

# 36<sup>th</sup> INTERNATIONAL SYMPOSIUM ON COMBUSTION

Seoul, Korea

Monday, 1 August 2016

**(Auditorium with overflow in Ballroom 3)**

WELCOME – 8:00 am

President Kohse-Höinghaus

Dr. Joon-sik Lee, Deputy Prime Minister, Minister of Education

President Kohse-Höinghaus and Prof. Hyung-min Chung on Beomjong (Korean Bells)

HOTTEL LECTURE – 8:30

**Prediction and control of combustion instabilities in real engines *Thierry Poinsot***

*Chairs: P. Glarborg and A. Masri*

TRANSFER

Room	Auditorium	Ballroom 1	Ballroom 2	Ballroom 3	Ballroom 4	Ballroom 5	Room 203	Room 208	Room 201
	<b>TURBULENT FLAMES</b> <i>Chairs:</i> <i>B. Dally</i> <i>A. Steinberg</i>	<b>DIAGNOSTICS</b> <i>Chairs:</i> <i>R. Dibble</i> <i>D. Dunn-Rankin</i>	<b>LAMINAR FLAMES</b> <i>Chairs:</i> <i>S. Chaudhuri</i> <i>F. Egolfopoulos</i>	<b>REACTION KINETICS</b> <i>Chairs:</i> <i>P. Dagaut</i> <i>E. Petersen</i>	<b>SPRAYS</b> <i>Chairs:</i> <i>B. Cuenot</i> <i>A. Kempf</i>	<b>SOOT</b> <i>Chairs:</i> <i>G. Blanquart</i> <i>C. Shaddix</i>	<b>POLLUTANTS</b> <i>Chairs:</i> <i>M. Alzueta</i> <i>W. Linak</i>	<b>NOVEL CONCEPTS</b> <i>Chairs:</i> <i>K. Maruta</i> <i>P.D. Ronney</i>	<b>FIRE</b> <i>Chairs:</i> <i>L. Kostiuk</i> <i>Y. Wang</i>
10.00	1A01: Multiple conditioned analysis of the turbulent stratified flame A <i>T. Stahler, D. Geyer, G. Magnotti, P. Trunk, M.J. Dunn, R.S. Barlow, A. Dreizler</i>	1B01: Ultraviolet absorption and laser-induced fluorescence of shock-heated acetylene <i>S. Zabeti, M. Fikri, C. Schulz</i>	1C01: Formation of a cool diffusion flame and its characteristics <i>V.R. Katta, W.M. Roquemore</i>	1D01: Investigation of ethane pyrolysis and oxidation at high pressures using global optimization based on shock tube data <i>V. Samu, T. Varga, K. Brezinsky, T. Turányi</i>	1E01: Detailed chemistry LES/CMC simulation of a swirling ethanol spray flame approaching blow-off <i>A. Giusti, E. Mastorakos</i>	1F01: Assessing relative contributions of PAHs to soot mass by reversible heterogeneous nucleation and condensation <i>M.J. Thomson, N.A. Eaves, S.B. Dworkin</i>	1G01: Study of emission pollutants and dynamics of non-premixed turbulent oxygen enriched flames from a swirl burner <i>T. Boushaki, N. Merlo, C. Chauveau, I. Gökalp</i>	1H01: Simulation of MILD combustion using perfectly stirred reactor model <i>Z. Chen, V.M. Reddy, S. Ruan, N.A.K. Doan, W.L. Roberts, N. Swaminathan</i>	1J01: The dynamics of near limit self-propagating flame over thin solid fuels in microgravity <i>K.K. M.N., A. Kumar</i>

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10:25	1A02: Turbulent burning velocity measurements - extended to extreme levels of turbulence <i>T.M. Wabel, A.W. Skiba, J.F. Driscoll</i>	1B02: Measuring flow profiles in heated miniature reactors with X-ray fluorescence spectroscopy <i>R. Tranter, A.L. Kastengren, J.P. Porterfield, J.B. Randazzo, J.P. Lockhart, J.H. Baraban, G.B. Ellison</i>	1C02: Flame structure and ignition limit of partially premixed cool flames in a counterflow burner <i>C.B. Reuter, S.H. Won, Y. Ju</i>	1D02: Thermal decomposition of propene: A shock-tube/H-ARAS and modeling study <i>I. Weber, L. Golka, M. Olzmann</i>	1E02: A stochastic breakup model for large eddy simulation of a turbulent two-phase reactive flow <i>W.P. Jones, A.J. Marquis, D. Noh</i>	1F02: Unsteady dynamics of PAH and soot particles in laminar counterflow diffusion flames <i>P. Rodrigues, B. Franzelli, R. Vicquelin, O. Gicquel, N. Darabiha</i>	1G02: Premixed methane oxycombustion in nitrogen and carbon dioxide atmospheres: Measurement of operating limits, flame location and emissions <i>R. Marsh, J.P. Runyon, A.P. Giles, S. Morris, D.G. Pugh, A. Valera-Medina, P. Bowen</i>	1H02: Selection of appropriate constraints for dimension reduction in MILD combustion simulations via RCCE <i>C. Galletti, B. Isaac, A. Parente</i>	1J02: Concurrent flame growth, spread, and quenching over composite fabric samples in low speed purely forced flow in microgravity <i>X. Zhao, Y.-T.T. Liao, M.C. Johnston, J.S. T'ien, P.V. Ferkul, S.L. Olson</i>
10:50	1A03: Visualisation of turbulent swirling dual-fuel flames <i>J.A.M. Sidey, E. Mastorakos</i>	1B03: Optical properties and pyrolysis of shock-heated gas-phase anisole <i>S. Zabeti, M. Aghsaee, M. Fikri, O. Welz, C. Schulz</i>	1C03: Thermo-kinetic dynamics of near-limit cool diffusion flames <i>C.H. Sohn, H.S. Han, C.B. Reuter, Y. Ju, S.H. Won</i>	1D03: The oxidation of 2-butene: A high pressure ignition delay, kinetic modeling study and reactivity comparison with isobutene and 1-butene <i>Y. Li, C.-W. Zhou, K. Somers, K. Zhang, H.J. Curran</i>	1E03: Large Eddy Simulation of an ethanol spray flame under MILD combustion with the stochastic fields method <i>S.G. Lavallée, W.P. Jones, A.J. Marquis</i>	1F03: Growth reactions of polycyclic aromatic hydrocarbons during the supercritical pyrolysis of <i>n</i> -decane, as determined from doping experiments with 1-methylphenanthrene and fluorene <i>S.V. Kalpathy, N.B. Poddar, E.A. Hurst, E.C. Caspary, M.J. Wornat</i>	1G03: Soot, organics, and ultrafine ash from air- and oxy-fired coal combustion <i>M.E. Andersen, N. Modak, C.K. Winterrowd, C.W. Lee, W.L. Roberts, J.O.L. Wendt, W.P. Linak</i>	1H03: Classification and lift-off height prediction of non-premixed MILD and autoignitive flames <i>M.J. Evans, P.R. Medwell, H. Wu, A. Stagni, M. Ihme</i>	1J03: Limiting Oxygen Concentration (LOC) for extinction of upward spreading flames over inclined electrical wires with opposed-flow under normal- and microgravity <i>L. Hu, K. Yoshioka, Y. Lu, Y. Zhang, C. Fernandez-Pello, S.H. Chung, O. Fujita</i>

11:15	<p style="text-align: center;">Break</p> <p style="text-align: center;">The 36<sup>th</sup> International Symposium on Combustion is brought to you by:</p> <p style="text-align: center;"><b>Gold Sponsors</b></p> <p style="text-align: center;"><b>Korea Electric Power Corporation</b>  <b>Korea Midland Power Co., Ltd.</b>  <b>Korea South-East Power Co., Ltd.</b>  <b>Korea Southern Power Co., Ltd.</b>  <b>LaVision</b></p>								
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	<p style="text-align: center;"><b>TURBULENT FLAMES</b>  Chairs:  <i>B. Dally</i>  <i>A. Steinberg</i></p>	<p style="text-align: center;"><b>DIAGNOSTICS</b>  Chairs:  <i>R. Dibble</i>  <i>D. Dunn-Rankin</i></p>	<p style="text-align: center;"><b>LAMINAR FLAMES</b>  Chairs:  <i>S. Chaudhuri</i>  <i>F. Egolfopoulos</i></p>	<p style="text-align: center;"><b>REACTION KINETICS</b>  Chairs:  <i>P. Dagaut</i>  <i>E. Petersen</i></p>	<p style="text-align: center;"><b>SPRAYS</b>  Chairs:  <i>B. Cuenot</i>  <i>A. Kempf</i></p>	<p style="text-align: center;"><b>SOOT</b>  Chairs:  <i>G. Blanquart</i>  <i>C. Shaddix</i></p>	<p style="text-align: center;"><b>POLLUTANTS</b>  Chairs:  <i>M. Alzueta</i>  <i>W. Linak</i></p>	<p style="text-align: center;"><b>NOVEL CONCEPTS</b>  Chairs:  <i>K. Maruta</i>  <i>P.D. Ronney</i></p>	<p style="text-align: center;"><b>FIRE</b>  Chairs:  <i>L. Kostiuk</i>  <i>Y. Wang</i></p>
11:45	<p>1A04: Investigation of flashback characteristics coupled with combustion instability in turbulent premixed bluff body flames using high-speed OH-PLIF and PIV  <i>C. Jeong, J. Bae, T. Kim, J. Yoon, S. Joo, Y. Yoon</i></p>	<p>1B04: Dual-resolution Raman spectroscopy for measurements of temperature and twelve species in hydrocarbon-air flames  <i>G. Magnotti, R.S. Barlow</i></p>	<p>1C04: Experimental and kinetic modeling study of laminar coflow diffusion methane flames doped with iso-butanol  <i>H. Jin, G. Wang, Y. Wang, X. Zhang, Y. Li, Z. Zhou, J. Yang, F. Qi</i></p>	<p>1D04: Pyrolysis and oxidation of methyl acetate in a shock tube: A multi-species time-history study  <i>W. Ren, K.-Y. Lam, D.F. Davidson, R.K. Hanson, X. Yang</i></p>	<p>1E04: Compressible Eulerian needle-to-target Large Eddy Simulations of a diesel fuel injector  <i>E. Knudsen, E.M. Doran, V. Mittal, J. Meng, W. Spurlock</i></p>	<p>1F04: Simultaneous measurements of acetylene and soot during the pyrolysis of ethylene and benzene in a shock tube  <i>K.C. Utsav, M. Beshir, A. Farooq</i></p>	<p>1G04: High-temperature tube corrosion upon the interaction with Victorian brown coal fly ash under the oxy-fuel combustion condition  <i>I. Jabez, J. Chen, B. Etschmann, Y. Ninomiya, L. Zhang</i></p>	<p>1H04: Characterization of the reaction zone structures of flame and flameless combustion in a laboratory combustor using optical diagnostics  <i>B. Zhou, M. Costa, Z. Li, M. Aldén, X.-S. Bai</i></p>	<p>1J04: Oxygen index effect on the structure of a laminar boundary layer diffusion flame in a reduced gravity environment  <i>J. Contreras, J.-L. Consalvi, A. Fuentes</i></p>
12:10	<p>1A05: Measurement and scaling of minimum ignition energy transition for spark ignition in intense isotropic turbulence from 1 to 5 atm  <i>S. Shy, Y.W. Shiu, L.J. Jiang, C.C. Liu, S. Minaev</i></p>	<p>1B05: Multiparameter spatio-thermochemical probing of flame-wall interactions advanced with coherent Raman imaging  <i>A. Bohlin, C. Jainski, B.D. Patterson, A. Dreizler, C.J. Kliewer</i></p>	<p>1C05: Extinction limits and flame structures of ETBE, DIPE and TAME non-premixed flames  <i>J. Hashimoto, J. Hosono, K. Shimizu, R. Urawaka, K. Tanoue</i></p>	<p>1D05: An experimental and theoretical comparison of C<sub>3</sub> - C<sub>5</sub> linear ketones  <i>H. Minwegen, U. Burke, K.A. Heufer</i></p>	<p>1E05: DNS and modelling of mixing fields in inter-droplet space  <i>B. Wang, A. Kronenburg, D. Dietzel, O.T. Stein</i></p>	<p>1F05: Aromatic ring formation in opposed-flow diffusive 1,3-butadiene flames  <i>K. Moshhammer, L. Seidel, Y. Wang, H. Selim, S.M. Sarathy, F. Mauss, N. Hansen</i></p>	<p>1G05: A mechanistic study of the effects of CO<sub>2</sub> on pyrrhotite oxidation  <i>W. Lv, D. Yu, J. Wu, X. Yu, Y. Du, M. Xu</i></p>	<p>1H05: Modeling MILD combustion using a novel multistage FGM method  <i>M.U. Göktolga, J.A. van Oijen, L.P.H. de Goey</i></p>	<p>1J05: Radiative, thermal, and kinetic regimes of opposed-flow flame spread: A comparison between experiment and theory  <i>S. Bhattacharjee, A. Simsek, F. Miller, S. Olson, P. Ferkul</i></p>

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12:35	1A06: Flame-vortex interaction: Effect of residence time and formulation of a new efficiency function <i>F. Thiesset,</i> <i>G. Maurice, F. Halter,</i> <i>N. Mazellier,</i> <i>C. Chauveau,</i> <i>I. Gölkalp</i>	1B06: Ethane thermometry using rotational Coherent Anti-Stokes Raman Scattering (CARS) <i>A. Hosseinnia,</i> <i>E. Nordström,</i> <i>J. Bood,</i> <i>P.-E. Bengtsson</i>	1C06: Stabilization and extinction of diffusion flames in an inert porous medium <i>M.A.E. Kokubun,</i> <i>F.F. Fachini,</i> <i>M. Matalon</i>	1D06: A Shock tube study of C <sub>4</sub> - C <sub>6</sub> straight chain alkenes + OH reactions <i>F. Khaled, J. Badra,</i> <i>A. Farooq</i>	1E06: Direct numerical simulation of spray evaporation and autoignition in a temporally-evolving jet <i>A. Abdelsamie,</i> <i>D. Thévenin</i>	1F06: Temperature- and pressure-dependent rate coefficients for the HACA pathways from benzene to naphthalene <i>A.M. Mebel,</i> <i>Y. Georgievskii,</i> <i>A.W. Jasper,</i> <i>S.J. Klippenstein</i>	1G06: Emission of particulate matter during the combustion of bio-oil and its fractions under air and oxyfuel conditions <i>C. Feng, X. Gao,</i> <i>H. Wu</i>	1H06: Comparative flame structure investigation of normal and inverse turbulent non-premixed oxy-fuel flames using experimentally recorded and numerically predicted Rayleigh and OH-PLIF signals <i>F. Hunger,</i> <i>M.F. Zulkifli,</i> <i>B.A.O. Williams,</i> <i>F. Beyrau, C. Hasse</i>	1J06: A numerical and experimental study of the ignition of insulated electric wire with long-term excess current supply under microgravity <i>K. Shimizu,</i> <i>M. Kikuchi,</i> <i>N. Hashimoto,</i> <i>O. Fujita</i>
13:00	<p style="text-align: center;">LUNCH on your own</p> <p style="text-align: center;">CNF Editorial Lunch – Room 300 WSSCI – Room 301A</p> <p style="text-align: center;">Visit Posters and our Exhibitors and Sponsors in D Hall (Poster abstracts are online at <a href="http://www.combustionsymposia.org">www.combustionsymposia.org</a>)</p> <p style="text-align: center;">The 36<sup>th</sup> International Symposium on Combustion is brought to you by:</p> <p style="text-align: center;"><b>Silver Sponsors</b>  <b>DOOSAN</b>  <b>Elsevier</b>  <b>Global Environment Tech.</b>  <b>Juwon</b>  <b>Korea East-West Power Co., Ltd.</b></p>								

