

39th INTERNATIONAL SYMPOSIUM ON COMBUSTION

Vancouver, Canada

Monday, 25 July 2022

(Hall A)

WELCOME – 8:00

The Combustion Institute President Philippe Dagaut

Chair, Local Host Team: W. Kendal Bushe

Program Co-Chairs: Bénédicte Cuenot and Nils Hansen

HOTTEL LECTURE – 9:00

Spatially Resolved Laser/Optical Diagnostics of Combustion Processes: From Fundamentals to Practical Applications *Marcus Aldén*

Chairs: A. Dreizler

TRANSFER (15 minutes)

Room	Ballroom A	Ballroom B	Ballroom C	Mtg Room 1	Mtg Room 2&3	Mtg Room 8&15	Mtg Room 11	Mtg Room 12	Mtg Room 13	Hall A
	<p>Gas-Phase Reaction Kinetics <i>Chairs:</i> <i>H.J. Curran</i> <i>A.J. Eskola</i></p>	<p>Laminar Flames <i>Chairs:</i> <i>J. Beeckmann</i> <i>A. Cuoci</i></p>	<p>Diagnostics <i>Chairs:</i> <i>W.D. Kulatilaka</i> <i>B. Peterson</i></p>	<p>Low-Emission Combustion Technologies <i>Chairs:</i> <i>M.V. Manna</i> <i>U. Riedel</i></p>	<p>Soot, Nanomaterials & Large Molecules <i>Chairs:</i> <i>S.B. Dworkin</i> <i>K.P. Geigle</i></p>	<p>Propulsion <i>Chairs:</i> <i>S. Ciatti</i> <i>H. Kawanabe</i></p>	<p>Turbulent Flames <i>Chairs:</i> <i>S. Chaudhuri</i> <i>M. Matalon</i></p>	<p>Multi-Physics Phenomena <i>Chairs:</i> <i>W. Sun</i> <i>X. Zhang</i></p>	<p>Detonation, Explosion & Supersonic Combustion <i>Chairs:</i> <i>J. Hasslberger</i> <i>M.I. Radulescu</i></p>	
10:15	<p>1A01: The role of collisional energy transfer on the thermal and prompt dissociation of 1-methyl allyl <i>J. Cho, Y. Tao, Y. Georgievskii, S.J. Klippenstein, A.W. Jasper, R. Sivarama-krishnan</i></p>	<p>1B01: Extinction and NO formation of ammonia-hydrogen and air non-premixed counterflow flames <i>D.E. Thomas, K.P. Shrestha, F. Mauss, W.F. Northrop</i></p>	<p>1C01: Temperature dependent Raman spectra of pure, gaseous formaldehyde for combustion diagnostics <i>K. Dieter, M. Richter, J. Trabold, K. Koschnick, F. Schael, A. Dreizler, D. Geyer</i></p>	<p>1D01: Experimental analysis and theoretical lift-off criterion for H₂/air flames stabilized on a dual swirl injector <i>S. Marragou, H. Magnes, A. Aniello, L. Selle, T. Poinso, T. Schuller</i></p>	<p>1E01: Optical properties of incipient soot <i>P. Minutolo, M. Commodo, A. D'Anna</i></p>	<p>1F01: LES/FGM investigation of ignition and flame structure in a gasoline partially premixed combustion engine <i>L. Xu, Y. Zhang, Q. Tang, B. Johansson, M. Yao, X.-S. Bai</i></p>	<p>1G01: Influence of flow structures and heat release on cross-scale turbulent kinetic energy transfer in premixed swirl flames <i>A.M. Steinberg, A. Kazbekov</i></p>	<p>1H01: Consistent thermodynamics for plasma-assisted combustion <i>T. Hazenberg, J.F.J. Janssen, J. van Dijk, J.A. van Oijen</i></p>	<p>1J01: Statistical analysis of detonation wave structure <i>M.D. Frederick, R.M. Geji, J.E. Shepherd, C.D. Slabaugh</i></p>	

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	Gas-Phase Reaction Kinetics Chairs: H.J. Curran A.J. Eskola	Laminar Flames Chairs: J. Beeckmann A. Cuoci	Diagnostics Chairs: W.D. Kulatilaka B. Peterson	Low-Emission Combustion Technologies Chairs: M.V. Manna U. Riedel	Soot, Nanomaterials & Large Molecules Chairs: S.B. Dworkin K.P. Geigle	Propulsion Chairs: S. Ciatti H. Kawanabe	Turbulent Flames Chairs: S. Chaudhuri M. Matalon	Multi-Physics Phenomena Chairs: W. Sun X. Zhang	Detonation, Explosion & Supersonic Combustion Chairs: J. Hasslberger M.I. Radulescu	
10:35	1A02: H-abstractions by O ₂ , NO ₂ , NH ₂ , and HO ₂ from H ₂ NO: Theoretical study and implications for ammonia low-temperature kinetics A. Stagni, C. Cavallotti	1B02: Insight into the inner structure of stretched ammonia-air flames A. Karan, G. Dayma, C. Chauveau, F. Halter	1C02: Fluorescence-free quantitative measurements of nitric oxide and major species in an ammonia/air flame with Raman spectroscopy A. Zubairova, H. Kim, M. Aldén, C. Brackmann	1D02: Numerical investigation of boundary layer flashback of CH ₄ /H ₂ /air swirl flames under different thermal boundary conditions in a bluff-body swirl burner H. Xia, W. Han, X. Wei, M. Zhang, J. Wang, Z. Huang, C. Hasse	1E02: 2D 2-colour time-resolved laser induced incandescence sizing of ultra-fine soot particles in a methane diffusion flame B. Tian, C. Zhang, Y. Gao, C.T. Chong, S. Hochgreb	1F02: High-speed measurements and conditional analysis of boundary-layer flows at engine speeds up to 2500 rpm in a motored IC engine M. Schmidt, C. Welch, L. Illmann, A. Dreizler, B. Böhm	1G02: Memory effects of local flame dynamics in turbulent premixed flames T. Zirwes, F. Zhang, H. Bockhorn	1H02: Plasma-assisted chemical-looping combustion: Mechanistic insights into low temperature methane oxidation with CuO C.M. Burger, N. Hansen, A.J. Zhang, Y. Ju	1J02: Detonation wave driven by aerosolized liquid RP-2 spray V. Malik, S. Salauddin, R. Hytovich, R. Bielawski, V. Raman, J. Bennowitz, J. Burr, E. Paulson, W. Hargus, K. Ahmed	
10:55	1A03: On the role of HNNO in NO _x formation Q. Meng, L. Lei, J. Lee, M.P. Burke	1B03: Lewis number effects on laminar and turbulent expanding flames of NH ₃ /H ₂ /air mixtures at elevated pressures H. Dai, J. Wang, X. Cai, S. Su, Z. Huang	1C03: Water vapor in hydrogen flames measured by time-resolved collisional dephasing of the pure-rotational N ₂ CARS signal L. Castellanos, F. Mazza, A. Bohlin	1D03: Combustion regime transition of H ₂ flames during steady and transient operation of a sequential combustor R. Solana-Pérez, S.A. Shcherbanev, B. Dharmaputra, A. Ciani, N. Noiray	1E03: Jet-entrainment sampling: A new method for extracting particles from flames H. Michelsen, E. Boigné, P.E. Schrader, K.O. Johansson, M.F. Campbell, R.P. Bambha, M. Ihme	1F03: Experimental observation of turbulent jet ignition of pre-chamber with scavenging system for carbon dioxide diluted mixtures L. Zhong, P. Liu, L. Zhou, H. Wei	1G03: 3D Flame surface density measurements via orthogonal cross-planar Mie scattering in a low-turbulence Bunsen flame Y. Zheng, L. Weller, S. Hochgreb	1H03: Kinetic insights into plasma-assisted low-temperature oxidation of propane with synchrotron photoionization mass spectrometry H. Chen, R. Zhang, H. Liao, F. Zhang, J. Yang, B. Yang	1J03: Influence of low-temperature chemistry on steady detonations with curvature losses F. Veiga-López, Z.F. Weng, R. Mével, J. Melguizo-Gavilanes	
11:15	BREAK (30 minutes) The 39 th International Symposium on Combustion would like to thank our Gold Sponsor: LaVision									

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11:45	1A04: Probing O ₂ dependence of hydroperoxy-butyl reactions via isomer-resolved speciation S.W. Hartness, N.S. Dewey, M.G. Christianson, A.L. Koritzke, A.C. Doner, A.R. Webb, B. Rotavera	1B04: Extinction strain rates of premixed ammonia/hydrogen/nitrogen-air counterflow flames M. Richter, R. Schultheis, J.R. Dawson, A. Gruber, R.S. Barlow, A. Dreizler, D. Geyer	1C04: High-precision 2D surface phosphor thermometry at kHz-rates during flame-wall interaction in narrow passages A.O. Ojo, D. Escofet-Martin, B. Peterson	1D04: Soot-free and low-NO combustion of Jet A-1 in a Lean Azimuthal Flame (LEAF) combustor with hydrogen injection L. Miniero, K. Pandey, G. De Falco, A. D'Anna, N. Noiray	1E04: Soot nanoparticle sizing in counterflow flames using in-situ particle sampling and differential mobility analysis verified with two-color time-resolved laser-induced incandescence F.P. Hagen, P. Vlavakis, M. Seitz, T. Klövekorn, H. Bockhorn, R. Suntz, D. Trimis	1F04: Multi-regime reaction front and detonation initiation by temperature inhomogeneity J. Pan, L. Wang, W. Liang, C.K. Law, H. Wei, G. Shu	1G04: An experimental study of the influence of Lewis number on turbulent flame speed at different pressures A.N. Lipatnikov, Y.-R. Chen, S. Shy	1H04: Experimental investigation of non-equilibrium plasma-assisted ammonia flames using NH ₂ * chemiluminescence and OH planar laser-induced fluorescence J. Choe, W. Sun	1J04: Critical diffraction of unstable detonations and their predictability from experimentally obtained D-κ data F. Zangene, Q. Xiao, M. Radulescu	TOPICAL REVIEW Automation of Chemical Kinetics: Status and Challenges Carlo Cavallotti
	<p>The 39th International Symposium on Combustion would like to thank our Silver Sponsors:</p> <p style="text-align: center;">Carleton University ELSEVIER FM Global KAUST Toronto Metropolitan University SIEMENS Energy</p> <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: office@combustioninstitute.org</p>									

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12:05	1A05: An experimental and computational investigation of the reaction between pent-1-en-3-yl radicals and oxygen molecules under autoignition conditions T.T. Pekkanen, G. Lendvay, M. Döntgen, R.S. Timonen, A.J. Eskola	1B05: Experimental and numerical study of product gas and N ₂ O emission characteristics of ammonia/hydrogen/air premixed laminar flames stabilized in a stagnation flow A. Hayakawa, M. Hayashi, M. Kovaleva, G.J. Gotama, E.C. Okafor, S. Colson, S. Mashruk, A. Valera-Medina, T. Kudo, H. Kobayashi	1C05: Evaluation of 15-kHz high-speed Pr:YAG phosphor surface thermometry of a thermal barrier coating in a reciprocating IC engine D. Witkowski, D.A. Rothamer	1D05: Measurements of self-excited instabilities and nitrogen oxides emissions in a multi-element lean-premixed hydrogen/methane/air flame ensemble H. Kang, M. Lee, K.-T. Kim	1E05: Investigation of soot sensitivity to strain rate in ethylene counterflow soot formation oxidation flames E. Quadarella, Z. Li, J. Guo, W.L. Roberts, H.G. Im	1F05: Detonation development in PRF/air mixtures under engine-relevant conditions H.C. Lee, P. Dai, Z. Chen, X. Gan	1G05: Pressure gradient tailoring effects on vorticity dynamics in the near-wake of bluff-body stabilized flames S.H.R. Whitman, T.J. Souders, M.A. Meehan, J.G. Brasseur, P.E. Hamlington	1H05: Atomistic insight into enhanced thermal decomposition of energetic material on graphene oxide M. Feng, Y. Wang, K.H. Luo	1J05: Effect of injection dynamics on detonation wave propagation in a linear detonation combustor A. Lemcherfi, R.M. Gejji, Z.M. Ayers, E.W. Plaehn, H.D. Perkins, S. Roy, T.R. Meyer, C.A. Fugger, C.D. Slabaugh	TOPICAL REVIEW Automation of Chemical Kinetics: Status and Challenges Carlo Cavallotti
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12:25	1A06: The influence of thermo-chemistry on the reactivity of propane, the pentane isomers and <i>n</i> -heptane in the low temperature regime M.K. Ghosh, S. Panigrahy, S. Dong, S.N. Elliott, S.J. Klippenstein, H.J. Curran	1B06: Characterizing methane and nitric oxide interaction in outwardly propagating spherical flame B. Mei, Y. Zhang, W. Li, Y. Li	1C06: Evaluation of LIF thermometry technique using krypton as a tracer: Impact of laser lineshape and collisional bandwidth N. Lamoureux, P. Parajuli, W. Kulatilaka, P. Desgroux	1D06: Impact of chamber back pressure on the ignition dynamics of hydrogen enriched premixed flames T. Yehou, J.R. Dawson, T. Schuller	1E06: Experimental investigation on the size-dependent maturity of soot particles in laminar premixed ethylene burner-stabilized stagnation flames Y. Zhou, M. Wang, Q. He, X. You	1F06: Effects of low-temperature chemistry on detonation under engine-relevant conditions M.B. Luong, H.G. Im	1G06: Effects of body force on the statistical behaviour and modelling of scalar variance in turbulent premixed flames A.R. Varma, U. Ahmed, N. Chakraborty	1H06: Molecular beam mass spectrometry study on plasma-assisted low-temperature oxidation of ethylene H. Chen, R. Zhang, H. Liao, J. Yang, N. Hansen, B. Yang	1J06: Effect of ozone addition and ozonolysis reaction on the detonation properties of C ₂ H ₄ /O ₂ /Ar mixtures J. Sun, Z. Chen, B. Tian	
12:45	<p>LUNCH (90 Minutes) – On Your Own</p> <p>Visit our Exhibitors and Sponsors in East Exhibit Hall B:</p> <p>DANTEC DYNAMICS IRsweep Lambert Instruments BV Photron The Pontem Group Telops</p>									

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14:15	1A07: Understanding the low-temperature chemistry of 1,2,4-trimethylbenzene <i>S. Dong, G. Kukkadapu, J. Liang, X. Cheng, S.W. Wagnon, W.J. Pitz, H. Curran</i>	1B07: Flame fingers and interactions of hydrodynamic and thermos-diffusive instabilities in laminar lean hydrogen flames <i>L. Berger, M. Grinberg, B. Jürgens, P.E. Lapenna, F. Creta, A. Attili, H. Pitsch</i>	1C07: Resolved simulations of single iron particle combustion and the release of nano-particles <i>L.C. Thijs, C.E.A.G. van Gool, W.J.S. Ramaekers, J.A. van Oijen, L.P.H. de Goey</i>	1D07: Visible Chemiluminescence of ammonia premixed flames and its application for flame diagnostics <i>W. Weng, M. Aldén, Z. Li</i>	1E07: Bay capping via acetylene addition to polycyclic aromatic hydrocarbons: Mechanism and kinetics <i>L.B. Tuli, A.M. Mebel, M. Frenklach</i>	1F07: Flashback-induced flame shape transition in a two-stage LPP aeronautical combustor: Influence of thermal properties and injection regimes <i>L.C.C. Mesquita, A. Vié, S. Ducruix</i>	1G07: Laser-based investigation of flame surface density and mean reaction rate during flame-wall interaction at elevated pressure <i>P. Johe, F. Zentgraf, M. Greifenstein, R.S. Barlow, A. Dreizler</i>	1H07: Investigation of the impact of NRP discharge frequency on the ignition of a lean methane-air mixture using fully coupled plasma-combustion numerical simulations <i>N. Barleon, L. Cheng, B. Cuenot, O. Vermorel, A. Bourdon</i>	1J07: On the combustion of n-butyl acetate droplets <i>Y. Wang, A. Cuoci, S. Guo, L. Ji, C.T. Avedisian, K. Seshadri, A. Frassoldati</i>	INDUSTRY SESSION Decarbonization of mobility, including transportation and renewable fuels <i>Roger Cracknell, Steve Ciatti, Sergey Dorofeev, Ruud Eggels, Keith McManus, Koichi Nakata</i>
14:35	1A08: An experimental and theoretical kinetic study of <i>t</i> -butyl radical reaction with molecular oxygen <i>A.J. Eskola, T.T. Pekkanen, G. Lendvay, R.S. Timonen</i>	1B08: Generation of low frequency flame oscillations for the development of passive acoustic flame arresters <i>A. Balakrishnan, V. Sankar, D.A. Lacoste</i>	1C08: Peculiarities of aluminum particle combustion in steam <i>F. Halter, V. Glasziou, M. Di Lorenzo, S. Gallier, C. Chauveau</i>	1D08: Study of mechanism of ammonia decomposition and oxidation: From NO _x reduction to ammonia auto-ignition problem. <i>V. Bykov, M. Stein, U. Maas</i>	1E08: A predictive model for the aggregation of polycyclic aromatic compounds <i>J.C. Saldinger, P. Elvati, A. Violi</i>	1F08: LES-CMC of high-altitude relight in an RQL aeronautical combustor <i>L.C.C. Mesquita, E. Mastorakos, M. Zedda</i>	1G08: Turbulent premixed flame-wall interaction with heterogeneous surface reactions <i>D. Zhao, C. Zhang, F.E. Hernández Pérez, H.G. Im, L. Wang</i>	1H08: Numerical study of plasma assisted combustion in a sequential combustor <i>Q. Malé, S. Shcherbanev, N. Noiray</i>	1J08: The effect of fuel droplets on the burning velocity of strained laminar acetone/air flames <i>D. McGrath, L. Fan, S. Gkantonas, S. Hochgreb</i>	

