang, Tianyi Shi, Yuhui Wang, Yusi Liu, Yongsheng Li

Paper #225: Study of Nitrogen Dilution, Pressure and Temperature Effects on Spherical Flames Propagation of H₂/O₂/N₂ Mixtures

SABARD Jérémy, CHAUMEIX Nabih, CATOIRE Laurent, BENTAIB Ahmed

Paper #295: Asymptotic Study of Pulsating Evolution of Overdriven and CJ Detonation with a Chain-Branching Kinetics Model

Carlos Chiquete and Mark Short

11:10 Poster Session II - Flame**Pg. 128**

Paper #6: Combustion and Evolution of the Polycyclic Aromatic Hydrocarbons in Diesel Engine

Ju Hongling, Cheng Xiaobei

Paper #7: A Study on Flame Propagation through a Narrow Channel

Shigeharu Ohyagi, Teruo Yoshihashi, Tetsuro Obara and Jifeng Du

Paper #356 (was 15): Characteristics of Combustion of a Rich-Lean Flame Burner with Controlled Boundary Zone between Rich and Lean Flames

Katsuo Asato, Hirofumi Yasuda, Takeshi Miyasaka, Hiroshi Eguchi, Kazusa Kondo, Hiroshi Yamashita

Paper #35: Structural Differences between the Non-Reacting and Reacting Supersonic Planar Mixing Layer

Huanhao Zhang, Zhihua Chen, Baochun Fan, Xiaohai Jiang

Paper #36: Horizontal Flame Spread Along Paper Sheet with a Backing Board

Takashi Tsuruda

Paper #354 (was 39): Gasdynamics in Turbulent Premixed Combustion: Conditionally Averaged Unclosed Equations and Analytical Formulation of the Problem

Vladimir L. Zimont

Paper #40: Determination of α -Pinene/Air Premixed Flame Speeds Involved in Accelerating Forest Fires and Real Accidents

Courty, L., Chetehouna, K, Halter, F., Foucher, F., Garo, J.P. and M. Rousselle, C.

Paper #48: Local Quenching Recovery Mechanisms and Flamelet Structures in a Heterogeneous Combustion

Yuji Yahagi, Takayuki Kawanami, Hirokazu Takeda

Paper #378 (was 75): Heat Transfer Parameters During Limit Flame Propagation in Small Tubes

Artur Gutkowski

Paper #87: Experimental Investigations on Pressure Swirl Atomized Lifted Flames in a Co-flow Field

V Mahendra Reddy, Darshan Trivedi and Sudarshan Kumar

Paper #170: **Numerical Study on Combustion Stability of n-Heptane /Air in a Micro Tube Combustor**
LI Junwei, WEI Zhijun, WANG Ningfei

Paper #175: **Ignition Transition in Turbulent Premixed Combustion at Elevated Pressure**
C. C. Liu, S. S. Shy, M. W. Peng, H. J. Chung, Y. W. Hsiu

Paper #191: **Stability of Premixed Flames in Narrow Channels**
Diego Alonso and Mario Sánchez-Sanz

Paper #212: **Experimental Study about Instability in Global Lean Combustion**
Marcel Martins Alves, Rogério Corá, Pedro Teixeira Lacava

Paper #215: **Laminar Flame Velocities and Fundamental Properties for Two Methane Based Mixtures: G27 and G222**
Kodjo Coudoro, Nabih Chaumeix, Bentaib Ahmed, C-E Paillard

Paper #241: **Multi-physics Modeling of Coal Gasification Processes in a Well-Stirred Reactor with Detailed Chemistry**
Jian Xu, Li Qiao and Jay Gore

Paper #263: **Hydrogen Explosion Suppression in Experiments of Different Scale**
Gavrikov A.I., Chernenko E.V., Efimenko A.A., Mayorov A.S., Privezentsev S.S., Schepetov N.G., Zaretskiy N.P.

Paper #294: **Analysis of Combustion Problems in Highly Dilute Dust and Gas Mixtures**
R.A. Otón Martínez, J.R. García Cascales, F. Vera García, A. Bentaib, N. Meynet

Paper #311: **Characteristics of Propagation of CH₄/CO Flames in a Confined Quartz Tube**
C.-Y. Wu, T. -W. Chang, Y.-H. Li, Y.-C. Chao

Paper #321: **Combustion of Methane Hydrate**
Melika Roshandell, Jordan Glassman, Matt Khalil, Peter Taborek and Derek Dunn-Rankin

11:10 WIP - Detonation**Pg. 133**

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Hidefumi Kataoka, Yutaka Asai, Atsuhiko Kawamura, Koji Fumoto, Kazuhiro Ishii

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Fang-Hsien Wu, Yueh-Heng Li, Guan-Bang Chen, Yei-Chin Chao

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Paper #348: **Extinguishment of Cup Burner Flames of Propane and the FAA Aerosol Can Simulator Fuel by CF_3Br and C_2HF_5**

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David Beerer, Joe Velasco, Merna Ibrahim, Guillermo Gomez, Rich Hack, Adrian Narvaez, Prof. G. S. Samuelsen and Dr. V. G. McDonell

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Bhupendra Khandelwal, Priyadarshini Murthy, Vishal Sethi

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S.V. Alekseenko, V.M. Dulin, Yu.S. Kozorezov, D.M. Markovich

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Andrey N. Starostin, Mikhail D. Taran, Yuri V. Petrushevich, Sergey P. Medvedev, Gennady L. Agafonov, Sergey V. Khomik

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P.A. Boettcher, R. Mével, V. Thomas and J.E. Shepherd

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C.H. Wang, G.J. Ueng, K.L. Pan, H.S. Su-Chen, J.Y. Yang

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Remy Mével, Jonathan Regele, Sally Bane, Guillaume Blanquart, Joseph Shepherd

Paper #369: Microgravity Combustion of Blended Fuels with Alcohol and Biodiesel/Diesel

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