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14:30	1A07: Measurements to determine the regimes of premixed flames in extreme turbulence T.M. Wabel, A.W. Skiba, C.D. Carter, S. Hammack, J.E. Temme, J.F. Driscoll	1B07: Self-quenching in toluene LIF D. Fuhrmann, T. Benzler, S. Fernando, T. Endres, T. Dreier, S.A. Kaiser, C. Schulz	1C07: Two-dimensional effects in counterflow methane flames R.R. Burrell, R. Zhao, D.J. Lee, H. Burbano, F.N. Egolfopoulos	1D07: A high-temperature shock tube kinetic study for the branching ratios of isobutene + OH reaction F. Khaled, B.R. Giri, A. Farooq	1E07: On two-fluid models for spray-resolved LES of reacting jets F. Doisneau, M. Arienti, J. Oefelein	1F07/1F08 :  Probing soot formation, chemical and physical evolution and oxidation: A review of diagnostic techniques and needs  Hope A. Michelsen	1G07: A study of DMC conversion and its impact to minimize soot and NO emissions M.U. Alzueta, P. Salinas, A. Millera, R. Bilbao, M. Abián	1H07: Flame base structures of micro-jet hydrogen/methane diffusion flames J. Gao, A. Hossain, Y. Nakamura	1J07: Steady and transient pyrolysis of a non-charring solid fuel under forced flow A.V. Singh, M.J. Gollner
14:55	1A08: Scalar dissipation rate and scales in swirling turbulent premixed flames M.M. Kamal, B. Coriton, R. Zhou, J.H. Frank, S. Hochgreb	1B08: Assessment and application of tomographic PIV for the spray-induced flow in an IC engine B. Peterson, E. Baum, C.-P. Ding, D. Michaelis, A. Dreizler, B. Böhm	1C08: Effects of mixture fraction on edge-flame propagation speeds H. Song, P. Wang, R.S. Boles, D. Matinyan, H. Praphanphap, J. Piotrowicz, P.D. Ronney	1D08: Rate constants of long, branched, and unsaturated aldehydes with OH at elevated temperatures S. Wang, D.F. Davidson, R.K. Hanson	1E08: Numerical study of the multi-flame structure in spray combustion L. Ma, D. Roekaerts		1G08: Shock tube water time-histories and ignition delay time measurements for H <sub>2</sub> S near atmospheric pressure O. Mathieu, C. Mulvihill, E.L. Petersen	1H08: Ultra-lean combustion characteristics of premixed methane flames in a micro flow reactor with a controlled temperature profile T. Okuno, H. Nakamura, T. Tezuka, S. Hasegawa, K. Maruta	1J08: Sample width effects on horizontal flame spread over a thin PMMA surface L. Jiang, C. Miller, M.J. Gollner, J. Sun

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15:20	1A09: Relationship between local reaction rate and flame structure in turbulent premixed flames from simultaneous 10 kHz TP-IV, OH PLIF, and CH <sub>2</sub> O PLIF J.R. Osborne, S.A. Ramji, C.D. Carter, A.M. Steinberg	1B09: Tailor-making thermocouple junction for flame temperature measurement via dynamic transient method Z. Xu, X. Tian, H. Zhao	1C09: Tangential Stretching Rate (TSR) analysis of non premixed reactive flows M. Valorani, P.P. Ciottoli, R.M. Galassi	1D09: Recombination and dissociation of 2-methylallyl radicals: Experiment and theory R.S. Tranter, A.W. Jasper, J.B. Randazzo, J.P.A. Loackhart, J.P. Porterfield	1E09/1E10: Industry Perspective Panel: Sprays  Tang-Wei Kuo Marios Soteriou  Panelists: Donghee Han Khawar Syed Amita Tripathi	1F09: Oxygen-driven soot formation V.T. Dillstrom, P. Elvati, W. Kujacznski, A. Violi	1G09: Variations in non-thermal NO formation pathways in alcohol flames M.D. Bohon, T.F. Guibert, S.M. Sarathy, W.L. Roberts	1H09: Experimental study on electro-spraying and combustion characteristics in small-scale combustors Y. Gan, Y. Tong, Y. Ju, X. Zhang, H. Li, X. Chen	1J09: Spatio-temporal structure of vertically spreading flame over non-planar PMMA surfaces S. Sarma, A. Chakraborty, N.M. Manu, T.M. Muruganandam, V. Raghavan, S.R. Chakravarthy
15:45	1A10: Experimental investigation of flame surface density and mean reaction rate during flame-wall interaction C. Jainski, M. Rißmann, B. Böhm, A. Dreizler	1B10: Reaction layer visualization: A comparison of two PLIF techniques and advantages of kHz-imaging A.W. Skiba, T.M. Wabel, C.D. Carter, S.D. Hammack, J.E. Temme, T. Lee, J.F. Driscoll	1C10: Diffusive-thermal instability of stretched low-Lewis-number flames of slot-jet counterflow burners R. Fursenko, S. Minaev, S. Mokrin, K. Maruta	1D10: Probing the antagonistic effect of toluene as a component in surrogate fuel models at low temperatures and high pressures. A case study of toluene/dimethyl ether mixtures Y. Zhang, K. Somers, M. Mehl, W. Pitz, R. Cracknell, H. Curran		1F10: Computed electronic structure of polynuclear aromatic hydrocarbon agglomerates E.M. Adkins, J.A. Giacca, J.H. Miller	1G10: Performances and emission characteristics of NH <sub>3</sub> -air and NH <sub>3</sub> -CH <sub>4</sub> -air combustion gas-turbine power generations O. Kurata, N. Iki, T. Matsunuma, T. Inoue, T. Tsujimura, H. Furutani, H. Kobayashi, A. Hayakawa	1H10: Combustion and ignition characteristics of ammonia/air mixtures in a micro flow reactor with a controlled temperature profile H. Nakamura, S. Hasegawa	1J10: Appearance of flamelets spreading over thermally thick fuel T. Matsuoka, K. Nakashima, Y. Nakamura, S. Noda
16:10	<p>BREAK</p> <p><b>The Combustion Institute's Members Meeting will be held in Ballroom 3 at 18:00, all members are encouraged to attend</b></p> <p>The 36<sup>th</sup> International Symposium on Combustion is brought to you by:</p> <p><b>Bronze Sponsors</b></p> <p><b>CSK Inc.</b></p> <p><b>FM Global</b></p> <p><b>G&amp;TECH</b></p>								

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	<b>TURBULENT FLAMES</b> <i>Chairs:</i> M. Dunn Y. Yoon	<b>DIAGNOSTICS</b> <i>Chairs:</i> P.-E. Bengtsson I. Boxx	<b>LAMINAR FLAMES</b> <i>Chairs:</i> S. Coronel C.K. Law	<b>REACTION KINETICS</b> <i>Chairs:</i> F. Battin-Leclerc M. Olzmann	<b>SPRAYS</b> <i>Chairs:</i> A. Dreizler E. Mastorakos	<b>SOOT</b> <i>Chairs:</i> P. Desgroux H. Wang	<b>POLLUTANTS</b> <i>Chairs:</i> E. Kennedy J. Liu	<b>NOVEL CONCEPTS</b> <i>Chairs:</i> C. Hasse M. de Joannon	<b>FIRE</b> <i>Chairs:</i> O.Fujita R. Hadden
16:40	1A11: Turbulent flames with compositionally inhomogeneous inlets: Resolved measurements of scalar dissipation rates <i>H.C. Cutcher, R.S. Barlow, G. Magnotti, A.R. Masri</i>	1B11: High-speed PIV, spray, flame and infrared fuel-vapor imaging for probing tumble-flow-induced asymmetry of gasoline distribution in a spray-guided stratified-charge DISI engine <i>W. Zeng, M. Sjöberg, D.L. Reuss, Z. Hu</i>	1C11: Effects of <i>n</i> -propylbenzene addition on soot formation and aggregate structure in an <i>n</i> -dodecane laminar coflow diffusion flame <i>T. Zhang, L. Zhao, M.J. Thomson</i>	1D11: Shock tube/laser absorption measurements of the pyrolysis of a bimodal test fuel <i>T. Parise, D.F. Davidson, R.K. Hanson</i>	1E11: Combustion characteristics of primary reference fuel blends: Single stage high temperature combustion to multistage "cool" flame behavior <i>T.I. Farouk, Y. Xu, C.T. Avedisian, F.L. Dryer</i>	1F11: Soot formation characteristics of diffusion flames of methane doped with toluene and <i>n</i> -heptane at elevated pressures <i>A.E. Dada, O.L. Gülder</i>	1G11: Generalized two-dimensional correlation infrared spectroscopy to reveal mechanisms of CO <sub>2</sub> capture in nitrogen enriched biochar <i>X. Zhang, S. Zhang, H. Yang, J. Shao, Y. Chen, X. Liao, X. Wang, H. Chen</i>	1H11: Development of a powerful miniature power system with a meso-scale vortex combustor <i>D. Shimokuri, Y. Taomoto, R. Matsumoto</i>	1J11: A unit cell approach to investigate the flammability behavior of carbonated unexpanded plastic commodity <i>G. Agarwal, A. Gupta, M. Chaos, K.V. Meredith, Y. Wang</i>
17:05	1A12: Fuel effects on the stability of turbulent flames with compositionally inhomogeneous inlets <i>T.F. Guiberti, M. Juddoo, D.A. Lacoste, M.D. Dunn, W.L. Roberts, A.R. Masri</i>	1B12: Ignition and formaldehyde formation in DiMethyl Ether (DME) reacting sprays under various EGR levels <i>K.D. Cung, A.A. Moiz, X. Zhu, S.-Y. Lee</i>	1C12: Structural effects of biodiesel on soot formation in a laminar coflow diffusion flame <i>M.R. Kholghy, A.D. Sediako, J. Weingarten, J. Barba, M. Lapuerta, M.J. Thomson</i>	1D12: Chemical thermometry in miniature HRRST using 1,1,1-trifluoroethane dissociation <i>P.T. Lynch, G. Wang</i>	1E12: Flame extinction and low-temperature combustion of isolated fuel droplets of <i>n</i> -alkanes <i>A. Cuoci, A.E. Saufi, A. Frassoldati, D.L. Dietrich, F.A. Williams, T. Faravelli</i>	1F12: Two-dimensional soot volume fraction measurements in flames doped with large hydrocarbons <i>D.D. Das, W.J. Cannella, C.S. McEnally, C.J. Mueller, L.D. Pfefferle</i>	1G12: Investigation of oxygen transport membrane reactors for oxy-fuel combustion and carbon capture purposes <i>R. Falkenstein-Smith, P. Zeng, J. Ahn</i>	1H12: Propagation and quenching of premixed flames in a concentration-length-velocity diagram <i>Y. Jung, M.J. Lee, N.I. Kim</i>	1J12: Behavior of the flame spread along a thin paper-disk in a narrow space <i>T. Takahashi, T. Daitoku, T. Tsuruda</i>
17:30	1A13: Impact of heat release on strain rate field in turbulent premixed Bunsen flames <i>B. Coriton, J.H. Frank</i>	1B13: Flame kernel formation behaviors in close dual-point laser breakdown spark ignition for lean methane/air mixtures <i>S. Nakaya, S. Iseki, X.J. Gu, Y. Kobayashi, M. Tsue</i>	1C13: Pressure effects on incipiently sooting partially premixed counterflow flames of ethylene <i>F. Carbone, K. Gleason, A. Gomez</i>	1D13: A shock tube laser schlieren study of cyclopentane pyrolysis <i>J.B. Randazzo, C.J. Annesley, K. Bell, R.S. Tranter</i>	1E13: Isolated <i>n</i> -decane droplet combustion - dual stage and single stage transition to "cool flame" droplet burning <i>T.I. Farouk, D.L. Dietrich, F.E. Alam, F.L. Dryer</i>	1F13: Pressure dependence of sooting propensity in laminar diffusion flames of ethylene-air diluted with carbon dioxide and nitrogen <i>A.E. Karatas, O.L. Gülder</i>	1G13: Stabilized CO <sub>2</sub> capture performance of extruded-spheronized CaO-based pellets by microalgae templating <i>J. Sun, W. Liu, H. Chen, Y. Zhang, Y. Hu, W. Wang, X. Li, M. Xu</i>	1H13: Flame-seed structures: Original structures of nonpremixed flames in mixing layers of methane, ethane, propane and DME <i>M.J. Lee, Y. Jung, N.I. Kim</i>	1J13: Effective Lewis number of smoldering spread over a thin solid in a narrow channel <i>K. Kuwana, K. Suzuki, Y. Tada, G. Kushida</i>

Tuesday, 2 August 2016

(Auditorium with overflow in Ballroom 3)

PLENARY LECTURE – 8:30 am

**Flame synthesis of functional nanostructured materials and devices: Surface growth and aggregation**

*Georgios. A. Kelesidis, Eirini Goudeli and Sotiris E. Pratsinis*

*Chairs: A. Masri and C. Schulz*

TRANSFER

Room	Auditorium	Ballroom 1	Ballroom 2	Ballroom 3	Ballroom 4	Ballroom 5	Room 203	Room 208	Room 201
	<b>TURBULENT FLAMES</b> <i>Chairs:</i> S. De E. Richardson	<b>IC ENGINES</b> <i>Chairs:</i> S. Dooley G. Kalghathi	<b>LAMINAR FLAMES</b> <i>Chairs:</i> M. Mansour K. Seshadri	<b>REACTION KINETICS</b> <i>Chairs:</i> P.-A. Glaude T. Turányi	<b>GAS TURBINES</b> <i>Chairs:</i> S. Hochgreb N. Noiray	<b>SOOT</b> <i>Chairs:</i> M. Thomson X. You	<b>SOLID FUELS/ POLLUTANTS</b> <i>Chairs:</i> M. Hupa J.O.L. Wendt	<b>EXPLOSIONS &amp; SUPERSONIC</b> <i>Chairs:</i> L. Bauwens I.S. Jeung	<b>FIRE</b> <i>Chairs:</i> S. Manzello A. Trouvé
9:45	2A01: Large Eddy Simulation of flame edge evolution in a spark-ignited methane-air jet <i>Z. Chen, S. Ruan, N. Swaminathan</i>	2B01: A skeletal gasoline flame ionization mechanism for combustion timing prediction on HCCI engines <i>G. Dong, Y. Chen, L. Li, Z. Wu, R. Dibble</i>	2C01: The experimental investigation on the response of the Burke-Schumann flame to acoustic excitation <i>T. Kim, M. Ahn, J. Hwang, S. Kim, Y. Yoon</i>	2D01: Measuring hydroperoxide chain-branching agents during <i>n</i> -pentane low-temperature oxidation <i>A. Rodriguez, O. Herbinet, Z. Wang, F. Qi, C. Fittschen, P.R. Westmoreland, F. Battin-Leclerc</i>	2E01: Study of flame response to transverse acoustic modes from the LES of a 42-injector rocket engine <i>A. Urbano, Q. Douasbin, L. Selle, G. Staffelbach, B. Cuenot, T. Schmitt, S. Ducruix, S. Candel</i>	2F01: Experimental and kinetic investigation of 1,2,4-trimethylbenzene oxidation at low temperature <i>J.-J. Weng, Y.-X. Liu, B.-Y. Wang, L.-L. Xing, L.-D. Zhang, Z.-Y. Tian</i>	2G01: The chemical and physical effects of CO <sub>2</sub> on the homogeneous and heterogeneous ignition of the coal particle in O <sub>2</sub> /CO <sub>2</sub> atmospheres <i>L. Zhang, D. Wu, L. Cai, C. Zou, J. Qiu, C. Zheng</i>	2H01: Understanding scramjet combustion using LES of the HyShot II combustor <i>K. Nordin-Bates, C. Fureby, S. Karl, K. Hannemann</i>	2J01: Investigation of firebrand production during prescribed fires conducted in a pine forest <i>A. Filkov, S. Prohanov, E. Mueller, D. Kasymov, P. Martynov, M. El Houssami, J. Thomas, N. Skowronski, B. Butler, M. Gallagher, K. Clark, W. Mell, R. Kremens, R. Hadden, A. Simeoni</i>