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14:55	1A09: Theoretical kinetics of HO ₂ +C ₅ H ₅ : A missing piece in cyclopentadienyl radical oxidation reactions <i>L.P. Maffei, M. Pelucchi, T. Faravelli, C. Cavallotti</i>	1B09: Flamelet modeling of thermo-diffusively unstable hydrogen-air flames <i>H. Böttler, H. Lulic, M. Steinhausen, X. Wen, C. Hasse, A. Scholtissek</i>	1C09: Flame structure and burning velocity of flames propagating in binary iron aerosols <i>A. Ravi, P. de Goey, J. van Oijen</i>	1D09: Enhancing ammonia combustion using reactivity stratification with hydrogen addition <i>W. Liang, C.K. Law</i>	1E09: Prenucleation chemistry of aromatics: A two-ring precursor? <i>M. Frenklach, A.M. Mebel</i>	1F09: Topological transitions of Jet A-1 Lean Azimuthal Flames (LEAF) <i>K. Pandey, L. Miniero, U. Doll, P.M. de Oliveira, E. Mastorakas, N. Noiray</i>	1G09: Simultaneous stereo-PIV and heat release rate measurements in turbulent ultra lean CH ₄ /H ₂ swirling wall-impinging flames <i>L. Fan, B. Savard, S. Carlyle, M. Nozari, R. Naaman, B. Fond, P. Vena</i>	1H09: Numerical analysis of turbulent flame stabilization by nanosecond repetitively pulsed discharges <i>Y. Bechane, B. Fiorina</i>	1J09: Internal group combustion of droplet clouds and its transition to external group combustion under two-stage autoignition conditions <i>H. Zhou, Y.C. Liu</i>	INDUSTRY SESSION Decarbonization of mobility, including transportation and renewable fuels <i>Roger Cracknell, Steve Ciatti, Sergey Dorofeev, Ruud Eggels, Keith McManus, Koichi Nakata</i>
15:15	1A10: Reaction kinetics of OH radicals with 1,3,5-trimethylbenzene: An experimental and theoretical study <i>D. Liu, B.R. Giri, T. V.-T. Mai, L.K. Huynh, A. Farooq</i>	1B10: Computational study on lean and rich combustion of flame ball, counterflow flame and planer flame: Their limits and stoichiometries <i>A. Tsunoda, T. Akiba, H. Nakamura, Y. Morii, T. Tezuka, K. Maruta</i>	1C10: Moderate micro-explosion during the combustion of iron wire in the atmospheric air <i>C. Kong, Y. Wang, Y. Qian, X. Wu, Z. Zhang</i>	1D10: An experimental and modeling study on auto-ignition of ammonia in an RCM with N ₂ O and H ₂ addition <i>W. Liao, Z. Chu, Y. Wang, S. Li, B. Yang</i>	1E10: HOMO-LUMO gaps of large polycyclic aromatic hydrocarbons and their implication on the quantum confinement behavior of flame-formed carbon nanoparticles <i>N. Kateris, A.S. Jayaraman, H. Wang</i>	1F10: Numerical analysis of relight in an annular spray-flame combustor with preheated walls <i>K. Töpferwien, R. Vicquelin</i>	1G10: Flame-vortex interaction during turbulent side-wall quenching and its implications for flamelet manifolds <i>M. Steinhausen, T. Zirwes, F. Ferraro, A. Scholtissek, H. Bockhorn, C. Hasse</i>	1H10: Numerical study on effects of hydrothermal aging to composite regeneration in CeO ₂ -based catalyzed diesel particulate filter <i>P. Wang, Z. Li, C. Ao, L. Lei</i>	1J10: Combustion characteristics and detailed simulations of surrogates for a Tier II gasoline certification fuel <i>S. Guo, A. Cuoci, Y. Wang, L. Ji, C.T. Avedisian, K. Seshadri, D. Lopez-Pintor, J.E. Dec, N. DiReda, A. Frassoldati</i>	
15:35	Break (50 Minutes): WiPPs are available for your review East Exhibit Hall B									

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	Gas-Phase Reaction Kinetics Chairs: S.M. Sarathy M. Pelucchi	Laminar Flames Chairs: P.B. Sunderland Y. Suzuki	Solid Fuel Combustion Chairs: J. Van Oijen	Spray, Droplet, & Supercritical Combustion Chairs: O.C. Kwon J.C. Oefelein	Diagnostics Chairs: C. Brackmann D. Geyer	Propulsion Chairs: J.C. Massey S.H. Won	Turbulent Flames Chairs: T. Poinso M. Mahdi Salehi	Multi-Physics Phenomena Chairs: N. Hansen N. Tsolas	Fire Research Chairs: M.A. Delichatsios G. Rein	
16:25	1A11: On the influence of hydrogen on the low-temperature reactivity of <i>n</i> -pentane, 1-pentene and 3-pentanone: An experimental and modeling study M. Saab, G. Vanhove, Y. Fenard	1B11: Numerical and experimental studies on minimum ignition energies in primary reference fuel/air mixtures C. Wu, Y.-R. Chen, R. Schießl, S. Shy, U. Maas	1C11: Fully-resolved simulations of volatile combustion and NO _x formation from single coal particles in recycled flue gas environments A. Shamooni, O.T. Stein, A. Kronenburg, A.M. Kempf, P. Debiagi, T. Li, A. Dreizler, B. Böhm, C. Hasse	1D11: A study of ignition and combustion of liquid hydrocarbon droplets in premixed fuel/air mixtures in a rapid compression machine S. Bhoite, B. Windom, A.J. Marchese	1E11: On the use of extended-wavelength FTIR spectra for the prediction of combustion properties of jet fuels and their constituent species V. Boddapati, A.M. Ferris, R.K. Hanson	1F11: Injector spacing influences on flame blow-off in a linear array S. Jella, J. Bergthorson	1G11: Direct numerical simulation of flame-wall interaction at gas turbine relevant conditions K. Niemietz, L. Berger, M. Huth, A. Attili, H. Pitsch	1H11: On pulse energy and energy distribution for ignition of flowing mixtures S. Shen, I. Laso, N. Rozin, J.K. Lefkowitz	1J11: Temperature evolution, flame behavior and extinction inside compartment with a ceiling vent under the ambient wind X. Fang, X. Sun, X. Zhang, F. Ren, Y. Yang, L. Hu	
16:45	1A12: An experimental and modeling study on autoignition of 2-phenyl-ethanol and its blends with <i>n</i> -heptane R. Fang, G. Kukkadapu, S.W. Wagnon, W.J. Pitz, C.-J. Sung	1B12: Stable circular and double-cell lean hydrogen-air premixed flames in quasi two-dimensional channels A. Domínguez-González, D. Martínez-Ruiz, M. Sánchez-Sanz	1C12: Quantifying the effect of CO ₂ gasification on pulverized coal char oxy-fuel combustion C.R. Shaddix, E.S. Hecht, C. Gonzalo-Tirado, B.S. Haynes	1D12: Design and evaluation of surrogate mixtures for diesel based on the isolated droplet configuration Á. Muelas, D. Aranda, J. Ballester	1E12: A mid-IR laser diagnostic for HCN detection A. Elkhazraji, M. Adil, M. Mhanna, N. Abualsaud, A.A. Alsulami, M.K. Shakfa, M. Marangoni, B. Giri, A. Farooq	1F12: Experimental investigation of low-temperature autoignition in turbulent premixed swirling flames W. Lin, W. Han, J. Wang, R. Mao, W. Zhang, X. Cai, Z. Huang	1G12: Combined effects of heat loss and curvature on turbulent flame-wall interaction in a premixed dimethyl ether/air flame D. Kaddar, M. Steinhausen, T. Zirwes, H. Bockhorn, C. Hasse, F. Ferraro	1H12: Effects of inter-pulse coupling on nanosecond pulsed high frequency discharge ignition in a flowing mixture X. Mao, H. Zhong, Z. Wang, T. Ombrello, Y. Ju	1J12: Experimental investigation of facade flame behavior ejected from a top-hung window of fire compartment X. Zhang, Y. Yang, X. Sun, F. Ren, X. Fang, L. Hu	

Room	Ballroom A	Ballroom B	Ballroom C	Mtg Room 1	Mtg Room 2&3	Mtg Room 8&15	Mtg Room 11	Mtg Room 12	Mtg Room 13	Hall A
	Gas-Phase Reaction Kinetics <i>Chairs:</i> S.M. Sarathy M. Pelucchi	Laminar Flames <i>Chairs:</i> P.B. Sunderland Y. Suzuki	Solid Fuel Combustion <i>Chairs:</i> J. Van Oijen	Spray, Droplet, & Supercritical Combustion <i>Chairs:</i> O.C. Kwon J.C. Oefelein	Diagnostics <i>Chairs:</i> C. Brackmann D. Geyer	Propulsion <i>Chairs:</i> J.C. Massey S.H. Won	Turbulent Flames <i>Chairs:</i> T. Poinsot M. Mahdi Salehi	Multi-Physics Phenomena <i>Chairs:</i> N. Hansen N. Tsolas	Fire Research <i>Chairs:</i> M.A. Delichatsios G. Rein	
17:05	1A13: On the low-temperature chemistry of 1,3-butadiene S. Dong, B. Wang, Z. Jiang, X. Cheng, B. Liu, H. Wang, Z. Wang, H. Curran	1B13: Physics-informed recurrent neural networks for linear and nonlinear flame dynamics V. Yadav, A. Ghani	1C13: Partitioning and transformation behavior of selenium during coal combustion Y. Huang, H. Hu, C. Zou, H. Liu, S. Li, X. Wu, L. Xu, H. Yao	1D13: Single droplet combustion modelling for controlled nanomaterial synthesis M. Najimu, V. Baghdassarian, S. Leask, V. McDonnell, B. Padak, E. Sasmaz	1E13: A laser-absorption sensor for <i>in situ</i> detection of biofuel blend vapor in engine intakes S. Clees, D.H. Cha, P. Biswas, V. Boddapati, S.J. Cassady, C.L. Strand, R.K. Hanson, B. French, A. Gilmour, K.C. Hawk, J.M. Stitt, X. Ferlet	1F13: The impact of N ₂ micro-jets on the V-to-M flame shape transition in a premixed swirl burner D. Cao, I. Greenberg, N. Balasubramanian, H.E. Brod, D. Michaels	1G13: Turbulent kinetic energy evolution in turbulent boundary layers during head-on interaction of premixed flames with inert walls for different thermal boundary conditions S.K. Ghai, U. Ahmed, M. Klein, N. Chakraborty	1H13: Ignition of an ionic liquid dual-mode mono-propellant using microwave plasma torch Y. Tang, S. Li, Z. Yao, B. Huang, S. Li	1J13: Mechanism of flashback in horizontal smoldering of polyurethane foam: A numerical study Z. Wang, H. Zhu, N. Liu, H. Chen, X. Xie, W. Yan, M. Huang	
<p>SESSIONS END AT 17:25</p> <p>Early Career Researcher Mixer: 18:00 – 20:00</p> <p>Rogue Kitchen & Wetbar Gastown</p> <p>601 W Cordova St, Vancouver, BC V6B 1E1, Canada</p> <p>A short walking distance from the Convention Centre</p>										

Tuesday, 26 July 2022

(Auditorium)
PLENARY LECTURE – 8:30 am

Flames with Plasmas Deanna A. Lacoste

Chair: Y. Ju

Transfer (15 minutes)

Room	Ballroom A	Ballroom B	Ballroom C	Mtg Room 1	Mtg Room 2&3	Mtg Room 8&15	Mtg Room 11	Mtg Room 12	Mtg Room 13	Hall A
	Gas-Phase Reaction Kinetics Chairs: R. Fernandes A. Farooq	Laminar Flames Chairs: H.G. Im O. Fujita	Solid Fuel Combustion Chairs: S. Gallier	Low-Emission Combustion Technologies Chairs: T. Løvås	Soot, Nanomaterials & Large Molecules Chairs: M. Commodo A.M. Mebel	Propulsion Chairs: A. Hadadpour W.F. Northrop	Turbulent Flames Chairs: J.H. Chen I. Mantzaras	Fire Research Chairs: I.S. Wichman	Detonation, Explosion, & Supersonic Combustion Chairs: C.D. Slabaugh	
9:45	2A01: Shock tube study of natural gas oxidation at propulsion relevant conditions J.M. Mehta, W. Wang, K. Brezinsky	2B01: Burning emulations of solids and liquids in microgravity P. Dehghani, J.L. de Ris, J.G. Quintiere	2C01: Regression of solid polymer fuel strands in opposed-flow combustion with gaseous oxidizer C.M. Geipel, B.T. Bojko, C.J. Pfützner, B.T. Fisher, R.F. Johnson	2D01: An improved reduced model for the evaporation and decomposition of Urea-Water Solution (UWS) droplets E. Berszány, M. Stein, V. Bykov, U. Maas	2E01: The role of radical-radical chain-propagating pathways in the phenyl + propargyl reaction D.E. Couch, G. Kukkadapu, A.J. Zhang, A.W. Jasper, C.A. Taatjes, N. Hansen	2F01: Physics-informed graph neural networks for predicting cetane number with systematic data quality analysis Y. Kim, J. Cho, N. Naser, S. Kumar, K. Jeong, R.L. McCormick, P.C. St. John, S. Kim	2G01: A DNS study on the flame structures and flame stabilization mechanism of a laboratory-scale lean premixed jet flame in crossflow M. Cheng, H. Wang, K. Luo, J. Fan	2H01: Experimental and analytical study on inclined turbulent fire in still air. Part 1: Line fire W. Gao, N. Liu, X. Xie, H. Zhu, L. Zhang, Y. Jiao	2J01: Isolating gasdynamic and chemical effects on the detonation cellular structure: A combined experimental and computational study P.A. Meagher, X. Shi, J.P. Santos, N.K. Muraleedharan, J. Crane, A.Y. Poludnenko, H. Wang, X. Zhao	

Room	Ballroom A	Ballroom B	Ballroom C	Mtg Room 1	Mtg Room 2&3	Mtg Room 8&15	Mtg Room 11	Mtg Room 12	Mtg Room 13	Hall A
	Gas-Phase Reaction Kinetics Chairs: <i>R. Fernandes</i> <i>A. Farooq</i>	Laminar Flames Chairs: <i>H.G. Im</i> <i>O. Fujita</i>	Solid Fuel Combustion Chairs: <i>S. Gallier</i>	Low-Emission Combustion Technologies Chairs: <i>T. Løvås</i>	Soot, Nanomaterials & Large Molecules Chairs: <i>M. Commodo</i> <i>A.M. Mebel</i>	Propulsion Chairs: <i>A. Hadadpour</i> <i>W.F. Northrop</i>	Turbulent Flames Chairs: <i>J.H. Chen</i> <i>I. Mantzaras</i>	Fire Research Chairs: <i>I.S. Wichman</i>	Detonation, Explosion, & Supersonic Combustion Chairs: <i>C.D. Slabaugh</i>	
10:05	2A02: Shock tube/laser absorption measurement of the rate constant of the reaction: $\text{H}_2\text{O}_2 + \text{CO}_2 \rightarrow 2\text{OH} + \text{CO}_2$ <i>J. Shao,</i> <i>R. Choudhary,</i> <i>D.F. Davidson,</i> <i>R.K. Hanson</i>	2B02: Experimental measurements of laminar flame speeds for highly N_2 -diluted ethanol flames under microgravity conditions <i>C. Bariki,</i> <i>F. Halter,</i> <i>R. Hesse,</i> <i>C. Chauveau,</i> <i>H. Pitsch,</i> <i>J. Beeckmann</i>	2C02: Insight into KOH and KCl release behavior of burning biomass pellets using quantitative in situ optical measurements <i>W. Weng,</i> <i>M. Aldén, Z. Li</i>	2D02: Flamelet LES of a 40 kW _{th} pulverized torrefied biomass furnace in air and oxy-fuel atmospheres <i>X. Wen,</i> <i>H. Nicolai,</i> <i>P. Debiagi,</i> <i>D. Zabradie,</i> <i>A. Maßmeyer,</i> <i>R. Kneer, C. Hasse</i>	2E02: An experimental and modeling study of tetramethyl ethylene pyrolysis with polycyclic aromatic hydrocarbon formation <i>S.S. Nagaraja,</i> <i>J. Liang, B. Liu,</i> <i>Q. Xu, C. Shao,</i> <i>G. Kukkadapu,</i> <i>H. Lu, Z. Wang,</i> <i>W.J. Pitz,</i> <i>S.M. Sarathy,</i> <i>H.J. Curran</i>	2F02: An experimental auto-ignition and kinetic modeling study of binary and ternary cyclopentane/toluene/diisobutylene/isooctane mixtures <i>V. Patel,</i> <i>N. Lokachari,</i> <i>S. Gail,</i> <i>R. Cracknell,</i> <i>H.J. Curran</i>	2G02: Large eddy simulation of multi-regime combustion with a two-progress variable approach for carbon monoxide <i>J.C. Massey, Z. Li,</i> <i>Z.X. Chen,</i> <i>Y. Tanaka,</i> <i>N. Swaminathan</i>	2H02: Flame downwash behavior in horizontal jet fires with crossflow: Experiment and physical model <i>J. Lv, L. Hu, X. Li,</i> <i>H. Lu, Y. Ma,</i> <i>X. Sun,</i> <i>S.H. Chung</i>	2J02: Detonation cell size of liquid hypergolic propellants: Estimation from a non-premixed combustor <i>A.P. Nair,</i> <i>A.R. Keller,</i> <i>N.Q. Minesi,</i> <i>D.I. Pineda,</i> <i>R.M. Spearrin</i>	
10:25	2A03: Shock-tube study on high-temperature CO formation during dry methane reforming <i>C. Rudolph,</i> <i>C.M. Grégoire,</i> <i>S.P. Cooper,</i> <i>S.A. Alturaifi,</i> <i>O. Mathieu,</i> <i>E.L. Petersen,</i> <i>B. Atakan</i>	2B03: Superadiabatic small-scale combustors: Asymptotic analysis of a two-step chain-branching combustion model <i>J. Bosch, D. Fernández-Galisteo,</i> <i>C. Jiménez,</i> <i>V.N. Kurdyumov</i>	2C03: Experimental and modeling study on centimeter pine char combustion in fast-heating Macro TGA <i>S. Wu, Z. Li</i>	2D03: Interaction of hydrogen and nitric oxide in outwardly propagating spherical flame: Insight into nonhydrocarbon NO _x reduction mechanism <i>J. Zou, J. Zhang,</i> <i>T. Lian, B. Mei,</i> <i>Y. Li</i>	2E03: Synergistic effects in toluene/C ₃ H ₄ isomers copyrolysis: Formation of indene and naphthalene <i>Z. Liu, X. Fan,</i> <i>H. Chen, J. Yang,</i> <i>L. Zhao, C.K. Law,</i> <i>B. Yang</i>	2F03: Enhancing ϕ -sensitivity of ignition delay times through dilution of fuel-air mixture <i>J. Cho, J. Luecke,</i> <i>M.J. Rahimi,</i> <i>Y. Kim,</i> <i>B.T. Zigler, S. Kim</i>	2G03: Zone-adaptive modeling of turbulent flames with multiple chemical mechanisms <i>T. Yang, H. Zhou,</i> <i>Y. Yin, Z. Ren</i>	2H03: Experimental study, dimensional analysis and an integral model for horizontal buoyant turbulent jet fires under opposing wind <i>J. Lv,</i> <i>M.A. Delichatsios,</i> <i>M. Deligiannis,</i> <i>H. Lu, X. Li,</i> <i>Y. Ma, X. Sun,</i> <i>L. Hu</i>	2J03: The re-initiation of cellular detonations downstream of an inert layer <i>K.C. Tang-Yuk,</i> <i>X. Mi, J.H.S. Lee,</i> <i>H.D. Ng,</i> <i>R. Deiterding</i>	

BREAK (30 minutes)

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Room	Ballroom A	Ballroom B	Ballroom C	Mtg Room 1	Mtg Room 2&3	Mtg Room 8&15	Mtg Room 11	Mtg Room 12	Mtg Room 13	Hall A
10:45	<p>BREAK (30 minutes)</p> <p>The 39th International Symposium on Combustion would like to thank our Gold Sponsor:</p> <p>LaVision</p> <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:</p> <p><u>office@combustioninstitute.org</u></p>									
	<p>Gas-Phase Reaction Kinetics I Chairs: <i>C. Cavallotti</i></p>	<p>Laminar Flames Chairs: <i>A. Giusti</i> <i>F. Halter</i></p>	<p>Gas-Phase Reaction Kinetics II Chairs: <i>C.-W. Zhou</i></p>	<p>Low-Emission Combustion Technologies Chairs: <i>A. Gruber</i></p>	<p>Soot, Nanomaterials & Large Molecules Chairs: <i>M.E. Mueller</i> <i>C.J. Shaddix</i></p>	<p>Propulsion Chairs: <i>S.A. Kaiser</i> <i>K. Tanaka</i></p>	<p>Turbulent Flames Chairs: <i>F. Ferraro</i> <i>B. Savard</i></p>	<p>Fire Research Chairs: <i>J. Wen</i> <i>X. Huang</i></p>	<p>Detonation, Explosion, & Supersonic Combustion Chairs: <i>G. Ciccarelli</i> <i>K. Tank Yuk</i></p>	<p>TOPICAL REVIEW Chair: <i>J.-L. Consalvi</i></p>
11:15	<p>2A04: Unravelling the carbene chemistry of oxymethylene ethers: Experimental investigation and kinetic modeling of the high-temperature pyrolysis of OME-2 <i>K. De Ras,</i> <i>M. Kusenberg,</i> <i>J.W. Thybaut,</i> <i>K.M. Van Geem</i></p>	<p>2B04: Two-dimensional simulation of cool and double flame formation induced by the laser ignition under shock-tube conditions <i>T. Zhang,</i> <i>A. J. Susa,</i> <i>R.K. Hanson,</i> <i>Y. Ju</i></p>	<p>2C04: Exploring cyclohexane pyrolysis through shock tube PIMS experiments <i>C. Banyon,</i> <i>R.E. Hawtof,</i> <i>T. Sikes,</i> <i>R.S. Tranter</i></p>	<p>2D04: Treating NOx emission of hydrogen fueled combustion engines by NOx storage and reduction catalysts: A transient kinetic study including PLIF measurements <i>K. Keller, S. Wan,</i> <i>M. Borchers,</i> <i>P. Lott, R. Suntz,</i> <i>O. Deutschmann</i></p>	<p>2E04: Investigation of soot formation in <i>n</i>-docecane spray flames using LES and a discrete sectional method <i>H. Bao, A. Kalbhor,</i> <i>N. Maes,</i> <i>B. Somers,</i> <i>J. van Oijen</i></p>	<p>2F04: Influence of NOx chemistry on the prediction of natural gas end-gas autoignition in CFD engine simulations <i>D. Bestel,</i> <i>D. Olsen,</i> <i>A. Marchese,</i> <i>B. Windom</i></p>	<p>2G04: The hierarchy of low-dimensional manifolds in the context of multiple mapping conditioning mixing model <i>C. Yu, P. Breda,</i> <i>M. Pfitzner,</i> <i>U. Maas</i></p>	<p>2H04: Transitional behavior of vertical flame height of horizontally-oriented rectangular-source jet fires <i>X. Fang,</i> <i>X. Zhang, L. Hu</i></p>	<p>2J04: Induction zone length measurements by laser-induced fluorescence of nitric oxide in hydrogen-air detonations <i>S.B. Rojas Chavez,</i> <i>K.P. Chatelain,</i> <i>D.A. Lacoste</i></p>	<p>TOPICAL REVIEW</p> <p>On the Importance of the Heat Release Rate in Numerical Simulations of Fires in Mechanically Ventilated Air-Tight Enclosures</p> <p>Bart Merci, <i>Junyi Li,</i> <i>Georgios Maragkos</i></p>

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	Gas-Phase Reaction Kinetics I <i>Chairs:</i> <i>C. Cavallotti</i>	Laminar Flames <i>Chairs:</i> <i>A. Giusti</i> <i>F. Halter</i>	Gas-Phase Reaction Kinetics II <i>Chairs:</i> <i>C.-W. Zhou</i>	Low-Emission Combustion Technologies <i>Chairs:</i> <i>A. Gruber</i>	Soot, Nanomaterials & Large Molecules <i>Chairs:</i> <i>M.E. Mueller</i> <i>C.J. Shaddix</i>	Propulsion <i>Chairs:</i> <i>S.A. Kaiser</i> <i>K. Tanaka</i>	Turbulent Flames <i>Chairs:</i> <i>F. Ferraro</i> <i>B. Savard</i>	Fire Research <i>Chairs:</i> <i>J. Wen</i> <i>X. Huang</i>	Detonation, Explosion, & Supersonic Combustion <i>Chairs:</i> <i>G. Ciccarelli</i> <i>K. Tank Yuk</i>	TOPICAL REVIEW <i>Chair:</i> <i>J.-L. Consalvi</i>
11:35	2A05: Oxidation of linear and branched ethers: A comparative flow reactor study of OME ₂ and trimethoxy-methane <i>N. Gaiser,</i> <i>T. Bierkandt,</i> <i>P. Oßwald,</i> <i>J. Zinsmeister,</i> <i>P. Hemberger,</i> <i>S. Shaqiri,</i> <i>M. Aigner,</i> <i>T. Kasper,</i> <i>M. Köhler</i>	2B05: Spherical gas-fueled cool diffusion flames <i>M. Kim,</i> <i>K.A. Waddell,</i> <i>P.B. Sunderland,</i> <i>V. Nayagam,</i> <i>D.P. Stocker,</i> <i>D.L. Dietrich,</i> <i>Y. Ju,</i> <i>F.A. Williams,</i> <i>P. Irace,</i> <i>R.L. Axelbaum</i>	2C05: Exploring the pyrolysis chemistry of 1, 3, 5-Trimethylcyclohexane with insight into fuel isomeric and multiple substitution effects <i>M. Yang,</i> <i>Q. Wang,</i> <i>M. Ding,</i> <i>J. Wang, Y. Fan,</i> <i>W. Li, J. Yang</i>	2D05: Chemical kinetics modeling study for the catalytic reduction of NO by Na-loaded char <i>S. Yue, C. Wang,</i> <i>E.J. Anthony</i>	2E05: Transported JPDF modelling and measurements of soot at elevated pressures <i>L. Tian,</i> <i>W.R. Boyette,</i> <i>R.P. Lindstedt,</i> <i>T.F. Guiberti,</i> <i>W.L. Roberts</i>	2F05: Ignition behaviors of primary reference fuels in a rapid compression machine under vortex-existing/mini-mized conditions <i>W. Liu, Y. Qi,</i> <i>R. Zhang,</i> <i>Q. Zhang,</i> <i>Z. Wang</i>	2G05: Conditional analysis of temperature and strain rate effects on dissipation structure in turbulent non-premixed jet flames <i>T.A. McManus,</i> <i>J.A. Sutton</i>	2H05: Flame detachment of jet fires at windward and leeward sides in crossflow: Experiment and a Damköhler number based model <i>L. Hu, F. Shang,</i> <i>Y. Chen,</i> <i>S.H. Chung</i>	2J05: Three-dimensional detonation structure and its response to confinement <i>J. Crane,</i> <i>J.T. Lipkowitz,</i> <i>X. Shi, I. Wlokas,</i> <i>A.M. Kempf,</i> <i>H. Wang</i>	TOPICAL REVIEW On the Importance of the Heat Release Rate in Numerical Simulations of Fires in Mechanically Ventilated Air-Tight Enclosures <i>Bart Merci,</i> <i>Junyi Li,</i> <i>Georgios Maragkos</i>
11:55	2A06: Pre-vaporized ignition behavior of ethyl- and propyl-terminated oxymethylene ethers <i>S. Lucas,</i> <i>N.J. Labbe,</i> <i>A.J. Marchese,</i> <i>B. Windom</i>	2B06: Kinetics and extinction of non-premixed cool and warm flames of dimethyl ether at elevated pressure <i>Z. Wang, C. Yan,</i> <i>Y. Lin, M. Zhou,</i> <i>B. Jiang, N. Liu,</i> <i>H. Zhong, Y. Ju</i>	2C06: Experimental and kinetic modeling studies of phenyl acetate pyrolysis at atmospheric pressure <i>J. Wang, W. He,</i> <i>C. Xie, Q. Xu,</i> <i>J. Yin, Z. Wang,</i> <i>L. Wei</i>	2D06: Simultaneous catalytic ozonation of NO and dichloromethane on Mn/H-ZSM-5 catalysts: Interaction effect and mechanism <i>H. Tang, Y. He,</i> <i>F. Lin, Y. Zhu,</i> <i>Y. Duan, Z. Wang</i>	2E06: Setup for in situ measurements of particles in turbulent spray flames using small angle X-ray scattering <i>M. Simmler,</i> <i>M. Meier, L. Rank,</i> <i>G. Buth, A. Plech,</i> <i>H. Nirschl</i>	2F06: Prediction of the developing detonation regime in an NTC-fuel/air mixture with temperature inhomogeneities under engine conditions <i>M.B. Luong,</i> <i>H.G. Im</i>	2G06: Formulation and importance of conservative transport in non-premixed flamelet models <i>M. Davidovic,</i> <i>H. Pitsch</i>	2H06: Air entrainment dynamics in turbulent diffusion flames under cross wind <i>N. Mofidi,</i> <i>J.L. Torero,</i> <i>A. Simeoni</i>	2J06: A numerical study on the influence of increased instability of quasi-detonation on the critical tube diameter phenomenon <i>C. Yan, X. Mi,</i> <i>H.D. Ng</i>	