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	<b>TURBULENT FLAMES</b> <i>Chairs:</i> S. De E. Richardson	<b>IC ENGINES</b> <i>Chairs:</i> S. Dooley G. Kalghathi	<b>LAMINAR FLAMES</b> <i>Chairs:</i> M. Mansour K. Seshadri	<b>REACTION KINETICS</b> <i>Chairs:</i> P.-A. Glaude T. Turányi	<b>GAS TURBINES</b> <i>Chairs:</i> S. Hochgreb N. Noiray	<b>SOOT</b> <i>Chairs:</i> M. Thomson X. You	<b>SOLID FUELS/ POLLUTANTS</b> <i>Chairs:</i> M. Hupa J.O.L. Wendt	<b>EXPLOSIONS &amp; SUPERSONIC</b> <i>Chairs:</i> L. Bauwens I.S. Jeung	<b>FIRE</b> <i>Chairs:</i> S. Manzello A. Trouvé
10:10	2A02: Modelling local extinction in Sydney swirling non-premixed flames with LES/CMC H. Zhang, E. Mastorakos	2B02: A versatile coupled progress variable / REDIM model for auto-ignition and combustion M.-S. Benzinger, R. Schießl, U. Maas	2C02: Multi-scale modeling of detonation formation with concentration and temperature gradients in <i>n</i> -heptane/air mixtures T. Zhang, W. Sun, Y. Ju	2D02: An experimental and modelling study of <i>n</i> -pentane oxidation in two jet-stirred reactors: The importance of pressure-dependent kinetics and new reaction pathways J. Bugler, A. Rodriguez, O. Herbinet, F. Battin-Leclerc, C. Togbé, G. Dayma, P. Dagaut, H. Curran	2E02: Large eddy simulation of a model gas turbine burner using reduced chemistry with accurate pollutant prediction T. Jaravel, E. Riber, B. Cuenot, G. Bulat	2F02: Experimental and kinetic modeling study of premixed <i>n</i> -butylbenzene flames W. Yuan, Y. Li, Z. Wang, Y. Wang, L. Zhao, Y. Zhang, Z. Zhou, F. Qi	2G02: Mechanism of conditioner CaO on NOx precursors evolution during sludge steam gasification Q. Zhang, H. Liu, G. Lu, L. Yi, H. Hu, H. Yao, H. Chi	2H02: Scramjet to ramjet transition in a dual-mode combustor with fin-guided injection C. Aguilera, K.H. Yu	2J02: Upslope fire spread over a pine needle fuel bed of trench configuration associated with eruptive fire X. Xie, N. Liu, J. Lei, L. Zhang, H. Chen, X. Yuan, H. Li
10:35	2A03: Stochastic modeling of unsteady extinction in turbulent non-premixed combustion T. Lackmann, J.C. Hewson, R.C. Knaus, A.R. Kerstein, M. Oevermann	2B03: Use of a rapid compression machine to characterize the anti-knock properties of high octane fuels U.A. Burke, R.F. Cracknell, T.M. Evans, B. Poulet, S. Gail, I. Kitsopanis, D. Salters, K.A. Heufer	2C03: Stabilization of a premixed laminar flame on a rotating cylinder D. Mejia, M. Bauerheim, P. Xavier, B. Ferret, L. Selle, T. Poinso	2D03: Elucidating reactivity regimes in cyclopentane oxidation: Jet stirred reactor experiments, computational chemistry, and kinetic modeling M.J. Al Rashidi, S. Thion, C. Togbé, G. Dayma, M. Mehl, P. Dagaut, W.J. Pitz, J. Zádor, S.M. Sarathy	2E03: Effect of chemistry description on the LES of a realistic swirled non-premixed combustor A.M. Felden, E. Riber, B. Cuenot	2F03: Radical-radical reactions, pyrene nucleation, and incipient soot formation in combustion K.O. Johansson, T. Dillstrom, P. Elvati, M.F. Campbell, P.E. Schrader, D.M. Popolan-Vaida, N.K. Hendersen-Richards, K.R. Wilson, A. Violi, H.A. Michelsen	2G03: Homogeneous and heterogeneous reaction mechanisms and kinetics of mercury oxidation in coal-fired flue gas with bromine addition Y. Yang, J. Liu, Z. Wang, Z. Zhang	2H03: Effect of thermal nonequilibrium on ignition in scramjet combustors R. Fiévet, S. Voelkel, H. Koo, V. Raman, P.L. Varghese	2J03: Charring shrinkage and cracking of fir during pyrolysis in inert atmosphere and different ambient pressures K. Li, S. Hostikka, P. Dai, Y. Li, H. Zhang

11:00	Break Women in Combustion Coffee Break Auditorium Lobby, 3rd floor								
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	<b>TURBULENT FLAMES</b> <i>Chairs:</i> <i>S. De</i> <i>E. Richardson</i>	<b>IC ENGINES</b> <i>Chairs:</i> <i>S. Dooley</i> <i>G. Kalghathi</i>	<b>LAMINAR FLAMES</b> <i>Chairs:</i> <i>M. Mansour</i> <i>K. Seshadri</i>	<b>REACTION KINETICS</b> <i>Chairs:</i> <i>P.-A. Glaude</i> <i>T. Turányi</i>	<b>GAS TURBINES</b> <i>Chairs:</i> <i>S. Hochgreb</i> <i>N. Noiray</i>	<b>SOOT</b> <i>Chairs:</i> <i>M. Thomson</i> <i>X. You</i>	<b>SOLID FUELS/ POLLUTANTS</b> <i>Chairs:</i> <i>M. Hupa</i> <i>J.O.L. Wendt</i>	<b>EXPLOSIONS &amp; SUPERSONIC</b> <i>Chairs:</i> <i>L. Bauwens</i> <i>I.S. Jeung</i>	<b>FIRE</b> <i>Chairs:</i> <i>S. Manzello</i> <i>A. Trouvé</i>
11:30	2A04: Computational study of flame characteristics of a turbulent piloted jet burner with inhomogeneous inlets <i>K. Kleinheinz, T. Kubis, P. Trisjono, M. Bode, H. Pitsch</i>	2B04: Antiknock quality and ignition kinetics of 2-phenylethanol, a novel lignocellulosic octane booster <i>V.S.B. Shankar, M. AlAbbad, M. El-Rachidi, S.Y. Mohamed, Z. Wang, A. Farooq, S.M. Sarathy</i>	2C04: Critical conditions for flame acceleration in long channels closed at their ignition end <i>V.N. Kurdyumov, M. Matalon</i>	2D04: On the crossover temperature and lower turnover states in the NTC regime <i>W. Ji, P. Zhao, P. Zhang, Z. Ren, X. He, C.K. Law</i>	2E04: Disturbance energy budget of turbulent swirling premixed flame in a cuboid combustor <i>K. Aoki, M. Shimura, Y. Naka, M. Tanahashi</i>	2F04: Soot particle size distributions in premixed stretch-stabilized flat ethylene-oxygen-argon flames <i>J. Camacho, A. Singh, W. Wang, R. Shan, E. Yapp, D. Chen, M. Kraft, H. Wang</i>	2G04: A thermal decomposition study of pine wood under ambient pressure using thermogravimetry combined with synchrotron VUV photoionization mass spectrometry <i>Z. Zhou, H. Jin, L. Zhao, Y. Wang, W. Wen, J. Yang, Y. Li, Y. Pan, F. Qi</i>	2H04: Chapman-Jouguet deflagrations and their transition to detonation <i>M. Saif, W. Wang, A. Pekalski, M. Levin, M.I. Radulescu</i>	2J04: Flame heights and air entrainment stoichiometric combustion involved ratio for rectangular turbulent jet fires in a sub-pressure atmosphere <i>L. Hu, X. Zhang, X. Zhang, K. Lu, Z. Guo</i>
11:55	2A05: A two mixture fraction flamelet model for Large Eddy Simulation of turbulent flames with inhomogeneous inlets <i>B.A. Perry, M.E. Mueller, A.R. Masri</i>	2B05: Effect of initial temperature and fuel properties on knock characteristics in a rapid compression and expansion machine <i>K. Tanoue, T. Jimoto, T. Kimura, J. Hashimoto</i>	2C05: Propagation of symmetric and non-symmetric lean hydrogen-air flames in narrow channels: Influence of heat losses <i>C. Jiménez, V.N. Kurdyumov</i>	2D05: New insights in the low-temperature oxidation of acetylene <i>B.-Y. Wang, Y.-X. Liu, J.-J. Weng, P. Glarborg, Z.-Y. Tian</i>	2E05: Computational characterization of ignition regimes in a syngas/air mixture with temperature fluctuations <i>P. Pal, M. Valorani, P.G. Arias, H.G. Im, M.S. Wooldridge, P.P. Ciottoli, R.M. Galassi</i>	2F05: Effect of 2,5-dimethylfuran doping on particle size distributions measured in premixed ethylene/air flames <i>M. Conturso, M. Sirignano, A. D'Anna</i>	2G05: Effect of alkali addition on sulfur transformation during low temperature pyrolysis of sewage sludge <i>S. Cheng, Y. Qiao, J. Huang, L. Cao, H. Yang, H. Liu, Y. Yu, M. Xu</i>	2H05: Shock transition to detonation in channels with obstacles <i>G.B. Goodwin, R.W. Houim, E.S. Oran</i>	2J05: Flame height of turbulent fire whirls: A model study by concept of turbulence suppression <i>J. Lei, N. Liu, R. Tu</i>
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12:20	2A06: MMC-LES simulations of turbulent piloted flames with varying levels of inlet inhomogeneity S. Galindo-Lopez, F. Salehi, M.J. Cleary, A.R. Masri	2B06: A study of laser induced ignition of methane-air mixtures inside a rapid compression machine C. Dumitrache, M. Baumgardner, A. Boissiere, A. Maria, J. Roucis, A. Marchese, A. Yalin	2C06: Near limit premixed flamelets in Hele-Shaw cells X. Chen, Z. Lu, S. Wang	2D06: The importance of third O <sub>2</sub> addition in 2-methylhexane auto-oxidation Z. Wang, S.Y. Mohamed, L. Zhang, K. Moshhammer, D.M. Popolan-Vaida, V.S.B. Shankar, A. Lucassen, L. Ruwe, N. Hansen, P. Dagaut, S.M. Sarathy	2E06: Hybrid CFD/low-order modeling of nonlinear thermoacoustic oscillations S. Jaensch, M. Merk, E.A. Gopalakrishnan, S. Bomberg, T. Emmert, R.I. Sujith, W. Polifke	2F06: Modeling soot oxidation with the extended quadrature method of moments A. Wick, T.-T. Nguyen, F. Laurent, R.O. Fox, H. Pitsch	2G06: Effect of different pretreatments on the thermal degradation of seaweed biomass Y. Hu, S. Wang, Q. Wang, Z. He, S. Xu, H. Ji, Y. Li	2H06: Shock to detonation transition analysis using experiments and models B. Kim, M. Kim, J.J. Yoh	2J06: On the flame height of circulation-controlled firewhirls with variable density D. Yu, P. Zhang
12:45	2A07: Large-Eddy Simulation of piloted diffusion flames using multi-environment probability density function models W. Zhao	2B07: In-cylinder Thermochemical Fuel Reforming (TFR) in a spark-ignition natural gas engine L. Zhu, Z. He, Z. Xu, X. Lu, J. Fang, W. Zhang, Z. Huang	2C07: Dynamics of bluff-body-stabilized lean premixed syngas flames in a meso-scale channel B.J. Lee, H.G. Im	2D07: Jet-stirred reactor oxidation of alkane-rich FACE gasoline fuels B. Chen, C. Togbé, Z. Wang, P. Dagaut, S.M. Sarathy	2E07: Impact of heat release global fluctuations and flame motion on transverse acoustic wave stability Y.S. Méry	2F07: Detailed particle nucleation modeling in a sooting ethylene flame using a Conditional Quadrature Method of Moments (CQMOM) S. Salenbauch, M. Sirignano, D.L. Marchisio, M. Pollack, A. D'Anna, C. Hasse	2G07: Influence of biomass particle size on bed agglomeration during biomass pyrolysis in fluidized bed A. Burton, H. Wu	2H07: Parametric transition from deflagration to detonation: Runaway of fast flames L. Kagan, G. Sivashinsky	2J07: Scaling flame height of fully turbulent pool fires based on the turbulent transport properties J. Lei, N. Liu
13:10	<p><b>LUNCH</b></p> <p>PECS Editorial Lunch – Room 300</p> <p>European Joint Board Meeting – Room 301A</p> <p>Visit Posters and our Exhibitors and Sponsors in D Hall (Poster abstracts are online at <a href="http://www.combustionsymposia.org">www.combustionsymposia.org</a>)</p>								