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	Gas-Phase Reaction Kinetics I <i>Chairs:</i> C. Cavallotti	Laminar Flames <i>Chairs:</i> A. Giusti F. Halter	Gas-Phase Reaction Kinetics II <i>Chairs:</i> C.-W. Zhou	Low-Emission Combustion Technologies <i>Chairs:</i> A. Gruber	Soot, Nanomaterials & Large Molecules <i>Chairs:</i> M.E. Mueller C.J. Shaddix	Propulsion <i>Chairs:</i> S.A. Kaiser K. Tanaka	Turbulent Flames <i>Chairs:</i> F. Ferraro B. Savard	Fire Research <i>Chairs:</i> J. Wen X. Huang	Detonation, Explosion, & Supersonic Combustion <i>Chairs:</i> G. Ciccarelli K. Tank Yuk	
12:15	2A07: Role of -CH ₂ O-moiety on laminar burning velocities of oxymethylene ethers (OME _n): A case study of dimethyl ether, OME ₁ and OME ₂ W. Li, Q. Fang, J. Zhang, X. Chou, L. Ye, Y. Li	2B07: Effects of low-temperature chemical reactions on ignition kernel development and flame propagation in a DME-air mixing layer Y. Wang, W. Han, T. Zirwes, F. Zhang, H. Bockhorn, Z. Chen	2C07: A wide-range experimental and kinetic modeling study of the pyrolysis and oxidation of 2-butyne H. Lu, F. Liu, S.S. Nagaraja, S. Dong, M.A. Turner, O. Mathieu, E.L. Petersen, J. Caravaca Vilchez, K.A. Heufer, G. Xu, S.M. Sarathy, H.J. Curran	2D07: Effect of products of low temperature oxidation reaction on NOx reduction in HC-SCR system I. Saito, H. Sano, H. Nomura, Y. Suganuma	2E07: Particle size distributions in turbulent premixed propene flames H. Shariatmadar, R.P. Lindstedt	2F07: Elucidating NO coupling effects on ignition of toluene reference fuels by chemical functional group analysis A. Robinson, S.J. Lim, A.K. Alwahaibi, A. Zdanowicz, D. Török, B. Windom, F.L. Dryer, S.H. Won	2G07: The effects of swirling partially premixed flame on scaled kinetic energy transport in a gas turbine-like combustor H. Xiao, K. Luo, T. Jin, J. Xing, M. Chai, J. Fan	2H07: Experimental and analytical study on inclined turbulent fire in still air. Part 2: Round fire W. Gao, N. Liu, X. Xie, H. Chen, H. Zhu, Y. Jiao	2J07: A dynamic system approach for solving the steady structure of high speed deflagrations W. Rakotoarison, M.I. Radulescu	
12:35	<p style="text-align: center;">LUNCH (95 Minutes) – On Your Own</p> <p style="text-align: center;">Women in Combustion Luncheon</p> <p style="text-align: center;">Pan Pacific Hotel, Oceanview Room 1-2 (the Pan Pacific Hotel is located in the same building of the Vancouver Convention Center)</p> <p style="text-align: center;">The 39th International Symposium on Combustion would like to thank our Silver Sponsors:</p> <p style="text-align: center;">Carleton University ELSEVIER FM Global KAUST Toronto Metropolitan University SIEMENS Energy</p>									

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	Gas-Phase Reaction Kinetics <i>Chairs:</i> N.J. Labbe M.P. Burke	Laminar Flames <i>Chairs:</i> P. Westmoreland F. Hernandez Perez	Diagnostics <i>Chairs:</i> A.M. Ferris G.B. Rieker	Low-Emission Combustion Technologies <i>Chairs:</i> F. Mauss	Multi-Physics Phenomena <i>Chairs:</i> G. Vignat	Propulsion <i>Chairs:</i> S. Ducruix D.-H. Shin	Turbulent Flames <i>Chairs:</i> L. Kostiuk R. Vicquelin	Fire Research <i>Chairs:</i> Y. Kobayashi	Detonation, Explosion, & Supersonic Combustion <i>Chairs:</i> L. Bauwens M. Knadler	INDUSTRY SESSION
14:10	2A08: How well do we know thermal-NO? An investigation of NO formation in flames over a wide temperature range <i>M. Meulemans, A. Durocher, P. Versailles, G. Bourque, J.M. Berghthorson</i>	2B08: Suppression of thermos-acoustic instabilities by flame-structure interaction <i>M. Rubio-Rubio, F. Veiga-López, D. Martínez-Ruiz, E. Fernández-Tarrazo, M. Sánchez-Sanz</i>	2C08: Femtosecond two-photon LIF imaging of atomic hydrogen in high-pressure methane-air flames <i>P. Parajuli, Y. Wang, M. Hay, V.R. Katta, W.D. Kulatilaka</i>	2D08: MILD combustion of methanol, ethanol and 1-butanol binary blends with ammonia <i>G.B. Ariemma, G. Sorrentino, P. Sabia, R. Ragucci, M. de Joannon</i>	2E08: How does a resilient, flexible ammonia process look like? Robust design optimization of a Haber-Bosch process with optimal dynamic control powered by wind <i>K. Verleysen, A. Parente, F. Contino</i>	2F08: Suppression of self-excited thermoacoustic instabilities by convective-acoustic interference <i>E. Æsøy, G.K. Jankee, S. Yadala, N.A. Worth, J.R. Dawson</i>	2G08: PDF mixing time scales for premixed combustion in the laminar flame limit <i>N. Iaroslavtceva, A. Kronenburg, O.T. Stein</i>	2H08: An experimental investigation of flames spread interaction over two parallel electrical wires of various separations <i>Y. Lu, L. Hu, Y. Ma, Z. Guo, Q. Wang</i>	2J08: The effects of flame generated turbulence on the turbulent-induced deflagration to detonation transition <i>R. Hytovick, C. Rising, A. Morales, T. Genova, J. Berson, K. Ahmed</i>	INDUSTRY SESSION Decarbonated Combustion in Industrial Processes <i>Sébastien Caillat, Charles Baukal, Toshiro Fujimori, Claude Prebendé, Fouad Said, Mohamed Pourkashanian</i>
14:30	2A09: Branching fraction measurement of the prompt-NO switch reaction NCN + H <i>M. Stuhr, S. Hesse, G. Friedrichs</i>	2B09: Generalized description and extrapolation of extinction stretch rates from spherically expanding flames <i>W. Liang, C.K. Law</i>	2C09: Quantitative laser-induced fluorescence of NO in ammonia-hydrogen-nitrogen turbulent jet flames at elevated pressure <i>G. Wang, H. Tang, C. Yang, G. Magnotti, W.L. Roberts, T.F. Guiberti</i>	2D09: SGS reaction rate modelling for MILD combustion based on machine-learning combustion mode classification <i>K. Jigjid, Y. Minamoto, N. Anh Khoa Doan, M. Tanahashi</i>	2E09: High-pressure kinetic interactions between CO and H ₂ during syngas catalytic combustion on palladium <i>R. Sui, J. Mantzaras, R. Bombach, M. Khatoonabadi</i>	2F09: The Rayleigh integral is always positive in steadily operated combustors <i>B. Schuermans, J. Moeck, A. Blondé, B. Dharmaputra, N. Noiray</i>	2G09: Flame/turbulence interaction in ammonia/air premixed flames at high Karlovitz numbers <i>L. Xu, Q. Fan, X. Liu, X. Cai, A.A. Subash, C. Brackmann, Z. Li, M. Aldén, X.-S. Bai</i>	2H09: Opposed flame spread over folded PMMA plate with various internal angles <i>T. Matsuoka, Y. Chiba, S. Okuno, H. Torikai, S. Bhattacharjee, T. Yamazaki, Y. Nakamura</i>	2J09: Flame acceleration process and detonation transition in a channel with roughness elements on a wall <i>S. Maeda, M. Irokawa, D. Taneichi, T. Obara</i>	

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14:50	2A10: Chemical kinetic interactions of NO with a multicomponent gasoline surrogate: Experiments and modeling <i>S. Cheng, C. Saggese, S.S. Goldsborough, S.W. Wagnon, W.J. Pitz</i>	2B10: Characterization of symmetric to non-symmetric flamefront transition in slender microchannels <i>D. Rodriguez-Gutierrez, R. Gómez-Miguel, E. Fernández-Tarrazo, M. Sánchez-Sanz</i>	2C10: The structure and temperature field of a novel twin-nozzle reacting jet in hot crossflow <i>Z. Wang, Y. Wang, X. Liu</i>	2D10: Adaptive Digital Twins of combustion systems using sparse sensing strategies <i>A. Procacci, R. Amaduzzi, A. Coussement, A. Parente</i>	2E10: The synergic removal mechanism for photothermocatalytic toluene over single-atom Pt/TiO ₂ catalysts via flame spray pyrolysis <i>X. Yuan, C. Zheng, Z. Xu, H. Zhao</i>	2F10: Thermoacoustic response of fully compressible counterflow diffusion flames to acoustic perturbations <i>M.X. Yao, J.-P. Hickey, G. Blanquart</i>	2G10: Turbulent flame speed and morphology of pure ammonia flames and blends with methane or hydrogen <i>S. Zitouni, P. Brequigny, C. Mounaim-Rouselle</i>	2H10: Determining flame temperature by broadband two color pyrometry in a flame spreading over a thin solid in microgravity <i>M. Thomsen, J.J. Cruz, F. Escudero, A. Fuentes, C. Fernandez-Pello, M. Gollner, D.L. Urban, G.A. Ruff</i>	2J10: Transition to detonation in inhomogeneous hydrogen-air mixtures: The importance of gradients in detonation cell size <i>X. Lu, C.R. Kaplan, E.S. Oran</i>	INDUSTRY SESSION Decarbonated Combustion in Industrial Processes <i>Sébastien Caillat, Charles Baukal, Toshiro Fujimori, Claude Prebendé, Fouad Said, Mohamed Pourkashanian</i>
15:10	2A11: Theoretical investigation on the reaction kinetics of NO ₂ with CH ₃ OH and HCHO under combustion conditions <i>X. Wu, M. Wu, Q. Hou, F. Zhang</i>	2B11: On polyhedral structures of lean methane/hydrogen Bunsen flames: Combined experimental and numerical analysis <i>H. Lulić, A. Breicher, A. Scholtissek, P.E. Lapenna, A. Dreizler, F. Creta, C. Hasse, D. Geyer, F. Ferraro</i>	2C11: Simultaneous detection of three chemical species (NO, O, O ₂) using a single broadband femtosecond laser <i>M. Hay, P. Parajuli, W.D. Kulatilaka</i>	2D11: Novel insights into Mild combustion processes through analyses of hysteresis behaviour <i>P. Sabia, M.V. Manna, G. Ariemma, G. Sorrentino, R. Ragucci, M. de Joannon</i>	2E11: Reaction mechanism and microkinetics of CO catalytic combustion over Ni-doped LaCoO ₃ perovskite <i>Y. Yang, X. Yan, J. Liu, F. Liu, Y. Li</i>	2F11: Turbulence and heat release rate network structure in hydrogen-enriched combustion <i>M. Rywik, P. Kasthuri, I. Boxx, I. Chtereve, W. Polifke, R.I. Sujith</i>	2G11: A direct numerical simulation study on NO and N ₂ O formation in turbulent premixed ammonia/hydrogen/nitrogen-air flames <i>M. Rieth, A. Gruber, J.H. Chen</i>	2H11: Investigation on the double-sided concurrent flame spread behavior of log planks <i>Z. Qi, H. Hu, J. Ji</i>	2J11: Flame acceleration and DDT in a channel with fence-type obstacles: Effect of obstacle shape and arrangement <i>Z. Liu, X. Li, M. Li, H. Xiao</i>	

15:30	<p>Break (50 Minutes): WiPPs are available for your review East Exhibit Hall B</p> <p>Visit our Exhibitors and Sponsors in East Exhibit Hall B:</p> <p>DANTEC DYNAMICS IRsweep Lambert Instruments BV Photron The Pontem Group Telops</p>									
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16:20	2A12: Experimental and modeling study of water time histories during H ₂ S-N ₂ O combustion in a shock tube <i>S.P. Cooper,</i> <i>P. Marshall,</i> <i>O. Mathieu,</i> <i>L.T. Pinzón,</i> <i>C.R. Mulvihill,</i> <i>P. Glarborg,</i> <i>E.L. Petersen</i>	2B12: Experimental and kinetic modeling study of α -methylnaphthalene laminar flame speeds <i>A. Nobili,</i> <i>L.P. Maffei,</i> <i>M. Pelucchi,</i> <i>M. Mehl,</i> <i>A. Frassoldati,</i> <i>A. Comandini,</i> <i>N. Chaumeix</i>	2C12: DCN prediction of jet fuels and their functional group surrogates using liquid phase IR absorption <i>A. Dalmiya,</i> <i>M. Sheyyab,</i> <i>K. Brezinsky,</i> <i>P.T. Lynch</i>	2D12: Sooting tendencies of terpenes and hydrogenated terpenes as sustainable transportation biofuels <i>J. Zhu, J.V. Alegre-Requena,</i> <i>P. Cherry,</i> <i>D. Curtis,</i> <i>B.G. Harvey,</i> <i>M.A. Javed,</i> <i>S. Kim,</i> <i>C.S. McEnally,</i> <i>L.D. Pfefferle,</i> <i>J.-D. Woodroffe</i>	2E12: Pore-scale study of coke formation and combustion in porous media using lattice Boltzmann method <i>T. Lei, K.H. Luo</i>	2F12: Swirling spray flames dynamical blow out induced by transverse acoustic oscillations <i>C. Patat,</i> <i>F. Baillet,</i> <i>J.-B. Blaisot,</i> <i>É. Domingues,</i> <i>G. Vignat, P.R. Soundararajan,</i> <i>A. Renaud,</i> <i>D. Durox,</i> <i>S. Candel</i>	2G12: Effects of molecular diffusion modeling on turbulent premixed NH ₃ /H ₂ /air flames <i>C. Chi, W. Han,</i> <i>D. Thévenin</i>	2H12: Opposed-flow flame spread over carbon fiber reinforced plastic with different carbon fiber orientations <i>Y. Kobayashi,</i> <i>K. Matsumoto,</i> <i>N. Matsukawa,</i> <i>S. Takahashi</i>	2J12: Effects of extremely low temperature on premixed hydrogen/air flame propagation in a closed channel <i>L. Yang, Z. Chen</i>	

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16:40	2A13: Exploring the chemistry behind low temperature autoignition of isopropyl nitrate in an RCM: An experimental and kinetic modeling study Q. Hou, W. Liu, Z. Chu, X. Wu, M. Wu, Z. Liu, S. Niu, F. Zhang	2B13: A combustion chemistry study of tetramethyl-ethylene in a laminar premixed low-pressure hydrogen flame T. Bierkandt, P. Hemberger, P. Oßwald, N. Gaiser, M. Hoener, D. Krüger, T. Kasper, M. Köhler	2C13: A multispectral UV-vis absorption technique for quantitative high-speed field-sequential imaging of fuel films and soot in combustion K. Shway, N. Jüngst, M. Bardi, G. Bruneaux, S.A. Kaiser	2D13: Polycyclic aromatic hydrocarbons production from the supercritical pyrolysis of <i>n</i> -decane, ethylcyclohexane, and <i>n</i> -decane/ethylcyclohexane blends A.R. Mali, K. Vutukuru, M.J. Wornat	2E13: Concentrated solar-thermal methane pyrolysis in a porous substrate: Yield analysis via infrared laser absorption C. Wei, M. Abuseada, T.S. Fisher, R.M. Spearrin	2F13: Autoignition delay modulation by high-frequency thermoacoustic oscillations in reheat flames J. McClure, M. Bothien, T. Sattelmayer	2G13: Turbulent burning velocity and its related statistics of ammonia-hydrogen-air jet flames at high Karlovitz number: Effect of differential diffusion X. Cai, Q. Fan, X.-S. Bai, J. Wang, M. Zhang, Z. Huang, M. Aldén, Z. Li	2H13: Surface regression in opposed flow flame spread: Transitions, correlations and partition factors I.S. Wichman, S. Hossain, F.J. Miller, S.L. Olson	2J13: Strong flame acceleration and detonation limit of hydrogen-oxygen mixture at cryogenic temperatures X. Shen, W. Fu, W. Liang, J.X. Wen, H. Liu, C.K. Law	
<p>The 39th International Symposium on Combustion would like to thank our Gold Sponsor:</p> <p style="text-align: center;">LaVision</p> <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: office@combustioninstitute.org</p>										

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17:00	2A14: Experimental study of linear burning rates of liquid nitromethane using a novel high-pressure continuous feed liquid strand burner R.A. Schwind, J.B. Sinrud, C.C. Fuller, M.S. Klassen, R.A. Walker, C.F. Goldsmith	2B14: A case study on laminar flame propagation of flame synthesis precursors using spherically propagating flame: Tetramethylsilane and its alkane counterpart J. Xia, Y. Zhang, Q. Fang, B. Mei, J. Zhang, W. Li, Y. Li	2C14: On using <i>ab initio</i> calibration to fit temperature from AIO B-X emission A. Abraham, P.T. Lynch, N. Glumac	2D14: Development of a fully reversible PAH clustering model A. Khabazipur, N. Eaves	2E14: Fully-resolved 3D premixed H ₂ /air flames in a microcombustor partially filled with porous media: Effects of detailed pore structures Q. Li, J. Li, J. Shi	2F14: Detailed unsteady dynamics of flame-flow interactions during combustion instability and its transition scenario for lean-premixed low-swirl hydrogen turbulent flames T. Shoji, S. Tachibana, Y. Nakazumi, R. Fujii, J. Masugi, T. Yokomori	2G14: Effects of differential diffusion on hydrogen flame kernel development under engine conditions H. Chu, L. Berger, T. Grenga, Z. Wu, H. Pitsch	2H14: Theoretically predicting the flame spread limit of carbon fiber reinforced plastic Y. Kobayashi, K. Matsumoto, N. Matsukawa, S. Takahashi	2J14: Detonation development in hydrogen/air mixtures inside a closed chamber: Role of a cold wall H. Li, Z. Chen	
<p>SESSIONS END AT 17:20</p> <p>The 39th International Symposium on Combustion would like to thank our Silver Sponsors:</p> <p>Carleton University ELSEVIER FM Global KAUST Toronto Metropolitan University SIEMENS Energy</p> <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: office@combustioninstitute.org</p>										

Wednesday, 27 July 2022

(Auditorium)
PLENARY LECTURE – 8:30 am

Understanding the Role of Flow Dynamics in Thermoacoustic Combustion Instability *Jacqueline O'Connor*

Chairs: *A. Kempf*

Transfer (15 minutes)

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	Gas-Phase Reaction Kinetics <i>Chairs:</i> <i>M. Döntgen</i> <i>L.P. Maffei</i>	Laminar Flames <i>Chairs:</i> <i>S.S. Nagaraja</i>	Solid Fuel Combustion I <i>Chairs:</i> <i>O.T. Stein</i>	Low-Emission Combustion Technologies <i>Chairs:</i> <i>I. Mantzaras</i> <i>L. Berger</i>	Soot, Nanomaterials & Large Molecules <i>Chairs:</i> <i>N. Eaves</i> <i>N. Chaumeix</i>	Propulsion <i>Chairs:</i> <i>J.R. Dawson</i> <i>L. Selle</i>	Spray, Droplet, and Supercritical Combustion <i>Chairs:</i> <i>N. Maes</i> <i>K. Senecal</i>	Fire Research <i>Chairs:</i> <i>O. Fujita</i>	Solid Fuel Combustion II <i>Chairs:</i> <i>A. Kronenburg</i>	
9:45	3A01: Pathway exploration in low-temperature oxidation of a new-generation bio-hybrid fuel 1,3-dioxane <i>C. Huang,</i> <i>Y. Zhao, I.S. Roy,</i> <i>B. Chen,</i> <i>N. Hansen,</i> <i>H. Pitsch,</i> <i>K. Leonhard</i>	3B01: Experimental and kinetic modeling study of the positive ions in premixed ethylene flames over a range of equivalence ratios <i>D.A. Knyazkov,</i> <i>A.V. Cherepanov,</i> <i>V.G. Kiselev,</i> <i>I.E. Gerasimov,</i> <i>T. Kasper,</i> <i>A.G. Shmakov</i>	3C01: Rapid pyrolysis of biochars prepared from slow or fast biomass pyrolysis: Effect of particle residence time on char properties <i>Q. Shen, H. Wu</i>	3D01: UV-visible chemiluminescence signature of laminar ammonia-hydrogen-air flames <i>X. Zhu,</i> <i>W.L. Roberts,</i> <i>T.F. Guibert</i>	3E01: Effects of mechanically-induced oscillations on soot formation and flame temperature in laminar diffusion flames of ethylene <i>M. Serwin,</i> <i>A.E. Karatas</i>	3F01: Experimental study of forced synchronization and cross-coupling in a liquid-fuelled gas turbine combustor at elevated pressure <i>M. Passarelli,</i> <i>A. Kazbekov,</i> <i>V. Salazar,</i> <i>K. Venkatesan,</i> <i>A.M. Steinberg</i>	3G01: Wall heat transfer and flame structure transitions in stagnating spray flames <i>D. Mohaddes,</i> <i>M. Ihme</i>	3H01: A hybrid stochastic Lagrangian - cellular automata framework for modelling fire propagation in inhomogeneous terrains <i>E. Mastorakos,</i> <i>S. Gkantonas,</i> <i>G. Efstathiou,</i> <i>A. Giusti</i>	3J01: An experimental study of coal particle group combustion in conventional and oxy-fuel atmospheres using multi-parameter optical diagnostics <i>T. Li,</i> <i>C. Geschwindner,</i> <i>A. Dreizler,</i> <i>B. Böhm</i>	

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10:05	3A02: A detailed high-pressure oxidation study of di-iso-propyl ether <i>Z. Serinyel, M. Lailliau, G. Dayma, P. Dagaut</i>	3B02: Hydrodynamic effects of shock interactions on initial flame kernel development of close dual-point laser induced sparks <i>S. Nakaya, R. Eto, T. Yamaguchi, T. Koseki, M. Tsue</i>	3C02: In-depth study of the sulfur migration and transformation during hydrothermal carbonization of sewage sludge <i>Z. Wang, J. Huang, W. Hu, D. Xie, M. Xu, Y. Qiao</i>	3D02: On the combined effects of compositional inhomogeneity and ammonia addition to turbulent flames of ethylene <i>W.R. Boyette, A.R.W. Macfarlane, S.A. Steinmetz, M.J. Dunn, W.L. Roberts, A.R. Masri</i>	3E02: Assessment of LES of intermittent soot production in an aero-engine model combustor using high-speed measurements <i>B. Franzelli, L. Tardelli, M. Stöhr, K.P. Geigle, P. Domingo</i>	3F02: Entropy transfer function measurement with tunable diode laser absorption spectroscopy <i>B. Dharmaputra, S. Shcherbanev, A. Blondé, B. Schuermans, N. Noiray</i>	3G02: Characterization of spray parameters and flame stability in two modified nozzle configurations of the SpraySyn burner <i>S. Karaminejad, S.M.L. Dupont, M. Bieber, M.A. Reddemann, R. Kneer, T. Dreier, T. Endres, C. Schulz</i>	3H02: Opposed-flow flame spread over cylindrical fuels: Spread rate formulas and experimental verification <i>S. Bhattacharjee, T. Delzeit</i>	3J02: Flamelet LES of a turbulent pulverized solid fuel flame using a detailed phenomenological soot model <i>X. Wen, F. Ferraro, H. Nicolai, N. Hashimoto, J. Hayashi, N. Nakatsuka, K. Tainaka, C. Hasse</i>	
10:25	3A03: Oxidation of ethyl methyl ether: Jet-stirred reactor experiments and kinetic modeling <i>X. Fan, Q. Hou, W. Sun, Z. Liu, H. Chen, J. Yang, L. Zhao, B. Yang</i>	3B03: Exploration on laminar flame propagation of branched hexenes: Influence of isomeric fuel structures <i>C. Cao, J. Zhang, B. Mei, W. Li, T. Lian, Y. Li</i>	3C03: Pyrolysis of sewage sludge under conditions relevant to applied smouldering combustion <i>C. Feng, D. Zhang, W. Xie, X. Gao, Y. Qiao, M. Xu</i>	3D03: Experimental characterization of spark ignited ammonia combustion under elevated oxygen concentrations <i>K.N. Vinod, T. Fang</i>	3E03: An analysis of the in-cylinder soots generated from the main- and post-injection combustion in diesel engines <i>W. Zhang, C. Fan, G. Lyu, Y. Li, C. Wang, C. Song</i>	3F03: Effect of flame response asymmetries on the modal patterns and collective states of a can-annular lean-premixed combustion system <i>Y. Guan, L.K.B. Li, H. Jegal, K.T. Kim</i>	3G03: LES study of stabilization mechanism in lifted ethanol spray flames <i>Y. Hu, R. Kai, J. Wen, T. Murakami, Y. Jiang, R. Kurose</i>	3H03: On the radiation extinction of opposed flame spread over curved solid surface in low flow velocity conditions <i>Y. Konno, N. Hashimoto, O. Fujita</i>	3J03: A novel MILD gasifier for powdered low-grade solid fuels <i>A.M. Kalyani, S. Varunkumar</i>	
10:45	BREAK (30 minutes)									

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	Gas-Phase Reaction Kinetics <i>Chairs:</i> G. Dayma K.A. Heufer	Laminar Flames <i>Chairs:</i> A. Lucassen D. Martinez Ruiz	Solid Fuel Combustion <i>Chairs:</i> K. Van Geem	Multi-Physics Phenomena <i>Chairs:</i> M. Uddi	Soot, Nanomaterials & Large Molecules <i>Chairs:</i> G. Nathan	Propulsion <i>Chairs:</i> W. Culler T. Lee	Spray, Droplet, and Supercritical Combustion <i>Chairs:</i> A.R. Masri A. Vié	Fire Research <i>Chairs:</i> J.M. Berghthorson Y. Kobayashi	Detonation, Explosion, & Supersonic Combustion <i>Chairs:</i> J.-Y. Choi M. Short	TOPICAL REVIEW <i>Chair:</i> C. Jimenez
11:15	3A04: A shock-tube study of NH ₃ and NH ₃ /H ₂ oxidation using laser absorption of NH ₃ and H ₂ O <i>S.A. Alturajfi, O. Mathieu, E.L. Petersen</i>	3B04: A three-dimensional study of the influence of momentum loss on hydrodynamically unstable premixed flames <i>D. Fernández-Galisteo, A. Dejoan, J. Melguizo-Gavilanes, V.N. Kurdyumov</i>	3C04: Flame characterization of gas-assisted pulverised coal combustion using FPV-LES <i>T.D. Luu, A. Shamooni, O.T. Stein, A. Kronenburg, S. Popp, H. Nicolai, H. Schneider, X. Wen, C. Hasse</i>	3D04: Plasma-assisted deflagration to detonation transition in a microchannel with hybrid fs/ps coherent anti-Stokes Raman scattering measurements <i>M. Vorenkamp, S.A. Steinmetz, T.Y. Chen, X. Mao, A. Starikovskiy, C. Klierer, Y. Ju</i>	3E04: Relative influence of soot oxidation kinetics and subfilter soot-turbulence interactions on soot evolution in turbulent nonpremixed flames <i>P.P. Duvvuri, H. Maldonado Colmán, M.E. Mueller</i>	3F04: Analysis of the flame dynamics in methane/hydrogen fuel blends at elevated pressures <i>M. Casel, A. Ghani</i>	3G04: Interaction of preferential evaporation and low-temperature chemistry in multicomponent counterflow spray flames <i>M. Bonanni, M. Ihme</i>	3H04: Predicting the pyrolysis temperature for thermally thin fuels in opposed-flow flame spread in the thermal regime <i>S. Bhattacharjee, M. Delichatsios</i>	3J04: Effects of the penetration height of ethylene transverse jets on flame stabilization behavior in a Mach 2 supersonic crossflow <i>S. Nishimoto, S. Nakaya, J. Lee, M. Tsue</i>	TOPICAL REVIEW HPC-Enabling Technologies for High-Fidelity Combustion Simulations <i>Daniel Mira, Eduardo J. Pérez-Sánchez, Ricard Borrell, Guillaume Houzeaux</i>
11:35	3A05: Experimental and kinetic modeling study on autoignition properties of ammonia/ethanol blends at intermediate temperatures and high pressures <i>M. Li, D. Zhu, X. He, K. Moshhammer, R. Fernandes, B. Shu</i>	3B05: Critical conditions at liftoff limit of a laminar n-butane-air jet diffusion flame <i>F. Takahashi, L. Smith, D.T. Souza, V.R. Katta</i>	3C05: A reactive molecular dynamics study of NO removal by nitrogen containing species in coal pyrolysis gas <i>Z. Bai, X.Z. Jiang, K.H. Luo</i>	3D05: Single- and dual-channel nanosecond repetitively pulsed discharges at small and large spark gaps for turbulent premixed spherical flame initiation <i>V.T. Mai, S. Shy, Y.-R. Chen</i>	3E05: The role of volatile organic compounds in the oxidation driven fragmentation of soot particles <i>Y. Liu, X. Zhang, P. Toth, W. Zhang, G. Lyu, Y. Li, C. Song</i>	3F05: Attenuation of combustion instability in a fuel-staged dual-nozzle gas turbine combustor with asymmetric hydrogen composition <i>S. Kwak, J. Choi, M.C. Lee, Y. Yoon</i>	3G05: Forced ignition and oscillating flame propagation in fine ethanol sprays <i>Q. Li, H. Zhang</i>	3H05: Experimental study of upward flame spread behaviors over thermally thick vertical PMMA of various sample widths under normal wind <i>N. Zhu, Y. Ma, Y. Huang, J. Lv, X. Sun, L. Hu</i>	3J05: Detonation simulations in supersonic flow under circumstances of injection and mixing <i>W. Zhao, R. Deiterding, J. Liang, X. Cai, X. Wang</i>	

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11:55	3A06: An experimental and modeling study on the oxidation of ammonia and n-heptane with JSR <i>J. Pan, R. Tang, Z. Wang, J. Gao, Q. Xu, G. Shu, H. Wei</i>	3B06: Numerical study of sporadic combustion waves in straight channels of different diameters <i>E. Sereshchenko, R. Fursenko, S. Minaev</i>	3C06: An improved model of fine particulate matter formation coupling the mechanism of mineral coalescence and char fragmentation during pulverized coal combustion <i>A. Zhang, X. Liu, Y. Xu, T. Zhang, M. Xu</i>	3D06: Effect of microwave pulse parameters on energy coupling and enhancement of microwave assisted ignition <i>H. Wu, Z. Wang, X. Chen, Y. Huang, J.-Y. Chen, C. Liu, Z. Wang, J. Xu, X. Zhang</i>	3E06: Pyrene adsorption on the surface of an iron oxide nanoparticle: A ReaxFF molecular dynamics study <i>M. Wang, X. You</i>	3F06: Nonlinear dynamics of attenuation behavior in combustion oscillations in a swirl-stabilized combustor <i>Y. Mori, T. Kawada, S. Fukuda, H. Gotoda</i>	3G06: Liquid-phase temperature in the SpraySyn flame measured by two-color laser-induced fluorescence thermometry and simulated by LES <i>M.M. Prenting, S.-J. Baik, T. Dreier, T. Endres, A. Kempf, C. Schulz</i>	3H06: Downward flame spread over PMMA spheres <i>D. Morrisset, R.M. Hadden, A. Law, J.L. Torero</i>	3J06: Enhancement of blowout limit in a Mach 2.92 cavity-based scramjet combustor by a gliding arc discharge <i>Y. Tian, J. Zhu, M. Sun, H. Wang, Y. Huang, R. Feng, B. Yan, Y. Sun, Z. Cai</i>	
12:15	LUNCH (90 Minutes) – On Your Own									
	<p>Excursion to Grouse Mountain: 20 minutes from downtown Vancouver</p> <p>Buses to Grouse Mountain will leave from the Vancouver Convention Center from 14.30 to 15.30 (last bus) A casual barbecue dinner will be served from 18.00 at the Chalet</p> <p>The return transfer buses will leave from the car park (Skyride exit) from 20.00 and the last bus will leave at 21.00</p>									

Thursday, 28 July 2022

(Auditorium)
PLENARY LECTURE – 8:30 am

Heterogeneous Chemical Reactions – A Cornerstone in Emission Reduction of Local Pollutants and Greenhouse Gases *Patrick Lott, Olaf Deutschmann*

Chairs: *K. Kohse-Höinghaus*

Transfer (15 minutes)

Room	Ballroom A	Ballroom B	Ballroom C	Mtg Room 1	Mtg Room 2&3	Mtg Room 8&15	Mtg Room 11	Mtg Room 12	Mtg Room 13	Hall A
	Gas-Phase Reaction Kinetics Chairs: <i>A. Frassoldati</i>	Laminar Flames Chairs: <i>B. Savard</i> <i>A.J. Susa</i>	Solid Fuel Combustion Chairs:	Low-Emission Combustion Technologies Chairs: <i>R.P. Lindstedt</i> <i>H. Wang</i>	Soot, Nanomaterials & Large Molecules Chairs: <i>B. Franzelli</i> <i>M. Kraft</i>	Diagnostics Chairs: <i>P.E. Bengtsson</i> <i>B. Giri</i>	Spray, Droplet, and Supercritical Combustion Chairs: <i>Á. Muelas</i>	Fire Research Chairs: <i>G. Wang</i>	Numerical Combustion Chairs: <i>H.G. Im</i> <i>A. Attili</i>	
9:45	4A01: Solving the riddle of the high-temperature chemistry of 1,3-dioxolane <i>A. Wildenberg, M. Döntgen, I.S. Roy, C. Huang, B. Lefort, L. Le Moyne, A. Kéromnès, K. Leonhard, K.A. Heufer</i>	4B01: Correlation of heat loss with quenching distance during transient flame-wall Interaction <i>F. Zhang, T. Zirwes, T. Häber, H. Bockhorn, D. Trimis, R. Suntz</i>	4C01: Motion and swelling of single coal particles during volatile combustion in a laminar flow reactor <i>T. Li, B. Li, P. Farmand, A. Dreizler, H. Pitsch, B. Böhm</i>	4D01: Stability and characteristics of NH ₃ /CH ₄ /air flames in a combustor fired by a double swirl stabilized burner <i>A.M. Elbaz, A.M. Albalawi, S. Wang, W.L. Roberts</i>	4E01: On the sudden reversal of soot formation by oxygen addition in DME flames <i>F. Cepeda, L. Di Liddo, M. Serwin, A.E. Karataş, S.B. Dworkin</i>	4F01: Quantitative volumetric laser absorption imaging of methane and temperature in flames exploiting line-mixing effects <i>C. Wei, K.K. Schwarm, D.I. Pineda, R.M. Spearrin</i>	4G01: DNS analysis of turbulence modulation by lean premixed prevaporized spray flames in a model combustor <i>Y. Wang, H. Xiao, M. Chai, K. Liu, K. Luo, J. Fan</i>	4H01: An experimental study on flame geometry and radiation flux of line-source fire over inclined surface <i>Y. Miao, Y. Chen, F. Tang, X. Zhang, L. Hu</i>	4J01: High-order approximations for solving non-inertial particle size density in flames <i>L. Vervisch, G. Lodato, P. Domingo</i>	
	<p>Visit our Exhibitors and Sponsors in East Exhibit Hall B:</p> <p>DANTEC DYNAMICS IRsweep Lambert Instruments BV Photron The Pontem Group Telops</p>									