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	<b>TURBULENT FLAMES</b> <i>Chairs:</i> R. Barlow H. Pitsch	<b>Invited Topical Review</b> <i>Chairs:</i> M. Brear V. Sick	<b>LAMINAR FLAMES</b> <i>Chairs:</i> N. Chaumeix W.L. Roberts	<b>REACTION KINETICS</b> <i>Chairs:</i> H. Curran Y. Ju	<b>GAS TURBINES</b> <i>Chairs:</i> P. Bowen L. Selle	<b>SOOT</b> <i>Chairs:</i> H. Bockhorn M. Sirignano	<b>SOLID FUELS</b> <i>Chairs:</i> F. Behrendt U. Riedel	<b>EXPLOSIONS &amp; SUPERSONIC</b> <i>Chairs:</i> C. Fureby M. Radulescu	<b>FIRE</b> <i>Chairs:</i> S. McAllister B. Merci
14:30	2A08: A criterion to distinguish autoignition and propagation applied to a lifted methane-air jet flame <i>O. Schulz, T. Jaravel, T. Poinot, B. Cuenot, N. Noiray</i>	2B08/2B09:  Alternative fuels for internal combustion engines	2C08: Autoignition of condensed hydrocarbon fuels in nonpremixed flows at elevated pressures <i>G. Mairinger, A. Frassoldati, R. Gehmlich, U. Niemann, A. Stagni, E. Ranzi, K. Seshadri</i>	2D08: CFD simulations of rapid compression machines using detailed chemistry: Impact of multi-dimensional effects on the auto-ignition of the iso-octane <i>N. Bourgeois, S.S. Goldsborough, G. Vanhove, M. Duponcheel, H. Jeanmart, F. Contino</i>	2E08: Effect of equivalence ratio on the modal dynamics of azimuthal combustion instabilities <i>N.A. Worth, J.R. Dawson</i>	2F08: Soot measurements by two angle scattering and extinction in an N <sub>2</sub> -diluted ethylene/air counterflow diffusion flame from 2 to 5 atm <i>H.M.F. Amin, W.L. Roberts</i>	2G08: Measurement and numerical simulation of ultrafine particle size distribution in the early stage of high-sodium lignite combustion <i>Q. Gao, S. Li, M. Yang, P. Biswas, Q. Yao</i>	2H08: Experimental study on ignition induced by convergent shock in channel <i>J. Yang, Y. Zhu, J. Yang</i>	2J08: Tilt angle of turbulent jet diffusion flame in crossflow and a global correlation with momentum flux ratio <i>J.-W. Wang, J. Fang, S.-B. Lin, J.-F. Guan, Y.-M. Zhang, J.-J. Wang</i>
14:55	2A09: Laser ignition and flame characteristics of pulsed methane jets in homogeneous isotropic turbulence without mean flow <i>Y. Sung, G. Charalampous, Y. Hardalupas, G. Choi</i>	Choongsik Bae	2C09: Effects of differential diffusion on ignition of stoichiometric hydrogen-air by moving hot spheres <i>J. Melguizo-Gavilanes, R. Mével, S. Coronel, J. Shepherd</i>	2D09: Ignition delay measurements of light naphtha: A fully blended low octane fuel <i>T. Javed, E.F. Nasir, A. Ahmed, J. Badra, K. Djebbi, M. Beshir, W. Ji, S.M. Sarathy, A. Farooq</i>	2E09: Non-stationary local thermoacoustic phase relationships in a gas turbine combustor <i>S. Kheirkhah, B.D. Geraedts, P. Saini, K. Venkatesan, A.M. Steinberg</i>	2F09: Impact of acoustic forcing on soot evolution and temperature in ethylene-air flames <i>A. Jocher, K.K. Foo, Z. Sun, B. Dally, H. Pitsch, Z. Alwahabi, G. Nathan</i>	2G09: Loading the same contents of sodium and quartz into different ash-removed coals to elaborately investigate the effect of coal particle combustion on the emission behavior of PM <sub>10</sub> <i>C. Wen, P. Zhang, D. Yu, M. Xu</i>	2H09: Effects of Lewis number and kinetics on spontaneous ignition of hydrogen jets <i>E. Bourgin, M.M. Alves, C. Yang, F.F. Filho, L. Bauwens</i>	2J09: Experimental investigation on flame patterns of buoyant diffusion flame in a large range of imposed circulations <i>J. Lei, N. Liu, Y. Jiao, S. Zhang</i>

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	<b>TURBULENT FLAMES</b> <i>Chairs:</i> R. Barlow H. Pitsch	<b>IC ENGINES</b> <i>Chairs:</i> M. Brear V. Sick	<b>LAMINAR FLAMES</b> <i>Chairs:</i> N. Chaumeix W.L. Roberts	<b>REACTION KINETICS</b> <i>Chairs:</i> H. Curran Y. Ju	<b>GAS TURBINES</b> <i>Chairs:</i> P. Bowen L. Selle	<b>SOOT</b> <i>Chairs:</i> H. Bockhorn M. Sirignano	<b>SOLID FUELS</b> <i>Chairs:</i> F. Behrendt U. Riedel	<b>EXPLOSIONS &amp; SUPERSONIC</b> <i>Chairs:</i> C. Fureby M. Radulescu	<b>FIRE</b> <i>Chairs:</i> S. McAllister B. Merci
15:20	<p>2A10/2A11: Industry Perspective Panel: Turbulent Combustion</p> <p>Presenters: Khawar Syed Amita Tripathi</p> <p>Panelists: Donghee Han Gautam Kalghatgi Mario Soteriou</p>	2B10: Understanding the effect of external-EGR on anti-knock characteristics of various ethanol reference fuel with RON 100 by using rapid compression machine <i>J. Cho, H.H. Song</i>	2C10: Effects of Lewis number on generation of primary acoustic instability in downward-propagating flames <i>S.H. Yoon, T.J. Noh, O. Fujita</i>	2D10: Combustion of synthetic jet fuels: Naphtenic cut and blend with a Gas-to-Liquid (GtL) jet fuel <i>P. Dagaut, P. Diévert</i>	2E10: A method to identify thermoacoustic growth rates in combustion chambers from dynamic pressure time series <i>A. Denisov, N. Noiray</i>	2F10: Pressure dependence of primary soot particle size determined using thermophoretic sampling in laminar methane-air diffusion flames <i>A.M. Vargas, Ö.L. Gülder</i>	2G10: Inorganic PM <sub>10</sub> emission from the combustion of individual mallee components and whole-tree biomass <i>X. Gao, M.U. Rahim, X. Chen, H. Wu</i>	2H10: Regimes describing shock boundary layer interaction and ignition in shock tubes <i>K.P. Grogan, M. Ihme</i>	2J10: Local flame attachment and heat fluxes in wind-driven line fires <i>W. Tang, C.H. Miller, M.J. Gollner</i>
15:45		2B11: Investigation of cetane number and octane number correlation under homogenous-charge compression-ignition engine operation <i>D. Janecek, D. Rothamer, J. Gandhi</i>	2C11: Impinging nonpremixed coflow methane-air flames with unity Lewis number <i>V.M. Sauer, D. Dunn-Rankin</i>	2D11: Ignition delay times of low alkylfurans at high pressures using a rapid compression machine <i>N. Xu, Y. Wu, C. Tang, P. Zhang, X. He, Z. Wang, Z. Huang</i>	2E11: An analytical model for the impulse response of laminar premixed flames to equivalence ratio perturbations <i>A. Albayrak, R.S. Blumenthal, A. Ulhaq, W. Polifke</i>	2F11: Probe sampling to map and characterize nanoparticles along the axis of a laminar methane jet diffusion flame <i>M. Kazemimanes, A. Moallemi, J.S. Olfert, L.W. Kostiuk</i>	2G11: K-CL-S chemistry in air and oxy-combustion atmospheres <i>T. Ekvall, K. Andersson, T. Leffler, M. Berg</i>	2H11: Representative interactive flamelet model and flamelet/progress variable model for supersonic combustion flows <i>Z. Gao, C. Jiang, C.-H. Lee</i>	2J11: Effect of air entrainment on flame height of multiple fires in open space <i>H. Wan, J. Ji, K. Li, X. Huang, J. Sun, Y. Zhang</i>
16:10	<p>BREAK</p> <p>The 36<sup>th</sup> International Symposium on Combustion is brought to you by:</p> <p><b>Bronze Sponsors</b></p> <p><b>Korea Aerospace Industries, Ltd.</b>  <b>Korea Aerospace Research Institute</b>  <b>Korea Institute of Energy Research</b></p> <p><b>LG Electronics</b>  <b>LIG Nex1</b>  <b>Mekasentron</b>  <b>NEXT foam</b></p> <p><b>Research Institute of Industrial Science &amp; Technology</b></p>								

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16:40	2A12: Stabilization of turbulent auto-igniting dimethyl ether jet flames issuing into a hot vitiated coflow A.R.W. Macfarlane, M.J. Dunn, M. Juddoo, A.R. Masri	2B12: Effect of jet-jet interactions on soot formation in a small-bore diesel engine M.K. Le, Y. Zhang, R. Zhang, L. Rao, S. Kook, Q.N. Chan, E.R. Hawkes	2C12: Rate ratio asymptotic analysis of the influence of stoichiometric mixture fraction on the structure and extinction of laminar, nonpremixed methane flames with comparison to experiments P. Mairhofer, G. Mairinger, K. Seshadri, X.-S. Bai, R. Seiser, E. Pucher	2D12: An experimental study in a jet-stirred reactor and a comprehensive kinetic mechanism for the oxidation of Methyl Ethyl Ketone S. Thion, P. Diévert, P. Van Cauwenberghe, G. Dayma, Z. Serinyel, P. Dagaut	2E12: Acoustic and intrinsic thermoacoustic modes of a premixed combustor T. Emmert, S. Bomberg, S. Jaensch, W. Polifke	2F12: Numerical investigation of soot-flame-vortex interactions B. Franzelli, A. Cuoci, A. Stagni, M. Ihme, T. Faravelli, S. Candel	2G12: Gas phase potassium release from a single particle of biomass during high temperature combustion P.E. Mason, J.M. Jones, L.I. Darvell, A. Williams	2H12: Thermal structure of methane hydrate fueled flames F.-H. Wu, R.E. Padilla, D. Dunn-Rankin, G.-B. Chen, Y.-C. Chao	2J12: An experimental study on temperature evolution inside compartment with fire growth and flame ejection through an opening under external wind L. Hu, F. Ren, K. Hu, F. Tang, K. Lu
17:05	2A13: Experimental study on the effect of turbulence on the structure and dynamics of a bluff-body stabilized lean premixed flame B.R. Chowdhury, J.A. Wagner, B.M. Cetegen	2B13: Influence of three-dimensional in-cylinder flows on cycle-to-cycle variations in a fired stratified DISI engine measured by time-resolved dual-plane PIV J. Bode, J. Schorr, C.C Kruger, A. Dreizler, B. Böhm	2C13: Flamelet budget and regime analysis for non-premixed tubular flames A. Scholtissek, R.W. Pitz, C. Hasse	2D13: A study of the low-temperature oxidation of a long chain aldehyde: <i>n</i> -hexanal A. Rodriguez, O. Herbinet, F. Battin-Leclerc	2E13: Azimuthally forced flames in an annular combustor N.A. Worth, J.R. Dawson, J. Sidey, E. Mastorakos	2F13: The effect of oxygen enrichment on soot formation and thermal radiation in turbulent, non-premixed methane flames C.R. Shaddix, T.C. Williams	2G13: The effect of turbulent clustering on particle reactivity J. Krüeger, N.E.L. Haugen, D. Mitra, T. Løvås	2H13: Ignition of <i>n</i> -propanol-air hydrothermal flames during supercritical water oxidation S.N. Reddy, S. Nanda, U.G. Hegde, M.C. Hicks, J.A. Kozinski	2J13: Self-extinction of timber R.L. Emberley, A. Inghelbrecht, Z. Yu, J.L. Torero
<p>The 36th International Symposium on Combustion is brought to you by:</p> <p><b>Bronze Sponsors</b></p> <p><b>SAC</b></p> <p><b>Sookook Corporation</b></p> <p><b>Ssangyong Motor</b></p>									

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17:30	2A14: Experimental and numerical studies of fuel and hydrodynamic effects on piloted turbulent premixed jet flames <i>J. Smolke, S. Lapointe, L. Paxton, G. Blanquart, F. Carbone, A.M. Fincham, F.N. Egolfopoulos</i>	2B14: Influence of injection parameters, ozone seeding and residual NO on a Gasoline Compression Ignition (GCI) engine at low load <i>P.M. Pinazzi, F. Foucher</i>	2C14: Experimental and numerical study of H <sub>2</sub> -air non-premixed cellular tubular flames <i>C.A. Hall, R.W. Pitz</i>	2D14: Alkyl radicals rule the low temperature oxidation of aldehydes <i>M. Pelucchi, E. Ranzi, A. Frassoldati, T. Faravelli</i>	2E14: Multiple-scale thermo-acoustic stability analysis of a coaxial jet combustor <i>L. Magri, Y.-C. See, O. Tammisola, M. Ihme, M.P. Juniper</i>	2F14: Nascent soot particle size distribution down to 1 nm measured in a laminar premixed burner-stabilized stagnation ethylene flame <i>Q. Tang, R. Cai, X. You, J. Jiang</i>	2G14: Modeling of alkali metal release during biomass pyrolysis <i>H. Fatehi, Z. Li, X.-S. Bai, M. Aldén</i>		2J14: Generating wind-driven firebrand showers characteristic of burning structures <i>S.L. Manzello, S. Suzuki</i>
<p>SESSIONS END AT 17:55</p> <p>Combustion Institute Committee Meeting in Ballroom 3</p> <p>Combustion Institute's Young Researcher Mixer begins at 18:00 at Social Collabo</p>									

Wednesday, 3 August 2016

(Auditorium with overflow in Ballroom 3)

PLENARY LECTURE – 8:30 am

Catalytic processes for the conversion of natural gas to logistics fuels and chemicals

Robert J. Kee and Huayang Zhu, Canan Karakaya

Chairs: P. Glarborg and B. Haynes

TRANSFER

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9:45	3A01: Sparse-Lagrangian MMC modelling of the Sandia DME (D-F) jet flames G. Neuber, A. Kronenburg, O.T. Stein, M.J. Cleary, B. Coriton, J.H. Frank	3B01: Different modes of reaction front propagation in <i>n</i> -heptane/air mixture with concentration non-uniformity C. Qi, P. Dai, H. Yu, Z. Chen	3C01: Experimental and kinetic study of pentene isomers and <i>n</i> -pentane in laminar flames Y. Cheng, E. Hu, X. Lu, X. Li, J. Gong, Q. Li, Z. Huang	3D01: Predictive kinetics on the formation and decomposition of ethylbenzene L. Ye, L. Xing, W. Yuan, Y. Li, L. Zhang, F. Qi	3E01: Extracting flame describing functions in the presence of self-excited thermoacoustic oscillations S. Balusamy, L.K. Li, Z. Han, S. Hochgreb	3F01: Gas phase pyrolysis of endosulfan and formation of dioxin precursors of PolyChlorinated Dibenzop-Dioxins and Dibenzofurans (PCDD/F) N.K. Dharmarathne, J.C. Mackie, E.M. Kennedy, M. Stockenhuber	3G01: Deposition of coal ash on a vertical surface in a 100 kW downflow laboratory combustor: A comparison of theory and experiment Z. Zhan, A.R. Fry, J.O.L. Wendt	3H01: Investigation of the anode reactions in SO-DCFCs fueled by Sn-C mixture fuels K. Xu, C. Chen, Z. Li, M. Shi, H. Xing, H. Liu, X. Li, G. Luo, H. Yao	3J01: Spray dispersion measurements of a sprinkler array E.D. Link, S.J. Jordan, T.M. Myers, P.B. Sunderland, A.W. Marshall
10:10	3A02: A unified view of pilot stabilized turbulent jet flames for model assessment across different combustion regimes H. Wang, P. Zhang	3B02: Autoignition studies of C5 isomers in a motored engine D. Kang, S.V. Bohac, A.L. Boehman, S. Cheng, Y. Yang, M.J. Brear	3C02: Insights in <i>m</i> -xylene decomposition under fuel-rich conditions by imaging PhotoElectron Photoion Coincidence spectroscopy T. Bierkandt, P. Hemberger, P. Oßwald, M. Köhler, T. Kasper	3D02: Theoretical studies for reaction kinetics of methylcyclohexyl radical with molecular oxygen L. Xing, F. Zhang, L. Zhang	3E02: Flame dynamics during intermittency in a turbulent combustor V.R. Unni, R.I. Sujith	3F02: Influence of potassium and iron chloride on the early stages of soot formation studied using imaging LII/ELS and TEM techniques J. Simonsson, N.-E. Olofsson, H. Bladh, M. Sanati, P.-E. Bengtsson	3G02: Ash particle sticking and rebound behavior: A mechanistic explanation and modeling approach U. Kleinhans, C. Wieland, S. Babat, G. Scheffknecht, H. Spliethoff	3H02: CO <sub>2</sub> diluted propane/oxygen combustion in a rapidly mixed tubular flame burner B. Shi, W. Peng, B. Li, J. Hu, N. Wang, S. Ishizuka	3J02: Effect of water mist on minimum ignition energy of propane/air mixture W. Ebina, C. Liao, H. Naito, A. Yoshida