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10:05	4A02: High-temperature mid-IR absorption and reaction kinetics of cyclic ethers part I: 1,3-dioxolane M. Adil, B.R. Giri, T.V.-T. Mai, M. Szőri, L.K. Huynh, A. Farooq	4B02: A thermal characterization of the flame quenching behavior of different fuels A. Nolte, I. Klioutchnikov, K.A. Heufer	4C02: Flame structure analysis and flamelet modeling of turbulent pulverized solid fuel combustion with flue gas recirculation X. Wen, A. Shamooni, H. Nicolai, O.T. Stein, A. Kronenburg, A.M. Kempf, C. Hasse	4D02: Experimental and kinetic modeling study of laminar burning velocity enhancement by ozone additive in NH ₃ /O ₂ /N ₂ , NH ₃ /C ₂ H ₆ /air and NH ₃ /C ₃ H ₈ /air flames C. Chen, Z. Wang, Z. Yu, X. Han, Y. He, Y. Zhu, A.A. Konnov	4E02: Synergistic effect on PAH and soot formation in ethylene counterflow diffusion flames by the addition of 1,3-dioxolane - a bio-hybrid fuel M. Hellmuth, F. Cameron, S. Faller, L. Schmückert, B. Chen, Y. Ren, H. Pitsch	4F02: Tomographic Imaging using Multi-Simultaneous Measurements (TIMes) of emission and refractive index 3D fields in turbulent flames F. J.W.A. Martins, A. Unterberger, K. Mohri	4G02: A comparative study of two-phase coupling models for a sparse-Lagrangian particle method M. Sontheimer, A. Kronenburg, O.T. Stein	4H02: Large-eddy simulation of lab-scale ethylene buoyant diffusion flames: Effects of subgrid turbulence/soot production interaction and radiation models F. Nmira, A. Bouffard, J.-L. Consalvi, Y. Wang	4J02: Efficiency of high-order strong discontinuous spectral methods in combustion T. Marchal, A. de Brauer, H. Deniau, J.-F. Boussuge, B. Cuenot, R. Mercier	
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10:25	4A03: Experimental and chemical kinetic modeling study of trimethoxy methane combustion <i>M. Döntgen, S. Eckart, C. Fritsche, H. Krause, K.A. Heufer</i>	4B03: Estimation of laminar flame speeds using axisymmetric Bunsen flames: Molecular transport effects <i>E.P. Mitsopoulos, K. Souflas, G. Paterakis, P. Koutmos, F.N. Egolfopoulos</i>	4C03: Analysis of model dimensionality, particle shrinkage, boundary layer reactions on particle-scale modelling of biomass char conversion under pulverized fuel combustion conditions <i>H. Luo, X. Liu, L. Niedzwiecki, X. Wu, W. Lin, B. Lu, W. Wang, H. Wu</i>	4D03: Effect of thermal dissociation in rich preheated ammonia micro flames <i>Y. Fan, Z. Wang, Y. Wang, M. Lee, W.D. Kulatilaka, Y. Suzuki</i>	4E03: Large eddy simulation of soot evolution in turbulent nonpremixed bluff body flames <i>H. Maldonado Colmán, P.P. Duvvuri, M.E. Mueller</i>	4F03: Pulse picking of a fiber laser enables velocimetry of biomass-laden jets at low and ultra-high repetition rates <i>C. Geschwindner, K. Westrup, A. Dreizler, B. Böhm</i>	4G03: Droplet cluster evolution and collective gasification of droplet groups in a fuel spray: A comparative study under non-reacting and reacting conditions <i>M. Balasubramanian, N. Pandurangan, S. Sahu</i>	4H03: Flame evolution and radiation hazards of rectangular fires between two parallel walls <i>F. Tang, P. Hu, J.X. Wen</i>	4J03: A discrete-adjoint framework for optimizing high-fidelity simulations of turbulent reacting flows <i>A. Kord, J. Capecehatro</i>	
10:45	<p style="text-align: center;">BREAK (30 minutes)</p> <p style="text-align: center;">The 39th International Symposium on Combustion would like to thank our Silver Sponsors:</p> <p style="text-align: center;">Carleton University ELSEVIER FM Global KAUST Toronto Metropolitan University SIEMENS Energy</p> <p style="text-align: center;">The Combustion Institute is on the lookout for outstanding presentations. If you have seen a presentation that stood out, please send your recommendation to: office@combustioninstitute.org</p>									

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11:15	4A04: NH ₃ -NO interaction under low-temperatures: An experimental and modeling study M.V. Manna, P. Sabia, K.P. Shrestha, L. Seidel, R. Ragucci, F. Mauss, M. de Joannon	4B04: Laminar flame speed evaluation for CH ₄ /O ₂ mixtures at high pressure and temperature for rocket engine applications A. Mouze-Mornettas, M. Martin Benito, G. Dayma, C. Chauveau, B. Cuenot, F. Halter	4C04: Burning structures and propagation mechanisms of nanothermites S. Kim, A.A. Johns, J.Z. Wen, S. Deng	4D04: A DFT-based microkinetic theory for Fe ₂ O ₃ reduction by CO in chemical looping Y. Wang, Z. Li	4E04: Experimental determination of the most probable mixing states for auto-ignition of transient fuel injection into hot, vitiated coflows J.C. Manus, I.T. Monje, J.A. Sutton	4F04: Investigation of liquid fuel refill dynamics in a rotating detonation combustor using megahertz planar laser-induced fluorescence M.W. Hoeper, A. M. Webb, V. Athmanathan, R.B. Wang, H.D. Perkins, S. Roy, T.R. Meyer, C.A. Fugger	4G04: Reaction zone characteristics of iso-pentanol swirl spray flames using OH-PLIF and 2C-LII A. Abu Saleh, K.J. Hughes, R. Yuan	4H04: Modelling a detailed kinetic mechanism for electro-catalytic reduction of CO ₂ S.D. Rihm, J. Akroyd, M. Kraft	4J04: A novel active parameter selection strategy for the efficient optimization of combustion mechanisms M. Kovács, M. Papp, T. Turányi, T Nagy	TOPICAL REVIEW Modeling Soot Formation in Flames and Reactors: Recent Progress and Current Challenges Murray J. Thomson, Reza Kholghy
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11:35	4A05: Reactions of hydrazine with the amidogen radical and atomic hydrogen Y. Gao, I.M. Alecu, H. Hashemi, P. Glarborg, P. Marshall	4B05: Nitric oxide concentration measurements in low-temperature, premixed hydrogen-air stagnation flames at elevated pressures A. Durocher, M. Meulemans, G. Bourque, J.M. Bergthorson	4C05: Comprehensive ignition characterization of a non-toxic hypergolic hybrid rocket propellant S. Nath, I. Laso, L. Mallick, Z. Sobe, S. Koffler, B. Blumer-Ganon, E. Borzin, N. Libis, J.K. Lefkowitz	4D05: Behavior of coal-chlorine in chemical looping combustion H. Huang, J. Ma, H. Zhao, C. Zheng	4E05: DNS of the ignition process of n-heptane/air premixed combustion with low-temperature chemistry in turbulent boundary layer J. Ren, H. Wang, C. Xu, J.H. Chen, K. Luo, J. Fan	4F05: Simulation of liquid droplets combustion in a rotating detonation engine M. Salvadori, A. Panchal, S. Menon	4G05: Large eddy simulation of n-dodecane spray flame: Effects of injection pressure on spray combustion characteristics at low ambient temperature J.C. Ong, Y. Zhang, S. Xu, J.H. Walther, X.-S. Bai, K.M. Pang	4H05: Investigation of the effect of iron nanoparticles on n-dodecane combustion under external electrostatic fields E. Kritikos, A. Giusti	4J05: High-efficiency design of combustion kinetic experiments based on genetic algorithm Z. Zhou, C. Huang, K. Lin, Y. Wang, C.K. Law, B. Yang	TOPICAL REVIEW Modeling Soot Formation in Flames and Reactors: Recent Progress and Current Challenges Murray J. Thomson, Reza Kholghy
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11:55	4A06: New insights into the oxidation chemistry of pyrrole, an N-containing biomass tar component <i>B. Chen, P. Liu, M. Pelucchi, C. Guidici, L. Pratali Maffei, S. Faller, Q. Xu, J. Huang, F. Zhang, C. Huang, K. Leonherd, Z. Wang, M. Mehl, W. Roberts, T. Faravelli, H. Pitsch</i>	4B06: Laminar flame speed of methane/air stratified flames under elevated temperature and pressure <i>T. Tomidokoro, T. Yokomori, H.G. Im</i>	4C06: Reactivity of boron carbide and metal oxide mixtures <i>K. Horiuchi, A. Huynh, J. Kalman</i>	4D06: Redox kinetics of NiO/YZS for chemical-looping combustion and the effect of support on reducibility <i>A.F. Ghoniem, Z. Zhao, M. Uddi</i>	4E06: Blowout limits of inclined nonpremixed turbulent jet flames <i>Q. Wang, A. Lu, L. Chang, B. Wang, O. Fujita, S.H. Chung, L. Hu</i>	4F06: The essential of sawtooth wave and its distinction from continuous rotating detonation wave <i>H.-Y. Peng, S.-J. Liu, W.-D. Liu, H.-L. Zhang, X.-Q. Yuan, J.-F. Yu, S.-Y. Huang</i>	4G06: LES study of turbulent ethanol spray flames using CSE coupled with non-adiabatic chemistry tables <i>A. Hussien, C.B. Devaud</i>	4H06: Active control of thermos-acoustic fluctuations by nanosecond repetitively pulsed glow discharges <i>A.M. Alkhalifa, A. Alsalem, D. Del Cont-Bernard, D.A. Lacoste</i>	4J06: Model reduction <i>on the fly</i> : Simultaneous identification and application of reduced kinetics for the example of flame-wall interactions <i>Y. Luo, C. Strassacker, U. Maas, C. Hasse</i>	
12:15	4A07: Oxidation study of n-propylamine with SVUV-photoionization molecular-beam mass spectrometry <i>Z.-H. Zheng, D. Wang, W. Li, X.-P. Yu, T.-L. Lv, C.-Y. Wang, S.-B. Song, L. Zhao, J.-Z. Yang, Z.-Y. Tian</i>	4B07: Prediction of propagating flames under high-pressure conditions with real-fluid combustion modeling <i>H. Terashima, M. Koshi</i>	4C07: Understanding the combustion behaviour of metallized electrically controlled solid propellants <i>K. Gnanaprakash, J.J. Yoh</i>	4D07: Microcosmic insight into the catalytic HCN-removal over CuO surface in chemical looping combustion <i>C. Zheng, H. Zhao</i>	4E07: Lean blow-off of premixed swirl-stabilised flames with vapourised kerosene <i>R. S. Pathania, I. El Helou, A.W. Skiba, R. Ciardiello, E. Mastorakos</i>	4F07: Ignition limit and shock-to-detonation transition mode of n-heptane/air mixture in high-speed wedge flows <i>H. Guo, Y. Xu, H. Zheng, H. Zhang</i>	4G07: Large Eddy Simulations of complex multicomponent swirling spray flames in a realistic gas turbine combustor <i>V. Shastry, E. Riber, L. Gicquel, B. Cuenot, V. Bodoc</i>	4H07: Inline coating and agglomeration of TiO ₂ via modular spray-flame and plasma reactor <i>C.-F. López-Cámara, M. Dasgupta, P. Fortugno, H. Wiggers</i>	4J07: Using active subspace-based similarity analysis for design of combustion experiments <i>K. Lin, Z. Zhou, Y. Wang, C.K. Law, B. Yang</i>	
12:35	LUNCH (90 Minutes) – On Your Own									

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	Gas-Phase Reaction Kinetics I <i>Chairs:</i> B. Chen C. Saggese	Solid Fuel Combustion <i>Chairs:</i> S. Goroshin	Gas-Phase Reaction Kinetics II <i>Chairs:</i> A. Stagni	Low-Emission Combustion Technologies <i>Chairs:</i> C. Hasse B. Fiorina	Soot, Nanomaterials & Large Molecules <i>Chairs:</i> C. Schulz Ö. Gülde	Detonation, Explosion, & Supersonic Combustion I <i>Chairs:</i> C.R. Bauwens S. Maeda	Fire Research <i>Chairs:</i> J.-L. Consalvi R.M. Hadden	Detonation, Explosion, & Supersonic Combustion II <i>Chairs:</i> J. Crane L. Kagan	Numerical Combustion <i>Chairs:</i> G. D'Alessio D.I. Pineda	
14:05	4A08: How ozone affects the product distribution inside cool flames of diethyl ether <i>T. Panaget, K. Potier, S. Batut, A. Lahccen, Y. Fenard, L. Pillier, G. Vanhove</i>	4B08: Turbulent flame propagation limits of polymethyl-methacrylate particle cloud–ammonia–air co-combustion <i>Y. Xia, N. Hashimoto, O. Fujita</i>	4C08: Low-dimensional high-fidelity kinetic models for NO _x formation by a compute intensification method <i>M. Kelly, H. Dunne, G. Bourque, S. Dooley</i>	4D08: Effects of residence time on the NO _x emissions of premixed ammonia-methane-air swirling flames at elevated pressure <i>G. Wang, T.F. Guiberti, S. Vargas, C. Avila Jimenez, W.L. Roberts</i>	4E08: Sooting tendencies of ethylene diffusion flame doped by C ₃ -C ₅ alcohols <i>R. Jalain, J. Bonnetty, G. Legros, A. Matynia</i>	4F08: A flame technique to isolate the detonation/product interface relevant to rotating detonation engines <i>K. Cheevers, H. Yang, M. Raut, Z. Hong, M. Radulescu</i>	4G08: Pyrolysis and combustion behaviors of densified wood <i>Z. Wang, Y. Gao, Y. Zhou, C. Fan, P. Zhou, J. Gong</i>	4H08: Studies on the valveless scheme to produce high-frequency detonations with different purge methods <i>K. Wang, X. Yu, Y. Zhang, X. Huang, W. Fan</i>	4J08: Generalized preconditioning for accelerating simulations with large kinetic models <i>A.S. Walker, R.L. Speth, K.E. Niemeyer</i>	
14:25	4A09: Kinetic investigation of the ozone-assisted partial oxidation of fuel-rich natural gas mixtures at elevated pressure <i>D. Kaczmarek, C. Rudolph, B. Atakan, T. Kasper</i>	4B09: Evaluation of ammonia co-firing in the CRIEPI coal jet flame using a three mixture fraction FPV-LES <i>D. Meller, L. Engelmann, P. Wollny, K. Tainaka, H. Watanabe, P. Debiagi, O.T. Stein, A.M. Kempf</i>	4C09: Reduced modeling of the NO _x formation based on the reaction-diffusion manifolds method for counterflow diffusion flames <i>C. Yu, P. Shrotriya, X. Li, U. Maas</i>	4D09: Combustion of lean ammonia-hydrogen fuel blends in a porous media burner <i>G. Vignat, B. Akoush, E.R. Toro Garza, E. Boigné, M. Ihme</i>	4E09: In-situ laser diagnostic and numerical investigations of soot formation characteristics in ethylene and acetylene counterflow diffusion flames blended with dimethyl carbonate and methyl formate <i>F. Cameron, Y. Ren, S. Girhe, M. Hellmuth, A. Kreischer, Q. Mao, H. Pitsch</i>	4F09: Dynamics and structure of detonations in stratified product-gas diluted mixtures <i>D. Brouzet, G. Vignat, M. Ihme</i>	4G09: Investigation of forced flow orientations on the burning behaviours of wooden rods using a synchronised multi-imaging system <i>Y. Lai, A. Albadi, X. Liu, M. Davies, M. Hobbs, J. Willmott, Y. Zhang</i>	4H09: Dynamics of Chapman-Jouguet pulsating detonations with chain-branching kinetics: Fickett's analogue and Euler equations <i>A. Sow, M.I. Radulescu</i>	4J09: Uncertainty quantification of kinetic models using adjoint-driven active subspace algorithms <i>A. Hassan, M. Sabry, V. Le Chenadec, T. Sayadi</i>	