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10:35	3A03: Leading points and heat release effects in turbulent premixed flames S.H. Kim	3B03: Autoignition of pentane isomers in a spark-ignition engine S. Cheng, Y. Yang, M.J. Brear, D. Kang, S. Bohac, A.L. Boehman	3C03: Experimental and kinetic modeling study of laminar premixed decalin flames M. Zeng, Y. Li, W. Yuan, T. Li, Y. Wang, Z. Zhou, L. Zhang, F. Qi	3D03: Conformational inversion-topomerization mechanism of cyclic alkyl radicals and its role in combustion kinetics H. Bian, Z. Wang, J. Sun, F. Zhang	3E03: Bistable behaviour and thermo-acoustic instability triggering in a gas turbine model combustor A. Renaud, S. Ducruix, L. Zimmer	3F03: The effect of exit strain rate on soot volume fraction in turbulent non-premixed jet flames S.M. Mahmoud, G.J. Nathan, Z.T. AlWahabi, Z.W. Sun, P.R. Medwell, B.B. Dally	3G03: Ash deposition propensity of coals/blends combustion in boilers: A modelling analysis based on multi-slagging routes X. Yang, D. Ingham, L. Ma, N. Srinivasan, M. Pourkashanian	3H03: Flame anchoring regime of filtration gas combustion: Theory and experiment F. Sirotkin, R. Fursenko, S. Kumar, S. Minaev	3J03: Large eddy simulation of suppression of turbulent line fires by base-injected water mist S. Vilfayeau, T. Myers, A.W. Marshall, A. Trouvé
11:00	Break								
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11:30	3A04: A PDF approach to thin premixed flamelets using multiple mapping conditioning A.Y. Klimenko, B. Sundaram	3B04: Understanding the ignition mechanism of high-pressure spray flames R.N. Dahms, G.A. Pazcko, S.A. Skeen, L.M. Pickett	3C04: Experimental and kinetic modeling study of Diethyl Ether flames L.-S. Tran, J. Pieper, H.-H. Carstensen, H. Zhao, I. Graf, Y. Ju, F. Qi, K. Kohse-Höinghaus	3D04: A theoretical study of cyclic ether formation reactions J. Bugler, J. Power, H.J. Curran	3E04: Ignition Delay Times of Jet A-1 fuel: Measurements in a high-pressure Shock Tube and a Rapid Compression Machine A.R. De Toni Jr., M. Werler, R.M. Hartmann, L.R. Cancino, R. Schießl, M. Fikri, C. Schulz, A.A.M. Oliveira, E.J. Oliveira, M.I. Rocha	3F04: The evolution of soot particles in premixed and diffusion flames by Thermophoretic Particle Densitometry G. De Falco, M. Commodo, A. D'Anna, P. Minutolo	3G04: Kinetic study on <i>in-situ</i> and cooling char combustion in a two-step reaction analyzer Y. Fang, G. Luo, J. Li, K. Li, C. Chen, H. Zhao, R. Duan, H. Yao	3H04: Mechanism of detonation transition from accelerating flames in a channel S. Ishihara, K. Ishii, H. Kataoka	3J04: Smoldering spot ignition of natural fuels by a hot metal particle J.L. Urban, C.D. Zak, J. Song, C. Fernandez-Pello

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11:55	3A05: Characterization of extinction/re-ignition events in turbulent premixed counterflow flames using strain-rate analysis R.R. Tirunagari, S.B. Pope	3B05: Ignition process of spark discharge in a spark-ignition engine using a time series of spectra measurements N. Kawahara, S. Hashimoto, E. Tomita	3C05: The influence of <i>iso</i> -butanol addition to the chemistry of premixed 1,3-butadiene flames M. Braun-Unkhoff, N. Hansen, T. Methling, K. Moshhammer, B. Yang	3D05: An experimental and theoretical kinetic study of the reaction of OH radicals with TetraHydroFuran B.R. Giri, F. Khaled, M. Szori, B. Viskolcz, A. Farooq	3E05: Low temperature autoignition of conventional jet fuels and surrogate jet fuels with targeted properties in a rapid compression machine D.J. Valco, K. Min, A. Oldani, T. Edwards, T. Lee	3F05: Hydrodynamic and chemical effects of hydrogen addition on soot evolution in turbulent nonpremixed bluff body ethylene flames S. Deng, M.E. Mueller, Q.N. Chan, N.H. Qamar, B.B. Dally, Z.T. Alwahabi, G.J. Nathan	3G05: Effect of gas temperature and oxygen concentration on single particle ignition behavior of biomass fuels G. Simões, D. Magalhães, M. Rabaçal, M. Costa	3H05: Investigation of fluid motion in valveless pulse detonation combustor with high-frequency operation K. Matsuoka, K. Muto, J. Kasahara, H. Watanabe, A. Matsuo, T. Endo	3J05: Self-ignition and smouldering characteristics of coal dust accumulations in O <sub>2</sub> /N <sub>2</sub> and O <sub>2</sub> /CO <sub>2</sub> atmospheres D. Wu, M. Schmidt, X. Huang, F. Verplaetsen
12:20	3A06: Unstructured LES-CMC modeling of turbulent premixed bluff body flames close to blow-off D. Farrace, K. Chung, S.S. Pandurangi, Y.M. Wright, K. Boulouchos, N. Swaminathan	3B06: Simulation of liquid drop impact on dry and wet surfaces using SPH method X. Yang, L. Dai, S.-C. Kong	3C06: A laminar flame investigation of 2-butanone, and the combustion-related intermediates formed through its oxidation C. Hemken, U. Burke, I. Graf, L. Ruwe, S. Park, S.M. Sarathy, K.A. Heufer, K. Kohse-Höinghaus	3D06: Pericyclic reactions in ether biofuels J.-C. Lizardo-Huerta, B. Sirjean, P.-A. Glaude, R. Fournet	3E06: Localization of unsteady heat source in tube from the pressure measurements with inverse method Z. Di, W. Fanglong, Z. Min	3F06: Tracking the evolution of soot particles and precursors in turbulent flames using laser induced emission D. Bartos, M. Dunn, M. Sirignano, A. D'Anna, A. Masri	3G06: Ignition and combustion characteristics of single particles of ZhundDong Lignite: Effect of Water and Acid Washing Z. Zhang, M. Zhu, Y. Zhang, H.Y. Setyawan, J. Li, D. Zhang	3H06: Operation of a liquid-fueled and valveless pulse detonation rocket engine at high frequency W. Lu, W. Fan, K. Wang, Q. Zhang, Y. Chi	3J06: Modelling bench-scale fire on engineered wood: Effects of flame and physicochemical properties X. Huang, K. Li, H. Zhang
<p>The Combustion Institute is on the lookout for outstanding presentations. If you have seen a presentation that stood out, please send your recommendation to: <a href="mailto:office@combustioninstitute.org">office@combustioninstitute.org</a></p>									

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	<b>TURBULENT FLAMES</b> <i>Chairs:</i> <i>F. Salehi</i> <i>L. Vervish</i>	<b>IC ENGINES</b> <i>Chairs:</i> <i>S. Kook</i> <i>K.D. Min</i>	<b>LAMINAR FLAMES</b> <i>Chairs:</i> <i>N. Hansen</i> <i>H. Kobayashi</i>	<b>REACTION KINETICS</b> <i>Chairs:</i> <i>C.F. Goldsmith</i> <i>C. Westbrook</i>	<b>GAS TURBINES</b> <i>Chairs:</i> <i>W. Meier</i> <i>W. Polifke</i>	<b>SOOT</b> <i>Chairs:</i> <i>M. Kraft</i> <i>M.J. Wornat</i>	<b>SOLID FUELS</b> <i>Chairs:</i> <i>T. Løvås</i> <i>M. Xu</i>	<b>EXPLOSIONS &amp; SUPERSONIC</b> <i>Chairs:</i> <i>G. Ciccarelli</i> <i>J. Kasahara</i>	<b>FIRE</b> <i>Chairs:</i> <i>V. Novozhilov</i> <i>S. Suzuk</i>
12:45	3A07: LES of a turbulent premixed flame with Conditional Source-term Estimation and linear- <i>e</i> ddy model presumed PDF <i>H.P. Tsui,</i> <i>M.M. Salehi,</i> <i>W.K. Bushe</i>	3B07: Effects of initial temperature on autoignition and detonation development in dimethyl ether/air mixtures with temperature gradient <i>P. Dai, C. Qi, Z. Chen</i>	3C07: Understanding premixed flame chemistry of gasoline fuels by comparing data attributes <i>H. Selim,</i> <i>S.Y. Mohamed,</i> <i>A.E. Dawood,</i> <i>S.M. Sarathy</i>	3D07: On the high-temperature unimolecular dissociation of Ethyl Levulinate <i>M. AlAbbad,</i> <i>B.R. Giri, M. Szori,</i> <i>A. Farooq</i>	3E07: On the characteristic flow and flame times for scaling oxy and air flame stabilization modes in premixed swirl combustion <i>S. Taamallah,</i> <i>N.W. Chakroun,</i> <i>H. Watanabe,</i> <i>S.J. Shanbhogue,</i> <i>A.F. Ghoniem</i>	3F07: Real-time observation of soot aggregate oxidation in an environmental transmission electron microscope <i>A.D. Sediako,</i> <i>C. Soong, J.Y. Howe,</i> <i>M.R. Kholghya,</i> <i>M.J. Thomson</i>	3G07: Investigation of ignition and volatile combustion of single coal particles within oxygen-enriched atmospheres using high-speed OH-PLIF <i>J. Köser, L.G. Becker,</i> <i>A.-K. Goßmann,</i> <i>B. Böhm, A. Dreizler</i>	3H07: Combustion effects of a staged transverse jet and Pulsed Detonation in supersonic crossflow <i>Y.M. Abul-Huda,</i> <i>M. Gamba</i>	3J07: Autoignition of wood under combined convective and radiative heating <i>S. McAllister,</i> <i>M. Finney</i>
13:10	<b>LUNCH</b> Board of Director's Meeting begins at 12:45 – Room 300								
	Excursion to Dongdaemun Design Plaza (DDP) First shuttle departs Coex at 16:00 First return shuttle to Coex will depart DDP at 20:30								

Thursday, 4 August 2016

(Auditorium with overflow in Ballroom 3)