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14:45	4A10: Ozone assisted low temperature oxidation of methane and ethane L. Zhu, Q. Xu, B. Liu, C. Xie, Y. Li, H. Wang, H. Lou, Q. Zhu, S. Panigrahy, H. Curran, Z. Wang, Y. Ju, Z. Wang	4B10: Optical diagnostics on coal ignition and gas-phase combustion in co-firing ammonia with pulverized coal on a two-stage flat flame burner P. Ma, Q. Huang, Z. Wu, J. Lyu, S. Li	4C10: A new single-step mechanism for partially premixed hydrocarbon combustion A. Millán-Merino, S. Taieb, P. Boivin	4D10: Experimental and modeling study on the ignition delay times of ammonia/methane mixtures at high dilution and high temperatures J. Liu, C. Zou, J. Luo	4E10: Blending effect of methanol on the formation of polycyclic aromatic hydrocarbons in the oxidation of toluene S. Suzuki, G. Kukkadapu, Y. Ishii, T. Katsumi, K. Kinoshita, Y. Takeda, S. Sakaida, M. Konno, Y. Sakai, K. Tanaka, M. Oguma, W.J. Pitz	4F10: Experimental investigation of inner flow of a throat less diverging rotating detonation engine K. Nakata, K. Ishihara, K. Goto, N. Itouyama, H. Watanabe, A. Kawasaki, K. Matsuoka, J. Kasahara, A. Matsuo, I. Funaki, K. Higashino, J. Braun, T. Meyer, G. Paniagua	4G10: Experimental study of ignition conditions of self-sustained smouldering in peat W. Cui, Y. Hu, G. Rein	4H10: Impact of particle diameter and thermal radiation on the explosion of dust layers S. Guhathakurta, R.W. Houim	4J10: Universal kinetic subspace investigation using neural network for uncertainty quantification in nonpremixed flamelets B.C. Koenig, W. Ji, S. Deng	
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15:05	4A11: A kinetic investigation on low-temperature ignition of propane with ozone addition in an RCM <i>W. Liao, Z. Chu, Y. Wang, B. Yang</i>	4B11: Experimental study on co-firing characteristics of ammonia with pulverized coal in a staged combustion drop tube furnace <i>J. Tan, Y. He, R. Zhu, Y. Zhu, Z. Wang</i>	4C11: Automatically generated detailed and lumped reaction mechanisms for low- and high-temperature oxidation of alkanes <i>S. Brunialti, X. Zhang, T. Faravelli, A. Frassoldati, S.M. Sarathy</i>	4D11: Shock tube study of the interaction between ammonia and nitric oxide at high temperatures using laser absorption spectroscopy <i>D. Zheng, D. He, Y. Du, Y. Ding, Z. Peng</i>	4E11: Experimental and numerical investigation of soot growth and inception in an ammonia-ethylene flame <i>M. Zaher, C. Chu, M. Dadesetan, N. Eaves, M. Thomson</i>	4F11: Detailed chemistry modelling of rotating detonations with dilute <i>n</i> -heptane sprays and preheated air <i>S. Jin, C. Xu, H. Zheng, H. Zhang</i>	4G11: Lightning-induced smoldering ignition of peat: Simulation experiments by an electric arc with long continuing current <i>H. Zhang, P. Guo, H. Chen, N. Liu, Y. Qiao, M. Xu, L. Zhang</i>	4H11: On explosion limits of NCA battery vent gas <i>R. Yu, J. Liu, W. Liang, C.K. Law, H. Wang, M. Ouyang</i>	4J11: Using shock tube species time-histories in Bayesian parameter estimation: Effective independent-data number and target selection <i>H. Chen, W. Ji, S.J. Cassady, A.M. Ferris, R.K. Hanson, S. Deng</i>	
15:25	<p>BREAK (50 minutes)</p> <p>WiPPs are available for your review East Exhibit Hall B</p> <p>Visit our Exhibitors and Sponsors in East Exhibit Hall B:</p> <p>DANTEC DYNAMICS IRsweep Lambert Instruments BV Photron The Pontem Group Telops</p>									

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	Gas-Phase Reaction Kinetics Chairs: M. Mehl O. Mathieu	Laminar Flames Chairs: M. Braun- Unkhoff	Solid Fuel Combustion Chairs: B. Dally C. Geschwindner	Multi-Physics Phenomena Chairs: P. Lott T. Zirwes	Soot, Nanomaterials & Large Molecules Chairs: D. Haworth A.E. Karatas	Diagnostics Chairs: F.J.W. de Almeida Martins D. Witkowski	Fire Research Chairs: D. Zeng Y. Zhang	Detonation, Explosion, & Supersonic Combustion Chairs: R.W. Houim K. Matsuoka	Numerical Combustion Chairs: P. Boivin D. Mira	TOPICAL REVIEW Chair: B. Yang
16:15	4A12: Single-pulse shock-tube study on the pyrolysis of small esters (ethyl and propyl propanoate, isopropyl acetate) and methyl isopropyl carbonate J. Herzler, S. A. Mujaddadi, M. Fikri, C. Schulz, S. Peukert	4B12: Vortex interaction in triple flickering buoyant diffusion flames T. Yang, Y. Chi, P. Zhang	4C12: Experimental investigation of 40 kW _{th} methane-assisted and self-sustained pulverized biomass flames B. Özer, D. Zabrodiec, R. Kneer, A. Maßmeyer	4D12: Fuel-rich hetero-/homogeneous combustion of C ₃ H ₈ /O ₂ /N ₂ mixtures over rhodium J. Mantzaras, R. Sui, R. Bombach	4E12: Hydrogen enrichment enhances soot formation in swirl-stabilized non-premixed turbulent combustion of ethylene in a model gas turbine combustor R.B. Vishwanath, Ö.L. Gülder	4F12: Chemiluminescent footprint of premixed ammonia-methane-air swirling flames S. Mashruk, X. Zhu, W.L. Roberts, T.F. Guiberti, A. Valera-Medina	4G12: Experimental study on downward/opp-posed flame spread and extinction over electric wires in partial gravity environments Y. Konno, Y. Li, J.-M. Citerne, G. Legras, A. Guibaud, N. Hashimoto, O. Fujita	4H12: Numerical simulation of laminar premixed hydrogen-air flame/shock interaction in semi-closed channel E. Yhuel, G. Ribert, P. Domingo	4J12: Molecular level simulations of hydrogen-air flame at high pressures S. Trivedi, J.K. Harvey, R.S. Cant	TOPICAL REVIEW Biomass Pyrolysis Mechanism and Product Upgrading Strategy Haiping Yang, Juping Liu, Xu Chen, Wei Chen, Yingquan Chen, Hanping Chen
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16:35	4A13: An experimental and kinetic modeling study of autoignition and flame propagation ethyl lactate/air mixtures, a potential octane booster <i>G. Cenedese, Z. Serinyel, F. Halter, F. Foucher, G. Dayma</i>	4B13: Entropy generation mechanisms from exothermic chemical reactions <i>P. Patki, V. Acharya, T. Lieuwen</i>	4C13: Pore-resolving simulations of biomass char particle combustion <i>D. Liang, S. Singer</i>	4D13: Structure sensitivity of propane partial oxidation over chromium-manganese binary oxides <i>C.K. Fonzou Monguen, A. El Kasm, S. Daniel, M.F. Arshad, Z.-Y. Tian</i>	4E13: Probing the influence of hydrogen cyanide on PAH chemistry <i>P. Liu, B. Chen, A. Bennett, H. Pitsch, W.L. Roberts</i>	4F13: Simultaneous side-wall schlieren and emission imaging of autoignition phenomena in conventional and constrained-reaction-volume shock-tube experiments <i>A.J. Susa, R.K. Hanson</i>	4G13: Experimental study of spontaneous ignition of overloaded electrical wires under transverse wind <i>S. Jia, Y. Ma, Z. Guo, L. Hu</i>	4H13: Ignition of hexane-air mixtures by highly under-expanded hot jets <i>Y. Qi, J.E. Shepherd</i>	4I13: Low Mach number lattice Boltzmann model for turbulent combustion: Flow in confined geometries <i>S.A. Hosseini, N. Darabiha, D. Thévenin</i>	TOPICAL REVIEW Biomass Pyrolysis Mechanism and Product Upgrading Strategy Haiping Yang, <i>Juping Liu, Xu Chen, Wei Chen, Yingquan Chen, Hanping Chen</i>
<p>The 39th International Symposium on Combustion would like to thank our Silver Sponsors:</p> <p style="text-align: center;">Carleton University ELSEVIER FM Global KAUST Toronto Metropolitan University SIEMENS Energy</p> <p style="text-align: center;">The Combustion Institute is on the lookout for outstanding presentations. If you have seen a presentation that stood out, please send your recommendation to: office@combustioninstitute.org</p>										

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16:55	4A14: First ignition delay time study and modeling efforts on vinyl acetate <i>P. Morsch, M. Döntgen, K.A. Heufer</i>	4B14: Vortex breakdown in swirling Burke-Schumann flames <i>B.W. Keeton, K.K. Nomura, A.L. Sánchez, F.A. Williams</i>	4C14: Interactions of potassium vapor with reactor tubes made of different materials and their impacts on particulate matter emission during pulverized biomass combustion <i>B. Wang, J. Huang, X. Gao, Z. Wang, D. Xie, Y. Qiao</i>	4D14: Distinguishing the impact of temperature on iron catalyst during the catalytic-pyrolysis of waste polypropylene <i>N. Cai, S. Xia, H. Xiao, Y. Chen, W. Chen, H. Yang, C. Wu, H. Chen</i>	4E14: Shock-tube study on the influence of oxygenated co-reactants on ethylene decomposition under pyrolytic conditions <i>D. Nativel, S. Peukert, J. Herzler, A. Drakon, M. Korshunova, E. Mikheyeva, A. Eremin, M. Fikri, C. Schulz</i>	4F14: Tomographic reconstruction of an azimuthally forced flame in an annular chamber <i>D. Govender, H. Liu, F. Peng, W. Cai, N.A. Worth</i>	4G14: Effect of pyrolysis kinetic parameters on the overload ignition of polymer insulated wires in microgravity <i>F. Guo, S. Kawaguchi, N. Hashimoto, O. Fujita</i>	4H14: Inwardly propagating cylindrical flame under different ignition conditions <i>W. Han, F. Wan, J. Huang</i>	4J14: Lattice Boltzmann method with nonreflective boundary conditions for low Mach number combustion <i>Z. Wang, T. Lei, K.H. Luo</i>	
<p>Sessions End at 17:05</p> <p>Dinner Reception at the Vancouver Aquarium</p> <p>Buses to the Aquarium will leave from the Vancouver Convention Center from 19.15 to 19.45 (last bus)</p> <p>The Aquarium can also be reached by walking along the waterfront walkway (40 minutes walk) 845 Avison Way, Vancouver, BC V6G 3E2</p> <p>The return transfer buses will leave from 22.00 to 22.30.</p>										

Friday, 29 July 2022

(Auditorium)
PLENARY LECTURE – 8:30 am – 9:30 am

Premixed Laminar and Turbulent Flames and the Role of Differential Diffusion *Simone Hochgreb*

Chairs: *L. Vervisch*

Transfer (15 minutes)

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	Gas-Phase Reaction Kinetics Chairs: <i>R.S. Tranter</i>	Laminar Flames Chairs: <i>Y. Ju</i> <i>F. Takahashi</i>	Solid Fuel Combustion Chairs: <i>H. Fatehi</i>	Detonation, Explosion, & Supersonic Combustion Chairs: <i>C.M. Geipel</i> <i>S. Nakaya</i>	Propulsion Chairs: <i>T.F. Guiberti</i> <i>X. Liu</i>	Numerical Combustion Chairs: <i>T. Grenga</i> <i>E. Quadarella</i>	Diagnostics Chairs: <i>A. Farooq</i> <i>P.T. Lynch</i>	Fire Research Chairs: <i>H. Farahani</i> <i>Y. Konno</i>	Spray, Droplet, & Supercritical Combustion Chairs: <i>G. Ribert</i> <i>H. Terashima</i>	
9:45	5A01: A functional-group-based approach to modeling real-fuel combustion chemistry – III: Application to biodiesels <i>X. Zhang, Q. Xu, S. Xie, Q. Di, B. Liu, Z. Wang, S.M. Sarathy</i>	5B01: Measurements of propane-O ₂ -Ar laminar flame speeds at temperatures exceeding 1,000 K in a shock tube <i>A.J. Susa, L. Zheng, R.K. Hanson</i>	5C01: Quantitative real-time in-situ measurement of gaseous K, KOH, and KCl in a 140 kW entrained-flow biomass gasifier <i>E. Thorin, A. Sepman, Y. Ögren, C. Ma, M. Carlborg, J. Wennebro, M. Broström, H. Wiinikka, F.M. Schmidt</i>	5D01: Numerical investigation of low-frequency instability and frequency shifting in a scramjet combustor <i>S.-M. Jeong, J.-H. Lee, J.-Y. Choi</i>	5E01: Numerical analysis of self-excited tangential combustion instability for an MMH/NTO rocket combustor <i>W. Chu, K. Guo, Y. Tong, W. Nie, X. Li</i>	5F01: Applying physics-informed enhanced super-resolution generative adversarial networks to turbulent premixed combustion and engine-like flame kernel direct numerical simulation data <i>M. Bode, M. Gauding, D. Goeb, T. Falkenstein, H. Pitsch</i>	5G01: Hypersonic combustion diagnostics with dual comb spectroscopy <i>D. Yun, N.A. Malarich, R.K. Cole, S.C. Egbert, J.J. France, J. Liu, K.M. Rice, M.A. Hagenmeier, J.M. Donbar, N. Hoghooghi, S.C. Coburn, G.B. Rieker</i>	5H01: Experimental study and physical modeling of ceiling temperature and heat flux profiles by wall-attached fires in inclined tunnels <i>T. Xu, F. Tang, Q. He, M.A. Delichatsios</i>	5J01: Studies of low and intermediate temperature oxidation of propane up to 100 Atm in a supercritical-pressure jet-stirred reactor <i>H. Zhao, C. Yan, G. Song, Z. Wang, Y. Ju</i>	