PLENARY LECTURE – 8:30 am

**From theoretical reaction dynamics to chemical modeling of combustion** *Stephen J. Klippenstein*

*Chairs: A. Masri and P. Westmoreland*

TRANSFER

Room	Auditorium	Ballroom 1	Ballroom 2	Ballroom 3	Ballroom 4	Ballroom 5	Room 203	Room 208	Room 201
	<b>TURBULENT FLAMES</b> <i>Chairs:</i> <i>J. Janicka</i> <i>S.B. Pope</i>	<b>IC ENGINES</b> <i>Chairs:</i> <i>C.S. Bae</i> <i>D. Haworth</i>	<b>LAMINAR FLAMES</b> <i>Chairs:</i> <i>T. Kasper</i> <i>Z. Wang</i>	<b>REACTION KINETICS</b> <i>Chairs:</i> <i>A. Farooq</i> <i>A. Mebel</i>	<b>GAS TURBINES</b> <i>Chairs:</i> <i>J. Dawson</i> <i>D. LaCoste</i>	<b>NANOPARTICLES</b> <i>Chairs:</i> <i>E. Knudsen</i> <i>H. Michelsen</i>	<b>SOLID FUELS</b> <i>Chairs:</i> <i>J. Sutherland</i> <i>Q. Yao</i>	<b>EXPLOSIONS &amp; SUPERSONIC</b> <i>Chairs:</i> <i>C. Carter</i> <i>H.D. Ng</i>	<b>FIRE</b> <i>Chairs:</i> <i>C. Fernandez-Pello</i> <i>J. Torero</i>
9:45	4A01: Performance of transported PDF mixing models in a turbulent premixed flame <i>M. Kuron, Z. Ren, H. Zhou, E. Hawkes, J. Tang, J.H. Chen, T. Lu</i>	4B01: Adaptation of a dynamic wrinkling model to an engine configuration <i>S. Mouriaux, O. Colin, D. Veynante</i>	4C01: Investigation of the chemical structures of laminar premixed flames fueled by acetaldehyde <i>T. Tao, W. Sun, B. Yang, N. Hansen, K. Moshhammer, C.K. Law</i>	4D01: Burning velocities and jet-stirred reactor oxidation of Diethyl Carbonate <i>R. Shahla, C. Togbé, S. Thion, F. Halter, C. Chauveau, G. Dayma, P. Dagaut</i>	4E01: Ignition dynamics in an annular combustor for liquid spray and premixed gaseous injection <i>K. Prieur, D. Durox, J. Beaunier, T. Schuller, S. Candel</i>	4F01: Large Eddy Simulations of nanoparticle synthesis from flame spray pyrolysis <i>A. Rittler, L. Deng, I. Wlokas, A.M. Kempf</i>	4G01: Mechanism study on the pyrolysis of a synthetic $\beta$ -O-4 dimer as lignin model compound <i>S. Wang, B. Ru, G. Dai, Z. Shi, J. Zhou, Z. Luo, M. Ni, K. Cen</i>	4H01: Investigation of supersonic combustion dynamics via 50-kHz CH* chemiluminescence imaging <i>P.M. Allison, K. Frederickson, J.W. Kirik, R.D. Rockwell, W.R. Lempert, J.A. Sutton</i>	4J01: Experimental characterization of the different nitrogen dilution effects on soot formation in ethylene diffusion flames <i>Q. Wang, G. Legros, J. Bonnetty, C. Morin</i>
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	<b>TURBULENT FLAMES</b> Chairs: J. Janicka S.B. Pope	<b>IC ENGINES</b> Chairs: C.S. Bae D. Haworth	<b>LAMINAR FLAMES</b> Chairs: T. Kasper Z. Wang	<b>REACTION KINETICS</b> Chairs: A. Farooq A. Mebel	<b>GAS TURBINES</b> Chairs: J. Dawson D. LaCoste	<b>NANOPARTICLES</b> Chairs: E. Knudsen H. Michelsen	<b>SOLID FUELS</b> Chairs: J. Sutherland Q. Yao	<b>EXPLOSIONS &amp; SUPERSONIC</b> Chairs: C. Carter H.D. Ng	<b>FIRE</b> Chairs: C. Fernandez-Pello J. Torero
10:10	4A02: A Direct Numerical Simulation study on NO formation in lean premixed flames P. Trisjono, H. Pitsch	4B02: Sparse-Lagrangian MMC simulations of an n-dodecane jet at engine-relevant conditions F. Salehi, M.J. Cleary, A.R. Masri, Y. Ge, A.Y. Klimenko	4C02: Speciation and the laminar burning velocities of Poly(Oxy-Methylene) DiMethyl Ether 3 (POMDME <sub>3</sub> ) flames: An experimental and modeling study W. Sun, G. Wang, S. Li, R. Zhang, B. Yang, J. Yang, Y. Li, C.K. Westbrook, C.K. Law	4D02: Influence of oxygenation in cyclic hydrocarbons on chain-termination reactions from R + O <sub>2</sub> B. Rotavera, J.D. Savee, I.O. Antonov, R.L. Caravan, L. Sheps, D.L. Osborn, J. Zádor, C.A. Taatjes	4E02: Interaction between Velocity Fluctuations and Equivalence Ratio Fluctuations during thermoacoustic oscillations in a partially premixed swirl combustor M. Stöhr, Z. Yin, W. Meier	4F02: CFD-Population Balance Monte Carlo simulation and numerical optimization for flame synthesis of TiO <sub>2</sub> nanoparticles Z. Xu, H. Zhao, H. Zhao	4G02: Effect of KCl and CaCl <sub>2</sub> loading on the formation of reaction intermediates during cellulose fast pyrolysis E. Leng, Y. Wang, X. Gong, B. Zhang, Y. Zhang, M. Xu	4H02: Characterization of flame stabilization modes in an ethylene-fueled supersonic combustor using time-resolved CH* chemiluminescence Y. Yuan, T. Zhang, W. Yao, X. Fan, P. Zhang	4J02: Soot and velocity mapping and 2D soot sheet dimensions in a buoyant wall-fire A. Valencia, M. Talbaut, J. Yon, G. Godard, C. Gobin, A. Coppalle
10:35	4A03: Parallel on-the-fly adaptive kinetics in direct numerical simulation of turbulent premixed flame S. Yang, R. Ranjan, V. Yang, S. Menon, W. Sun	4B03: Influence of turbulent fluctuations on radiation heat transfer and soot/NO formation under ECN Spray A conditions M. Bolla, M.A. Chishty, E.R. Hawkes, Q.N. Chan, S. Kook	4C03: Structure of premixed H <sub>2</sub> /O <sub>2</sub> /Ar flames at 1-5 atm studied by molecular beam mass spectrometry and numerical simulation D.A. Knyazkov, A.M. Dmitriev, T.A. Bolshova, V.M. Shvartsberg, A.G. Shmakov, O.P. Korobeinichev	4D03: Laminar flame propagation and nonpremixed stagnation ignition of toluene and xylenes D. Han, S. Deng, W. Liang, P. Zhao, F. Wu, Z. Huang, C.K. Law	4E03: Influence of self-sustained jet oscillation on a confined turbulent flame near Lean Blow-Out Z. Yin, I. Boxx, W. Meier	4F03: Modelling flame synthesis of silica nanoparticles S. Vo, A. Kronenburg, O.T. Stein, M.J. Cleary	4G03: A high-yield method for producing functional coal-tar component for use in advanced chemical applications Y. Okumura	4H03: Investigation of transient ignition processes in a model scramjet pilot cavity using simultaneous 100-kHz formaldehyde Planar Laser-Induced Fluorescence and CH* chemiluminescence imaging J.D. Miller, S.J. Peltier, M.N. Slipchenko, J.G. Mance, T.M. Ombrello, J.R. Gord, C.D. Carter	4J03: Thermal quenching of mixed eddies in non-premixed flames S. Dorofeev
11:00	Break								

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	<b>TURBULENT FLAMES</b> Chairs: J. Janicka S.B. Pope	<b>IC ENGINES</b> Chairs: C.S. Bae D. Haworth	<b>LAMINAR FLAMES</b> Chairs: T. Kasper Z. Wang	<b>REACTION KINETICS</b> Chairs: A. Farooq A. Mebel	<b>GAS TURBINES</b> Chairs: J. Dawson D. LaCoste	<b>NANOPARTICLES</b> Chairs: E. Knudsen H. Michelsen	<b>SOLID FUELS</b> Chairs: J. Sutherland Q. Yao	<b>EXPLOSIONS &amp; SUPERSONIC</b> Chairs: C. Carter H.D. Ng	<b>FIRE</b> Chairs: C. Fernandez-Pello J. Torero
11:30	4A04: On the extinction of ignition kernels in near-isotropic turbulence H.A. Urankara, S. Chaudhuri, K.N. Lakshminsha	4B04: Doubly Conditional Moment Closure modelling for HCCI with temperature inhomogeneities F. Salehi, M. Talei, E.R. Hawkes, A. Bhagatwala, J.H. Chen, C.S. Yoo, S. Kook	4C04: The <i>i</i> -V curve characteristics of burner-stabilized premixed flames: Detailed and reduced models J. Han, M. Belhi, T.A. Casey, F. Bisetti, H.G. Im, J.-Y. Chen	4D04: Ramifications of including non-equilibrium effects for HCO in flame chemistry N.J. Labbe, R. Sivaramakrishnan, C.F. Goldsmith, Y. Georgievskii, J.A. Miller, S.J. Klippenstein	4E04: Flow field characterization of pressurized sooting swirl flames and correlation to soot distributions K.P. Geigle, R. Hedef, M. Stöhr, W. Meier	4F04: Experimental and numerical study of a HMDSO-seeded premixed laminar low-pressure flame for SiO <sub>2</sub> nanoparticle synthesis O.M. Feroughi, L. Deng, S. Kluge, T. Dreier, H. Wiggers, I. Wlokas, C. Schulz	4G04: Experimental and numerical studies of pulverized coal combustion in a strained flow configuration M. Xia, D. Zabrodiec, P. Scoufflaire, B. Fiorina, N. Darabiha	4H04: On the existence and multiplicity of rotating detonations A. St. George, R. Driscoll, V. Anand, E. Gutmark	4J04: An experimental study on burning rate and flame tilt of optical-thin heptane pool fires in cross flows L. Hu, C. Kuang, X. Zhong, F. Ren, X. Zhang
11:55	4A05: Direct Numerical Simulation of the bending effect in turbulent premixed flames G.V. Nivarti, R.S. Cant	4B05: A Direct Numerical Simulation of cool-flame affected autoignition in diesel engine-relevant conditions A. Krisman, E.R. Hawkes, M. Talei, A. Bhagatwala, J.H. Chen	4C05: Time evolution of propagating nonpremixed flames in a counterflow, annular slot burner under AC electric fields M.-V. Tran, M.S. Cha	4D05: Laminar flame speeds and kinetic modeling of H <sub>2</sub> /O <sub>2</sub> /diluent mixtures at sub-atmospheric and elevated pressures S. Yang, X. Yang, F. Wu, Y. Ju, C.K. Law	4E05: Effect of pressure variation on acoustically perturbed swirling flames J. Zhang, A. Ratner	4F05: Volumetric flame synthesis of mixed tungsten-molybdenum oxide nanostructures M.F. Farahani, A.V. Saveliev, W. Merchan-Merchan	4G05: The influence of spatial discreteness on the thermo-diffusive instability of flame propagation with infinite Lewis number X.C. Mi, A.J. Higgins, S. Goroshin, J.M. Bergthorson	4H05: Effects of temperature perturbation on direct detonation initiation C. Qi, Z. Chen	4J05: Experimental study of sidewall effect on flame characteristics of heptane pool fires with different aspect ratios and orientations in a channel C.G. Fan, J. Ji, Y.Z. Li, H. Ingason, J.H. Sun
<p>Special Meeting of Industry Committee and Invited Guests during Lunch break in Room 301</p> <p>Visit Posters and our Exhibitors and Sponsors in D Hall (Poster abstracts are online at <a href="http://www.combustionsymposia.org">www.combustionsymposia.org</a>)</p>									

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	<b>TURBULENT FLAMES</b> <i>Chairs:</i> J. Janicka S.B. Pope	<b>IC ENGINES</b> <i>Chairs:</i> C.S. Bae D. Haworth	<b>LAMINAR FLAMES</b> <i>Chairs:</i> T. Kasper Z. Wang	<b>REACTION KINETICS</b> <i>Chairs:</i> A. Farooq A. Mebel	<b>GAS TURBINES</b> <i>Chairs:</i> J. Dawson D. LaCoste	<b>NANOPARTICLES</b> <i>Chairs:</i> E. Knudsen H. Michelsen	<b>SOLID FUELS</b> <i>Chairs:</i> J. Sutherland Q. Yao	<b>EXPLOSIONS &amp; SUPERSONIC</b> <i>Chairs:</i> C. Carter H.D. Ng	<b>FIRE</b> <i>Chairs:</i> C. Fernandez-Pello J. Torero
12:20	4A06: On the dependence of turbulent flame speed on stretch in outward propagating premixed flames in large spherical domains: A Direct Numerical Simulation study G.K. Giannakopoulos, C.E. Frouzakis, M. Matalon, K. Boulouchos, A.G. Tomboulides	4B06: Ignition of a lean PRF/air mixture under RCCI/SCCI conditions: A comparative DNS study M.B. Luong, G.H. Yu, S.H. Chung, C.S. Yoo	4C06: New insights into methane-oxygen ion chemistry A.B.S. Alqaity, B. Chen, J. Han, H. Selim, M. Belhi, Y. Karakaya, T. Kasper, S.M. Sarathy, F. Bisetti, A. Farooq	4D06: The influence of DiMethoxy Methane (DMM)/DiMethyl Carbonate (DMC) addition on a premixed ethane/oxygen/argon flame W. Sun, B. Yang, N. Hansen, K. Moshhammer	4E06: Flame stabilization analysis of a premixed reacting Jet In vitiated CrossFlow J.A. Wagner, S.W. Grib, J.W. Dayton, M.W. Renfro, B. Cetegen	4F06: Mass spectrometric analysis of clusters and nanoparticles during the gas-phase synthesis of tungsten oxide S. Kluge, H. Wiggers, C. Schulz	4G06: Transient model for soot formation during the combustion of single coal particles K. Xu, H. Zhang, Y. Wu, M. Baroncelli, H. Pitsch	4H06: Experimental study of the structure of forward-tilting Rotating Detonation Waves and highly maintained combustion chamber pressure in a two-parallel-plane combustor S. Nakagami, K. Matsuoka, J. Kasahara, A. Matsuo, I. Funaki	4J06: Effect of ullage on burning behavior of small-scale pool fires in a cavity X. Shi, A.K. Sahu, S. Nair, V. Raghavan, A.S. Rangwala
12:45	4A07: A comparison between Direct Numerical Simulation and experiment of the turbulent burning velocity-related statistics in a turbulent methane-air premixed jet flame at high Karlovitz number H. Wang, E.R. Hawkes, B. Zhou, J.H. Chen, Z. Li, M. Aldén	4B07: Effects of equivalence ratio variations on turbulent flame speed in lean methane/air mixtures under lean-burn natural gas engine operating conditions Z. Wang, E. Motheau, J. Abraham	4C07: Instability and electrical response of small laminar coflow diffusion flames under AC electric fields: Toroidal vortex formation and oscillating and spinning flames Y. Xiong, S.H. Chung, M.S. Cha	4D07: Kinetic modeling of the thermal destruction of mustard gas B. Sirjean, J.-C. Lizardo-Huerta, L. Verdier, R. Fournet, P.-A. Glaude	4E07: Effects of convection time on the high harmonic combustion instability in a partially premixed combustor J. Yoon, S. Joo, J. Kim, M.C. Lee, J. Lee, Y. Yoon	4F07: Observation of incipient particle formation during flame synthesis by tandem Differential Mobility Analysis-Mass Spectrometry (DMA-MS) Y. Wang, J. Kangasluoma, M. Attoui, J. Fang, H. Junninen, M. Kulmala, T. Petäjä, P. Biswas	4G07: Thermal structure of flames in non-volatile fuel suspensions M.J. Soo, K. Kumashiro, S. Goroshin, D.L. Frost, J.M. Bergthorson	4H07: The dependence of Ammonium-Nitrate Fuel-Oil (ANFO) detonation on confinement S.I. Jackson	4J07: Pool fire flame base drag behavior with cross flow in a sub-pressure atmosphere L. Hu, X. Zhang, M.A. Delichatsios, L. Wu, C. Kuang
13:10	LUNCH PROCI Editorial Lunch – Room 300								

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	<b>TURBULENT FLAMES</b> Chairs: K. Bushe M. Mueller	<b>IC ENGINES</b> Chairs: T. Poinsot F. Mauss	<b>LAMINAR FLAMES</b> Chairs: F. Qi J. Sutton	<b>REACTION KINETICS</b> Chairs: W. Pitz Z.-Y. Tian	<b>SPRAYS</b> Chairs: S. Chakravarthy V. Raman	<b>NANOPARTICLES</b> Chairs: M. Fikri S. Pratsinis	<b>Invited Topical Review</b> Chairs: H. Wu Y. Yang	<b>EXPOSIONS &amp; SUPERSONIC</b> Chairs: T. Ombrello J.I. Yoh	<b>FIRE</b> Chairs: N. Liu F. Takahasi
14:30	4A08: Multiscale analysis of turbulence-flame interaction in premixed flames N.A.K. Doan, N. Swaminathan, N. Chakraborty	4B08: Ignition of a lean PRF/air mixture under RCCI/SCCI conditions: Chemical aspects M.B. Luong, G.H. Yu, S.H. Chung, C.S. Yoo	4C08: Photoionization mass spectrometry and modeling study of a low-pressure premixed flame of ethyl pentanoate (ethyl valerate) D.A. Knyazkov, I.E. Gerasimov, N. Hansen, A.G. Shmakov, O.P. Korobeinichev	4D08: Contributions to improving small ester combustion chemistry: Theory, model and experiments D. Felsmann, H. Zhao, Q. Wang, I. Graf, T. Tan, X. Yang, E.A. Carter, Y. Ju, K. Kohse-Höinghaus	4E08: Combustion characteristics of a single decane/ethanol emulsion droplet and a droplet group under puffing conditions J. Shinjo, J. Xia	4F08: Flame synthesis of novel ternary nanocatalysts Pd/CeO <sub>2</sub> -TiO <sub>2</sub> with promotional low-temperature catalytic oxidation properties N. Wang, S. Li, Y. Zong, Q. Yao, Y. Zhang	4G08/4G09:  Synergies between the science and technology of combustion and Concentrating Solar Thermal energy systems	4H08: Numerical study of hollow Rotating Detonation Engine with different fuel injection area ratios S. Yao, X. Tang, M. Luan, J. Wang	4J08: Schlieren visualization of blast extinguishment with laser-induced breakdown H. Torikai, Y. Saga, A. Ito
14:55	4A09: Flame Surface Density based modelling of head-on quenching of turbulent premixed flames J. Sellmann, J. Lai, A. Kempf, N. Chakraborty	4B09: Effects of flame propagation speed and chamber size on end-gas autoignition H. Yu, C. Qi, Z. Chen	4C09: Species diagnostics and modeling study of laminar premixed flames fueled by Acetone-Butanol-Ethanol (ABE) R. Zhang, W. Sun, T. Tao, B. Yang	4D09: The oxidation of the novel lignocellulosic biofuel Gamma-Valerolactone in a low pressure flame A. Sudholt, R. Tripathi, D. Mayer, P.-A. Glaude, F. Battin-Leclerc, H. Pitsch	4E09: High-fidelity simulation of drop collision and vapor-liquid equilibrium of van der Waals fluids M. Ray, X. Yang, S.-C. Kong	4F09: Experimental investigation on microexplosion of single isolated burning droplets containing Titanium TetraisoPropoxide for nanoparticle production H. Li, C.D. Rosebrock, L. Mädler		G.J. Nathan B.B. Dally Z.T. Alwahabi P. van Eyk P.J. Ashman	4H09: Numerical investigation on detonation velocity in Rotating Detonation Engine chamber J. Fujii, Y. Kumazawa, A. Matsuo, S. Nakagami, K. Matsuoka, J. Kasahara
<p>The Combustion Institute is on the lookout for outstanding presentations. If you have seen a presentation that stood out, please send your recommendation to: <a href="mailto:office@combustioninstitute.org">office@combustioninstitute.org</a></p>									



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15:20	4A10: Analysis of turbulent flame propagation in equivalence ratio-stratified flow <i>E.S. Richardson, J.H. Chen</i>	4B10/4B11:  Industry Perspective Panel: IC Engines  Presenters: <i>Roger Cracknell Gautam Kalghatgi</i>	4C10: Experimental and kinetic modeling study of low-pressure premixed laminar 2-methylfuran flames <i>Z. Cheng, Z. Wang, H. Jin, G. Chen, M. Yao, L. Wei</i>	4D10: Ignition characteristics of 2-methyltetrahydrofuran: An experimental and kinetic study <i>R. Tripathi, C. Lee, R.X. Fernandes, H. Olivier, H.J. Curran, S.M. Sarathy, H. Pitsch</i>	4E10: Simulation of drop deformation and breakup in supersonic flow <i>F. Xiao, Z. Wang, M. Sun, N. Liu, X. Yang</i>	4F10: Laser-based investigation of droplet-to-particle transition in Flame-Assisted Spray synthesis of functional nanoparticles <i>C. Liu, S. Li, Y. Zong, Q. Yao, S.D. Tse</i>	4G10: The effect of model fidelity on prediction of char burnout for single-particle coal combustion <i>J. McConnell, J.C. Sutherland</i>	4H10: Wedge-stabilized oblique detonation in an inhomogeneous hydrogen-air mixture <i>K. Iwata, S. Nakaya, M. Tsue</i>	4J10: A proposed testing method to determine the fire retardant characteristics of flammable liquid electrolytes in Lithium-Ion Batteries <i>W. Hase, Y. Konno, M. Inatsuki, K. Nishimura, O. Fujita</i>
15:45		Panelists: <i>Donghee Han Jenny Larfeldt Stefan Mayer</i>		4D11: Experimental and numerical study of a novel biofuel: 2-Butyltetrahydrofuran <i>L. Cai, H. Minwegen, J. Beeckmann, U. Burke, R. Tripathi, A. Ramalingam, A. Sudholt, J. Klankermayer, K.A. Heufer, H. Pitsch</i>	4E11: Microgravity experiments of fuel droplet evaporation in sub- and supercritical environments <i>H. Nomura, T. Murakoshi, Y. Suganuma, Y. Ujiie, N. Hashimoto, H. Nishida</i>	4F11: A kinetic mechanism for the thermal decomposition of Titanium Tetrahydropropoxide <i>P. Buerger, D. Nurkowski, J. Akroyd, M. Kraft</i>		4H11: Initiation characteristics of wedge-induced detonation waves in a stoichiometric hydrogen-air mixture <i>H. Teng, H.D. Ng, Z. Jiang</i>	4J11: Structure of counterflow flame of UltraHigh-Molecular-Weight PolyEthylene with and without TriPhenyl-Phosphate <i>O.P. Korobeinichev, M.B. Gonchikzhapov, A.A. Paletsky, A.G. Tereshchenko, A.G. Shmakov, I.E. Gerasimov, D.A. Knyazkov</i>

BANQUET AT 18:30

Grand Intercontinental Hotel Ballroom  
(Accessible from Coex through the underground mall)

Friday, 5 August 2016

(Auditorium with overflow in Ballroom 3)  
PLENARY LECTURE – 8:30 am

**Biomass combustion and thermal conversion technology development – It is about chemical details**

**Mikko Hupa and Karlström Oskar, Emil Vainio**

*Chairs: K. Kohse-Höinghaus and J.O.L. Wendt*

TRANSFER

Room	Auditorium	Ballroom 1	Ballroom 2	Ballroom 3	Ballroom 4	Ballroom 5	Room 203	Room 208	Room 201
	<b>TURBULENT FLAMES</b> <i>Chairs:</i> Ö. Gülder S. Shy	<b>DIAGNOSTICS</b> <i>Chairs:</i> J.H. Frank D. Geyer	<b>LAMINAR FLAMES</b> <i>Chairs:</i> A. Veeraragavan B. Yang	<b>REACTION KINETICS</b> <i>Chairs:</i> A. Jasper R. Tranter	<b>SPRAYS</b> <i>Chairs:</i> B. Franzelli A. Ratner	<b>NOVEL CONCEPTS/ NANOSTRUCTURES</b> <i>Chairs:</i> L. Mädler J. Mantzaras	<b>STATIONARY COMBUSTION</b> <i>Chairs:</i> X-S Bai M. Costa	<b>EXPLOSIONS &amp; SUPERSONIC</b> <i>Chairs:</i> S. Dorofeev A. Ghoniem	<b>NOVEL CONCEPTS/ PLASMA-ASSISTED</b> <i>Chairs:</i> M.S. Cha C. Laux
9:45	5A01: The cross-scale physical-space transfer of kinetic energy in turbulent premixed flames <i>J. O'Brien, C.A.Z. Towery, P.E. Hamlington, M. Ihme, A.Y. Poludnenko, J. Urzay</i>	5B01: Real-time <i>in situ</i> multi-parameter TDLAS sensing in the reactor core of an entrained-flow biomass gasifier <i>A. Sepman, Y. Ögren, Z. Qu, H. Wiinikka, F.M. Schmidt</i>	5C01: Binary diffusion coefficients and non-premixed flames extinction of long-chain alkanes <i>C. Liu, R. Zhao, R. Xu, F.N. Egolfopoulos, H. Wang</i>	5D01: A quantum chemical and kinetics modeling study on the autoignition mechanism of diethyl ether <i>Y. Sakai, J. Herzler, M. Werler, C. Schulz, M. Fikri</i>	5E01: A canonical geometry to study wall filming and atomization in pre-filming coaxial swirl injectors <i>K.P. Shanmugasadas, S.R. Chakravarthy</i>	5F01: Electric-field-assisted Stagnation-swirl-flame synthesis of porous nanostructured titanium-dioxide films <i>G. Xiong, A. Kulkarni, Z. Dong, S. Li, S.D. Tse</i>	5G01: Flamelet LES modeling of coal combustion with detailed devolatilization by directly coupled CPD <i>M. Rieth, A.G. Clements, M. Rabacal, F. Proch, O.T. Stein, A.M. Kempf</i>	5H01: Simultaneous OH-PLIF and Schlieren imaging of flame acceleration in an obstacle-laden channel <i>L.R. Boeck, M. Kellenberger, G. Rainsford, G. Ciccarelli</i>	5J01: Nanosecond discharge in propane-air mixture: Ignition and energy deposit <i>A. Lo, F. Frat, E. Domingues, B. Lecordier, P. Vervisch, A. Cessou</i>
10:10	5A02: A numerical study of diffusive effects in turbulent lean premixed hydrogen flames <i>A.J. Aspden</i>	5B02: Time-resolved temperature measurements in a Rapid Compression Machine using Quantum Cascade Laser absorption in the intrapulse mode <i>E.F. Nasir, A. Farooq</i>	5C02: Effects of radiation absorption on spherical flame propagation and radiation-induced uncertainty in laminar flame speed measurement <i>Z. Chen</i>	5D02: Recombination of aromatic radicals with molecular oxygen <i>F. Zhang, N. André, L. Xing, S.J. Klippenstein</i>	5E02: Experimental study of local flame structures and fuel droplet properties of a spray jet flame <i>A. Verdier, J.M. Santiago, A. Vandel, S. Saengkaew, G. Cabot, G. Grehan, B. Renou</i>	5F02: Assembly and reaction characterization of a novel thermite consisting aluminum nanoparticles and CuO nanowires <i>Y.-C. Chiang, M.-H. Wu</i>	5G02: Large-Eddy Simulation of pulverized coal combustion using flamelet model <i>J. Watanabe, T. Okazaki, K. Yamamoto, K. Kuramashi, A. Baba</i>	5H02: Flame propagation across an obstacle: OH-PLIF and 2-D simulations with detailed chemistry <i>L.R. Boeck, S. Lapointe, J. Melguizo-Gavilanes, G. Ciccarelli</i>	5J02: A skeletal <i>iso</i> -octane reaction mechanism for low temperature plasma ignition with ozone surrogate <i>S. Keum, C.A. Idicheria, P.M. Najt, T.-W. Kuo</i>

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10:35	5A03: Turbulence-flame interactions in lean premixed dodecane flames <i>A.J. Aspden, J.B. Bell, M.S. Day, F.N. Egolopoulos</i>	5B03: Mid-infrared Laser-Induced thermal grating spectroscopy in flames <i>A.-L. Sahlberg, D. Hot, J. Kiefer, M. Aldén, Z. Li</i>	5C03: Chemistry and transport effects on critical flame initiation radius for alkanes and aromatic fuels <i>J. Santner, S.H. Won, Y. Ju</i>	5D03: <i>Ab initio</i> kinetics predictions for H-Atom abstraction from 2-butanone by $\dot{H}$ and $\dot{C}H_3$ and the subsequent unimolecular reactions <i>W.A. Kopp, U. Burke, M. Döntgen, L.C. Kröger, H. Minwegen, K.A. Heufer, K. Leonhard</i>	5E03: The role of preferential evaporation on the ignition of multicomponent fuels in a homogeneous spray/air mixture <i>A. Stagni, L. Esclapez, P.B. Govindaraju, A. Cuoci, T. Faravelli, M. Ihme</i>	5F03: Creation of <i>n</i> -type diamond semiconductor flame through doping-synthesis concept <i>Y. Okumura, K. Kanayama, H. Nishiguchi</i>	5G03: Highly resolved flamelet LES of a semi-industrial scale coal furnace <i>M. Rieth, F. Proch, A. Clements, M. Rabacal, A. Kempf</i>	5H03: Experimental study on turbulent expanding flames of lean hydrogen / air mixtures <i>J. Goulier, F. Halter, N. Chaumeix</i>	5J03: A 3-D DNS and experimental study of the effect of the recirculating flow pattern inside a reactive kernel produced by nanosecond plasma discharges in a methane-air mixture <i>M. Castela, S. Stepanyan, B. Fiorina, A. Coussement, O. Gicquel, N. Darabiha, C.O. Laux</i>
11:00	<p>Break</p> <p>Visit Posters and our Exhibitors and Sponsors in D Hall  (Poster abstracts are online at <a href="http://www.combustionsymposia.org">www.combustionsymposia.org</a>)</p> <p>The Combustion Institute will host a farewell reception on:  Friday, August 5 from 17:30 – 19:30  Coex Convention &amp; Exhibition Center.</p> <p>The Combustion Institute would like to take this opportunity to thank Prof. Peter Glarborg and Prof. Assaad Masri for their tireless efforts to oversee the development of this technical program.</p>								

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11:30	5A04: Local extinction and reignition mechanism in a turbulent lifted flame: A Direct Numerical Simulation study S. Karami, M. Talei, E.R. Hawkes, J.H. Chen	5B04: Strategy for single-shot CH <sub>3</sub> imaging in premixed methane/air flames using photofragmentation laser-induced fluorescence B. Li, D. Zhang, M. Yao, Z. Li	5C04: Initiation and evolution of triple flames subject to thermal expansion and gravity P. Pearce, J. Daou	5D04: Rate coefficients for fuel + NO <sub>2</sub> : Predictive kinetics for HONO and HNO <sub>2</sub> formation C.F. Goldsmith, J. Chai	5E04: Measurement of species concentration and estimation of temperature in the wake of evaporating <i>n</i> -heptane droplets at near-critical conditions B. Bork, A. Preusche, F. Weckenmann, G. Lamanna, A. Dreizler	5F04: Investigation on the structure stability and catalytic activity of Cu-Co binary oxides S.-B. Fan, P.M. Kouotou, J.-J. Weng, G.-F. Pan, Z.-Y. Tian	5G04: Small size burner combustion stabilization by means of strong cyclonic recirculation M. de Joannon, P. Sabia, G. Sorrentino, P. Bozza, R. Ragucci	5H04: Adaptive simulations of viscous detonation using high-order hybrid WENO-CD scheme with a hot jet initiation X. Cai, R. Deiterding, J. Liang, Y. Mahmoudi, Z. Lin	5J04: Low temperature oxidation and pyrolysis of <i>n</i> -heptane in nanosecond-pulsed plasma discharges A. Rousso, S. Yang, J. Lefkowitz, W. Sun, Y. Ju
11:55	5A05: Numerical investigation of the effect of pressure on heat release rate in <i>iso</i> -octane premixed turbulent flames under conditions relevant to SI engines B. Savard, S. Lapointe, A. Teodorczyk	5B05 Quantitative picosecond laser-induced fluorescence measurements of nitric oxide in flames C. Brackmann, J. Bood, J. Naucélér, A.A. Konnov, M. Aldén	5C05: Extrapolation of laminar flame speeds from stretched flames: Role of finite flame thickness W. Liang, F. Wu, C.K. Law	5D05: Quantitative HNO detection behind shock waves N. Fajsheber, M.C. Schmidt, G. Friedrichs	5E05: Turbulent spray flames of intermediate density: Stability and near-field structure A.R.A. Lowe, A. Kourmatzis, A.R. Masri	5F05: The catalytic oxidation of NH <sub>3</sub> on CO <sub>3</sub> O <sub>4</sub> : A theoretical study K. Shojaei, B.S. Haynes, A. Montoya	5G05: Oxy-fuel conversion of coal particles in fluidized bed and pulverized combustors C. Bu, A. Gómez-Barea, B. Leckner, X. Chen, D. Pallarés, D. Liu, P. Lu	5H05: Analysis of heat-release during TNT/Aluminium afterburning by means of numerical simulations E. Fedina, C. Fureby	5J05: Analysis of the step responses of laminar premixed flames to forcing by non-thermal plasma D.A. Lacoste, J.P. Moeck, W.L. Roberts, S.H. Chung, M.S. Cha

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12:20	5A06: Strain distribution on material surfaces during combustion regime transitions <i>F. Hampp, R.P. Lindstedt</i>	5B06: Time-resolved sub-PPM CH <sub>3</sub> detection in a shock tube using cavity-enhanced absorption spectroscopy with a ps-pulsed UV laser <i>S. Wang, D.F. Davidson, J.B. Jeffries, R.K. Hanson</i>	5C06: Propagation speed and stability analysis of spherically expanding hydrogen / air flames: Asymptotic and experimental study <i>J. Beeckmann, R. Hesse, S. Kruse, A. Berens, N. Peters, H. Pitsch, M. Matalon</i>	5D06: Prompt NO formation in rich premixed flames of C <sub>1</sub> to C <sub>4</sub> alkanes and alcohols <i>G.M.G. Watson, P. Versailles, J. Bergthorson</i>	5E06: Experimental and numerical analysis of a turbulent spray flame structure <i>F. Shum-Kivan, J.M. Santiago, A. Verdier, E. Riber, B. Renou, G. Cabot, B. Cuenot</i>	5F06: Three-dimensional Direct Numerical Simulations of fuel-lean H <sub>2</sub> /air hetero-/homogeneous combustion over Pt with detailed chemistry <i>B.O. Arani, C.E. Frouzakis, J. Mantzaras, K. Boulouchos</i>	5G06: Chemical Looping with Oxygen Uncoupling of high-sulfur coal using copper ore as Oxygen Carrier <i>X. Tian, K. Wang, H. Zhao, M. Su</i>	5H06: Detonation wave diffraction in H <sub>2</sub> -O <sub>2</sub> -Ar mixtures <i>S. Gallier, F.L. Palud, F. Pintgen, R. Mével, J.E. Shepherd</i>	5J06: Plasma-assisted cool flames: An experimental kinetic study <i>G. Vanhove, M.-A. Boumejdi, S. Shcherbanev, Y. Fenard, P. Desgroux, S.M. Starikovskaia</i>
12:45	5A07: A balance equation for the mean rate of product creation in premixed turbulent flames <i>V.A. Sabelnikov, A.N. Lipatnikov, N. Chakraborty, S. Nishiki, T. Hasegawa</i>	5B07: Dual frequency comb laser absorption spectroscopy in a 16 MW gas turbine exhaust <i>P.J. Schroeder, R.J. Wright, S. Coburn, B.M. Sodergren, K.C. Cossel, S. Droste, G.W. Truong, E. Baumann, F.R. Giorgetta, I. Coddington, N.R. Newbury, G.B. Rieker</i>	5C07: Laminar flame speed of 2,3,3,3-tetrafluoro-propane mixtures <i>P. Papas, S. Zhang, W. Kim, S.P. Zeppieri, M.B. Colket, P. Verma</i>	5D07: N <sub>2</sub> O formation and dissociation during ammonia combustion: A combined DFT and experimental study. <i>J.D. Gonzalez, M. Warner, B.S. Haynes, A. Montoya</i>	5E07: Multicomponent fuel droplet evaporation using 1D global rainbow refractometry <i>J. Promvongsa, P. Vallikul, B. Fungtammasan, A. Garo, G. Grehan, S. Saengkaew</i>	5F07: Investigation of methane oxidation by palladium-based catalyst via ReaxFF molecular dynamics simulation <i>Q. Mao, A. van Duin, K.H. Luo</i>	5G07: Understanding CuO-support interaction in Cu-based oxygen carriers at a microcosmic level <i>H. Zhao, Y. Zhang, Y. Wei, J. Gui</i>	5H07: Gas property measurements in a supersonic combustor using nanosecond gated Laser-Induced Breakdown Spectroscopy with Direct Spectrum Matching <i>B. McGann, C.D. Carter, T.M. Ombrello, S. Hammack, T. Lee, H. Do</i>	5J07: Investigations of microwave stimulation of a turbulent low-swirl flame <i>A. Ehn, P. Petersson, J. Zhu, Z. Li, M. Aldén, E.J.K. Nilsson, J. Larfeldt, A. Larsson, T. Hurtig, N. Zettervall, C. Fureby</i>
13:10	LUNCH								

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14:30	5A08: An accurate, fast, mathematically robust, universal, non-iterative algorithm for computing multi-component diffusion velocities S. Ambikasaran, K. Narayanaswamy	5B08: Single-shot 3D flame diagnostic based on Volumetric Laser Induced Fluorescence (VLIF) L. Ma, Q. Lei, J. Ikeda, W. Xu, C.D. Carter	5C08: Effects of pressure waves on the stability of flames propagating in tubes H. Xiao, R.W. Houim, E.S. Oran	5D08: Theoretical kinetics of O + C <sub>2</sub> H <sub>4</sub> X. Li, A.W. Jasper, J. Zádor, J.A. Miller, S.J. Klippenstein	5E08/5E09:  Ignition of Turbulent Spray Flames  Epaminondas Mastorakos	5F08: Role of gas-phase and surface chemistry in methane reforming using ion transport membranes G. Dimitrakopoulos, A.F. Ghoniem	5G08: A kinetic study on oxidation of ferrous sulfide (FeS) in mixtures of CO <sub>2</sub> and H <sub>2</sub> O W. Lv, D. Yu, J. Wu, X. Yu, Y. Du, M. Xu	5H08: On the interaction of the Darrieus-Landau instability with weak initial turbulence C.R.L. Bauwens, J.M. Bergthorson, S.B. Dorofeev	5J08: Transient plasma effects on the autoignition of DME/O <sub>2</sub> /Ar and C <sub>3</sub> H <sub>8</sub> /O <sub>2</sub> /Ar mixtures V. Gururajan, F. Egolfopoulos
14:55	5A09: Inference of reaction rate parameters based on summary statistics from experiments M. Khalil, K. Chowdhary, C. Safta, K. Sargsyan, H.N. Najm	5B09: Instantaneous 3D imaging of flame species using coded laser illumination E. Kristensson, Z. Li, E. Berrocal, M. Richter, M. Aldén	5C09: Regimes of boundary-layer ignition by heat release from a localized energy source M.S. Sanz, E. Fernández-Tarrazo, A.L. Sánchez	5D09: Hot β-scission of radicals formed via hydrogen abstraction M. Döntgen, L.C. Kröger, K. Leonhard		5F09: A comparative experimental and numerical investigation of the heterogeneous and homogeneous combustion characteristics of fuel-rich methane mixtures over rhodium and platinum R. Sui, J. Mantzaras, R. Bombach	5G09: A detailed flame structure and burning velocity analysis of aluminum dust cloud combustion using the Eulerian-Lagrangian method D.-H. Han, J. Shin, H.-G. Sung	5H09: Combustion characteristics of small-scaled duct combustor in low enthalpy supersonic flow C.-H. Kim, I.-S. Jeung	5J09: Flame size measurements of premixed propane-air mixtures ignited by microwave enhanced plasma S. Padala, A. Nishiyama, Y. Ikeda

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15:20	5A10: REDIM reduced modeling of flame-wall-interactions: Quenching of a premixed methane/air flame at a cold inert wall G. Steinhilber, V. Bykov, U. Maas	5B09/5B10  Industry Perspective Panel: Diagnostics  Presenters: Jenny Larfeldt Stefan Mayer	5C10: Thermal and Ludwig-Soret diffusion effects on near-boundary ignition behavior of reacting mixtures J. Jayachandran, F. Egolfopoulos	5D10: Evaluating mixture rules for multi-component pressure dependence: H + O <sub>2</sub> (+M) = HO <sub>2</sub> (+M) M.P. Burke, R. Song	5E10: Experimental investigation of the passage of fuel droplets through a spherical two-phase flame R. Thimothée, C. Chauveau, F. Halter, I. Gökalp	5F10: Reaction class-based frameworks for heterogeneous catalytic systems P. Kraus, R.P. Lindstedt	5G10: Flame speed measurements in aluminum suspensions using a counterflow burner P. Julien, S. Whiteley, M. Soo, S. Goroshin, D.L. Frost, J.M. Bergthorson	5H10: Supersonic combustion of hydrocarbons in a shape-transitioning hypersonic engine Z.J. Denman, V. Wheatley, M.K. Smart, A. Veeraragavan	5J10: Dual-pulse laser-induced spark ignition and flame propagation of a methane diffusion jet flame L. Wermer, J. Hansson, S.-k. Im
15:45	5A11: Adaptive hierarchical construction of reaction diffusion manifolds for simplified chemical kinetics A. Neagos, V. Bykov, U. Maas	Panelists: Roger Cracknell Donghee Han Tang-Wei Kuo	5C11: Experimental and numerical study on the ignition of fuel/air mixtures at laser heated silicon nitride particles D. Roth, T. Haeber, H. Bockhorn	5D11: Pressure effects on the relaxation of an excited hydrogen peroxy radical in an argon bath J.W. Perry, A.F. Wagner	5E11: An experimental study of the ignition and combustion characteristics of single droplets of biochar-glycerol-water slurry fuels M. Zhu, Z. Zhang, Y. Zhang, H. Setyawan, P. Liu, D. Zhang	5F11: Hetero-/homogeneous combustion of fuel-lean methane/oxygen/nitrogen mixtures over rhodium at pressures up to 12 bar R. Sui, J. Mantzaras, R. Bombach, A. Denisov	5G11: Enhancing ignition and combustion of micron-sized Aluminum by adding porous silicon V.S. Parimi, S. Huang, X. Zheng	5H11: The effect of fuel injection location on cavity-based supersonic hydrogen combustion E. Jeong, S. O'Byrne, I.-S. Jeung, A.F.P. Houwing	5J11: Simulations of planar non-thermal plasma assisted ignition at atmospheric pressure T.A. Casey, J. Han, M. Belhi, F. Bisetti, H.G. Im, J.-Y. Chen
16:10	<p><b>BREAK</b></p> <p>The Combustion Institute is always looking to improve our Symposium. We encourage you to send suggestions on how we can improve to: <a href="mailto:office@combustioninstitute.org">office@combustioninstitute.org</a></p> <p>This year, we received a record number of submissions for presentation at the International Symposium on Combustion. We would like to thank all of our Colloquium Coordinators, Colloquium Co-Chairs, Associate Editors and Reviewers for volunteering their time to review these submissions.</p>								

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16:40	5A12: Investigation of the effect of correlated uncertain rate parameters on a model of hydrogen combustion using a generalized HDMR method É. Valkó, T. Varga, A.S. Tomlin, T. Turányi	5B12: Mixture fraction imaging in the soot-inception region of turbulent non-premixed jet flames O. Park, R.A. Burns, O.R.H. Buxton, N.T. Clemens	5C12: Dual magnetic effects on soot production in partially premixed flames A. Jocher, J. Bonnetty, H. Pitsch, T. Gomez, G. Legros	5D12: Criteria of thermal stability of exothermically reacting systems. Second order reactions V.Y. Filimonov, K.B. Koshelev	5E12: Secondary atomization of small hydrocarbon droplet by fourth harmonic generation of Nd:YAG pulsed laser H. Enomoto, Y. Teraoka, N. Hieda, M. Sasao, J. Higashihara	5F12: Opposed-flow reactive volatilization reactor for partial oxidation of low volatility fuels X. Li, M.V. Twigg, W.F. Northrop	5G12: Combustion of Aluminum nanoparticle agglomerates: From mild oxidation to microexplosion Y. Tang, C.D. Kong, Y. Zong, S. Li, J. Zhuo, Q. Yao		5J12: Effects of pulsation frequency and energy deposition on ignition using nanosecond repetitively pulsed discharges T. Ombrello, S. Lovascio, J. Hayashi, S. Stepanyan, D.A. Xu, G. Stancu, C. Laux
17:05	5A13: Dynamic Adaptive Chemistry via species Time Scale and Rate Analysis W. Xie, Z. Lu, Z. Ren, L. Hou	5B13: Investigation of mixture formation in a diesel spray by Tracer Based Laser Induced Fluorescence using 1-methylnaphthalene S. Lind, U. Retzer, S. Will, L. Zigan	5C13: Building-up virtual optimized mechanism for flame modeling M. Cailler, N. Darahiba, D. Veynante, B. Fiorina	5D13: Using sensitivity entropy in experimental design for uncertainty minimization of combustion kinetic models S. Li, T. Tao, J. Wang, B. Yang, C.K. Law, F. Qi	5E13: The combustion of iso-octane droplets with initial diameters from 0.5 to 5 mm: Effects on burning rate and flame extinction Y. Xu, H.D. Tak, M.C. Hicks, C.T. Avedisian	5F13: An investigation of internal flame structure in porous media combustion via x-ray computed tomography J. Dunnmon, S. Sobhani, M. Wu, R. Fahrig, M. Ihme	5G13: Tailoring burning rates using reactive wires in composite solid rocket propellants S. Isert, C.D. Lane, I.E. Gunduz, S.F. Son		5J13: Response of laminar premixed flames to forcing by acoustic waves, AC electric fields, and non-thermal plasma discharges D.A. Lacoste, Y. Xiong, J.P. Moeck, S.H. Chung, W.L. Roberts, M.S. Cha



Room	Auditorium	Ballroom 1	Ballroom 2	Ballroom 3	Ballroom 4	Ballroom 5	Room 203	Room 208	Room 201
	<b>KINETICS MECHANISM OPTIMAZTION</b> Chairs: A. Cuoci A. Tomlin	<b>DIAGNOSTICS</b> Chairs: M. Aldén R. Pitz	<b>LAMINAR FLAMES</b> Chairs: Z. Chen V. Katta	<b>REACTION KINETICS</b> Chairs: M. Braun-Unkhoff G. Friedrichs	<b>Invited Topical Review</b> Chairs: D. Roekaerts M. Xu	<b>NOVEL CONCEPTS/ CATALYTIC</b> Chairs: M. Ihme A. Montoya	<b>SOLID FUELS</b> Chairs: S. Li G. Nathan		<b>NOVEL CONCEPTS/ FIELD-ASSISTED</b> Chairs: R. Kee B. Shi
17:30	5A14: Auto-Thermal Reforming (ATR) of natural gas: An automated derivation of optimised reduced chemical schemes N. Jaouen, L. Vervisch, P. Domingo	5B14: 20-kHz-rate three-dimensional tomographic imaging of the concentration field in a turbulent jet B.R. Halls, J.R. Gord, T.R. Meyer, D.J. Thul, S. Roy		5D14: Implementing multi-directional molecular diffusion terms into Reaction Diffusion Manifolds (REDIMs) R. Schießl, V. Bykov, U. Maas, A. Abdelsamie, D. Thevenin		5F14: Self-sustained catalytic combustion of carbon monoxide ignited by dielectric barrier discharges F. Bin, X. Wei, T. Li, D. Liu, Q. Hao, B. Dou	5G14: Microexplosive Aluminum-Lithium alloy for ultra-high combustion efficiency solid propellants B.C. Terry, I.E. Gunduz, M.A. Pfeil, T.R. Sippel, S.F. Son		5J14: Flow instability in laminar jets driven by Alternating Current electric fields G.T. Kim, D.G. Park, M.S. Cha, J. Park, S.H. Chung

FAREWELL RECEPTION 17:55 – 20:00

Grand Ballroom Lobby, 1st floor, Coex Convention and Exhibition Center

See you in Dublin, Ireland for the 37<sup>th</sup> International Symposium on Combustion

Hosted at the Convention Centre Dublin

29 July thru 3 August, 2018



**37<sup>TH</sup> INTERNATIONAL SYMPOSIUM ON COMBUSTION**  
Dublin, Ireland: 29 July - 3 August 2018