Room	Ballroom A	Ballroom B	Ballroom C	Mtg Room 1	Mtg Room 2&3	Mtg Room 8&15	Mtg Room 11	Mtg Room 12	Mtg Room 13	Hall A
	Gas-Phase Reaction Kinetics <i>Chairs:</i> R.S. Tranter	Laminar Flames <i>Chairs:</i> Y. Ju F. Takahashi	Solid Fuel Combustion <i>Chairs:</i> H. Fatehi	Detonation, Explosion, & Supersonic Combustion <i>Chairs:</i> C.M. Geipel S. Nakaya	Propulsion <i>Chairs:</i> T.F. Guiberti X. Liu	Numerical Combustion <i>Chairs:</i> T. Grenga E. Quadarella	Diagnostics <i>Chairs:</i> A. Farooq P.T. Lynch	Fire Research <i>Chairs:</i> H. Farahani Y. Konno	Spray, Droplet, & Supercritical Combustion <i>Chairs:</i> G. Ribert H. Terashima	
10:05	5A02: Experimental and detailed kinetics modeling study of the fire suppressant properties of Di(2,2,2-trifluoroethyl) carbonate <i>O. Mathieu, P. Diévert, M.A. Turner, D.J. Mohr, C.M. Grégoire, S.A. Alturaifi, L. Catoire, E.L. Petersen</i>	5B02: A study of propagation of spherically expanding flames at low pressure using direct measurements and numerical simulations <i>M.-E. Clavel, P. Schleuniger, Y. Wang, A. Vandel, V. Modica, Z. Chen, B. Renou</i>	5C02: Ash formation and deposition during combustion of pulverized torrefied wood and coal in a 100kW downflow combustor <i>X. Li, Y. Wang, J.O.L. Wendt</i>	5D02: Simulation of a round supersonic combustor using wall-modeled large eddy simulation and partially-stirred reactor models <i>D.M. Peterson</i>	5E02: Impact of turbulence on flame brush development of acoustically excited rod-stabilized flames <i>A. Karmarkar, J. O'Connor</i>	5F02: Automated and efficient local adaptive regression for principal component-based reduced-order modeling of turbulent reacting flows <i>G. D'Alessio, S. Sundaresan, M.E. Mueller</i>	5G02: Fiber-optical analysis of weak knock and pressure oscillations in a single cylinder research engine <i>J. Schneider, M. Günther, M. Kircher, S. Pischinger</i>	5H02: Two dimensional temperature distributions in a ceiling jet generated by a finite line-source fire: An experimental study <i>X. Zhang, L. Hu, X. Zhang, X. Sun, G. Rein</i>	5J02: Numerical investigations of thermo-dynamic states formed near a reacting, supercritical CH ₄ /O ₂ flame <i>P. Tudisco, S. Menon</i>	
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10:25	5A03: When hydrogen is slower than methane to ignite <i>S. Panigrahy, A.A. El-Sabor Mohamed, G. Bourque, H.J. Curran</i>	5B03: On the laminar flame propagation of C ₅ H ₁₀ O ₂ esters up to 10 atm: A comparative experimental and kinetic modeling study <i>W. Li, J. Zhang, S. Eckart, J. Xia, H. Krause, Y. Li</i>	5C03: Primary release and transformation of inorganic and organic sodium during fast pyrolysis of sodium-loaded lignin <i>Y. Yu, J. Cao, H. Wu</i>	5D03: Vortex dynamics in different combustion regions of a cavity-based scramjet <i>D. Cao, H.E. Brod, N. Yokev, D. Michaels</i>	5E03: Thermoacoustic oscillations in a can-annular model combustor with asymmetries in the can-to-can coupling <i>P.E. Buschmann, N.A. Worth, J.P. Moeck</i>	5F03: Resolution reconstruction and <i>a-priori</i> modeling of turbulent flames in the context of large eddy simulation using the convolutional neural network <i>S. Liu, H. Wang, J. Ren, K. Luo, J. Fan</i>	5G03: Experimental and synthetic laser-absorption-spectroscopy measurements of temperature, pressure, and CO at 1 MHz for evaluation of post-detonation fireball models <i>G.C. Mathews, M. Gomez, C.J. Schwartz, A.A. EgelN Jr., R.W. Houim, S.F. Son, M. Arienti, A.D. Thompson, M. Welliver, D.R. Guildenbecher, C.S. Goldenstein</i>	5H03: Lip height effects on pool fire: An experimental investigation <i>L. Huang, N. Liu, W. Gao, J. Lei, X. Xie, L. Zhang</i>	5J03: Numerical simulations of supercritical CH ₄ /O ₂ flame propagation in inhomogeneous mixtures <i>F. Monnier, G. Ribert</i>	
10:45	<p>BREAK (30 minutes)</p> <p>Visit our Exhibitors and Sponsors in East Exhibit Hall B:</p> <p>DANTEC DYNAMICS IRsweep Lambert Instruments BV Photron The Pontem Group Telops</p>									

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	Gas-Phase Reaction Kinetics I <i>Chairs:</i> F. Battin-Leclerc K. Leonhard	Laminar Flames <i>Chairs:</i> C. Bariki M. Rieth	Solid Fuel Combustion <i>Chairs:</i> J.J. Yoh X. Mi	Soot, Nanomaterials, & Large Molecules <i>Chairs:</i> T. Dreier H. Maldonado Colmán	Gas-Phase Reaction Kinetics II <i>Chairs:</i> R. Sivarana-krishnan	Numerical Combustion <i>Chairs:</i>	Spray, Droplet, and Supercritical Combustion <i>Chairs:</i> A. Millan Merino	Fire Research <i>Chairs:</i> S. Bhattacharjee	Propulsion <i>Chairs:</i> Y. Daimon F.J.W. de Almeida Martins	TOPICAL REVIEW <i>Chairs:</i> H. Pitsch
11:15	5A04: From electronic structure to model application of key reactions for gasoline/alcohol combustion, part I: Hydrogen-atom abstraction by CH ₃ O [•] radicals <i>C. Yang, J.-T. Chen, X. Zhu, X. Bai, Y. Li, K.K. Yalamanchi, S.M. Sarathy, S.S. Goldsborough, S. Cheng, H.J. Curran, C.-W. Zhou</i>	5B04: Critical temperature and reactant mass flux for radiative extinction of ethylene microgravity spherical diffusion flames at 1 bar <i>P.H. Irace, K.A. Waddell, D. Constaes, P.B. Sunderland, R.L. Axelbaum</i>	5C04: Combustion model for thermite materials integrating explicit and coupled treatment of condensed and gas phase kinetics <i>E. Tichtchenko, V. Folliet, O. Simonin, B. Bédat, L. Glavier, A. Esteve, C. Rossi</i>	5D04: Strongly reduced optical absorption efficiency of soot with addition of potassium chloride in sooting premixed flames <i>M. Mannazhi, S. Bergqvist, S. Török, D. Madsen, P. Tóth, K.C. Le, P.-E. Bengtsson</i>	5E04: Kinetic analysis of the pathways to naphthalene formation from phenyl + 1,3-Butadiyne reaction <i>P. Liu, W.L. Roberts</i>	5F04: Manifold-informed state vector subset for reduced-order modeling <i>K. Zdybat, J.C. Sutherland, A. Parente</i>	5G04: Appearance of cool flame in flame spread over fuel droplets in microgravity <i>M. Mikami, K. Matsumoto, Y. Chikami, M. Kikuchi, D.L. Dietrich</i>	5H04: An experimental study of the blue whirl onset <i>Y. Yang, H. Zhang, X. Xia, P. Zhang, F. Qi</i>	5J04: LES study on the breakup mechanism of LOX core in LOX/GH ₂ supercritical combustion <i>S. Wada, R. Kai, R. Kurose</i>	TOPICAL REVIEW Recent Developments in DNS of Turbulent Combustion <i>Pascale Domingo, Luc Vervisch</i>

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11:35	5A05: Impact of the size and degree of branching of alkanes on the rate rules approach: The case of isomerizations <i>F. Citrangolo Destro, R. Fournet, V. Warth, P.-A. Glaude, B. Sirjean</i>	5B05: Elucidating the challenges in extracting ultra-slow flame speeds in a closed vessel - A CH ₂ F ₂ microgravity case study using optical and pressure-rise data <i>R. Hesse, C. Bariki, M. Hegetschweiler, G. Linteris, H. Pitsch, J. Beeckmann</i>	5C05: Size evolution during laser-ignited single iron particle combustion <i>D. Ning, Y. Shoshin, J. van Oijen, G. Finotello, P. de Goey</i>	5D05: Investigation of elastic light scattering in flame spray pyrolysis modelled by a stochastic particle approach <i>J. Kirchmann, F.J.W.A. Martins, A. Kronenburg, A. Kumar, F. Beyrau</i>	5E05: Combined high-pressure experimental and kinetic modeling study of cyclopentene pyrolysis and its reactions with acetylene <i>A. Hamadi, L. Carneiro-Piton, S. Abid, N. Chaumeix, A. Comandini</i>	5F05: A novel reduced-order model method for characterization of flame response to acoustic modulation <i>Z. Qiao, Y. Lv</i>	5G05: Extinction characteristics of isolated n-alkane fuel droplets during low temperature cool flame burning in air <i>T.I. Farouk, F.L. Dryer</i>	5H05: Formation and flame characteristics of the blue whirl <i>Z. Chen, Z. Liu, L. Liu, H. Xiao</i>	5J05: Dynamic characterization of wall temperature in LOX/CH ₄ rocket engine operating conditions using phosphor thermometry <i>V. Lechner, C. Betrancourt, P. Scoufflaire, L. Vingert, S. Ducruix</i>	TOPICAL REVIEW Recent Developments in DNS of Turbulent Combustion Pascale Domingo, <i>Luc Vervisch</i>
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11:55	5A06: Identification of homogeneous chemical kinetic regimes of methane-air ignition É. Valkó, M. Papp, P. Zhang, T. Turányi	5B06: On the existence of steady-state gaseous microgravity spherical diffusion flames in the presence of radiation heat loss P. Irace, K. Waddell, D. Constaes, M. Kim, G. Yablonsky, P. Sunderland, R. Axelbaum	5C06: Ignition and combustion of dense micron-sized aluminum particulate flow in hot gas Y. Tang, W. Dong, X. Zou, B. Shi, N. Wang	5D06: Effects of the preheating temperature on flame-assisted spray pyrolysis of nickel-rich cathode materials J. Zhang, V.L. Muldoon, S. Deng	5E06: Towards a predictive kinetic model of 3-ethyltoluene: Evidence concerning fuel-specific intermediates in the flow reactor pyrolysis with insights into model implications Q. Wang, M. Yang, J. Wang, J. Yang, L. Zhao, W. Li, C. Wang, T. Lu, Y. Li	5F06: Stochastic low-order modelling of hydrogen autoignition in a turbulent non-premixed flow S. Iavarone, S. Gkantonas, E. Mastorakos	5G06: Cool flame propagation in high pressure spray flames S. Zhong, S. Xu, F. Zhang, Z. Peng, L. Chen, X.-S. Bai	5H06: Structure and generation mechanism of blue whirls S. Li, Q. Yao, C.K. Law, J. Zhuo, H. Zhang	5J06: Hypersonic ignition of paraffin-based hybrid rocket fuels by sprays of liquid oxidizer O. Jobin, B. Dumas, J. Zahlawi, M. Chartray-Pronovost, E. Robert	
12:15	5A07: Establishment of a set of skeletal oxidation mechanisms for mono-alkylated cyclohexanes with consistent structure S. Huang, Y. Chang, X. Dong, M. Jia, T. Li	5B07: Flame propagation in narrow horizontal channels: Impact of the gravity field on the flame shape A. Dejoan, C. Jiméne, D. Martínez-Ruiz, V. Muntean, M. Sánchez-Sanz, V. Kurdyumov	5C07: Oxidation and combustion of Stabilized Lithium Metal Powder (SLMP) K. Estala-Rodriguez, S. Cordova, E. Shafirovich	5D07: A new dual matrix burner for one-dimensional investigation of aerosol flames S. Apazeller, M. Gonchikzhapov, M. Nanjaiah, T. Kasper, I. Wlokas, H. Wiggers, C. Schulz	5E07: A wide-range experimental and kinetic modeling study of the pyrolysis and oxidation of 1-butyne H. Lu, S. Dong, F. Liu, S.S. Nagaraja, N. Lindblade, M.A. Turner, O. Mathieu, E.L. Petersen, J. Caravaca Vilchez, K.A. Heufer, G. Xu, S.M. Sarathy, H.J. Curran	5F07: Predicting octane number from species profiles: A deep learning model Y. Wang, W. Dong, W. Liang, B. Yang, C.K. Law	5G07: Study on spatial-temporal dynamics of cool flame oscillation phenomenon occurred around a fuel droplet array by using variational auto-encoder K. Iemura, M. Saito, Y. Suganuma, M. Kikuchi, Y. Inatomi, H. Nomura, M. Tanabe	5H07: Effects of nitrogen dilution on flame characteristics and stability of lifted propane fire whirl X. Miao, J. Lei, N. Liu, L. Zhang	5J07: Efficient time-resolved thermal characterization of single and multi-injector rocket combustion chambers A. Remiddi, G. Indelicato, P.E. Lapenna, F. Creta	

12:35	LUNCH (90 Minutes) – On Your Own									
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	Gas-Phase Reaction Kinetics I <i>Chairs:</i> T. Turányi X. Zhang	Laminar Flames <i>Chairs:</i> M. Köhler H. Nakamura	Solid Fuel Combustion <i>Chairs:</i>	Fire Research I <i>Chairs:</i> N. Hashimoto N. Ren	Gas-Phase Reaction Kinetics II <i>Chairs:</i> S. Goldsborough	Numerical Combustion <i>Chairs:</i>	Diagnostics <i>Chairs:</i> S. Grauer G. Magnotti	Fire Research II <i>Chairs:</i> F. Nmira	Propulsion <i>Chairs:</i> C. Netzer P. Tudisco	
14:05	5A08: Modeling the non-Arrhenius ignition behavior of 2-butanol: A detailed theoretical and experimental study <i>M. Preußker, M. Dontgen, K.A. Heufer</i>	5B08: Experimental and computational investigation of the influence of <i>iso</i> -butanol on autoignition of <i>n</i> -decane and <i>n</i> -heptane in non-premixed flows <i>L. Ji, A. Cuoci, A. Frassoldati, M. Mehl, T. Avedisian, K. Seshadri</i>	5C08: Detailed modeling of hydrogen release and particle shrinkage during pyrolysis of inhomogeneous wood <i>S.M. Mousavi, F. Ossler, C.E.A. Finney, X.-S. Bai, H. Fatehi</i>	5D08: Effects of flame retardants on extinction limits, spread rate, and smoke release in opposed-flow flame spread over thin cylindrical polyethylene samples in microgravity <i>Y. Li, A. Guibaud, J.-M. Citerne, J.-L. Consalvi, A. Coimbra, J. Sarazin, S. Bourbigot, J.L. Torero, G. Legros</i>	5E08: Investigation of the kinetics of conjugated diolefins using UV absorption spectroscopy <i>D. Liu, A. Farooq</i>	5F08: Dimensionality reduction and unsupervised classification for high-fidelity reacting flow simulations <i>M. Rafi Malik, R. Kamedov, F.E. Hernández Pérez, A. Coussement, A. Parente, H.G. Im</i>	5G08: Effect of maturity on soot volume fraction measurements using the AC-LII technique in a laminar coflow ethylene diffusion flame <i>F. Escudero, J.J. Cruz, I. Verdugo, N. Gutierrez-Cáceres, F. Liu, J. Yon, A. Fuentes</i>	5H08: Study of radiative heat transfer and flow physics from medium-scale methanol pool fire simulations <i>J. Kirsch, J. Hubbard</i>	5J08: The role of cool-flame fluctuations in high-pressure spray flames, studied using high-speed optical diagnostics and large-eddy simulations <i>F. Tagliante, T.M. Nguyen, M.P. Dhanji, H. Sub Sim, L.M. Pickett, J. Manin, G. Kukkadapu, R. Whitesides, K. Wan</i>	
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14:25	5A09: Experimental and kinetic modeling study of the low temperature and high-pressure combustion chemistry of straight chain pentanol isomers: 1-, 2- and 3-Pentanol <i>T. Chatterjee, C. Saggese, S. Dong, V. Patel, K.S. Lockwood, H.J. Curran, N.J. Labbe, S.W. Wagnon, W.J. Pitz</i>	5B09: Laminar flame propagation of acetone and 2-butanone at normal to high pressures: Insight into fuel molecular structure effects of ketones <i>J. Zhang, W. Li, B. Mei, Y. Li</i>	5C09: An exploratory study of phosphorus release from biomass by carbothermic reduction reactions <i>E.O. Lidman Olsson, P. Glarborg, H. Leion, K. Dam-Johansen, H. Wu</i>	5D09: Understanding the role of fire retardants on the discontinuous ignition of wildland fuels <i>J. Ignacio Rivera, F. Ebensperger, F. Valenzuela, L. Escandar, P. Reszka, A. Fuentes</i>	5E09: Shock tube and multi-species laser absorption measurements of rate constants for methanol pyrolysis <i>S. Wang, Y. Ding, J. Miao, R.K. Hanson</i>	5F09: Impact of scalar mixing uncertainty on the predictions of reactor-based closures: Application to a lifted methane/air jet flame <i>R. Amaduzzi, A. Bertolino, A. Özden, R. Malpica Galassi, A. Parente</i>	5G09: Time-resolved 2D angular scattering of soot particles in atmospheric turbulent flames <i>M. Bouvier, J. Yon, F. Lefebvre, G. Godard, A. Perrier, G. Cabot, F. Grisch</i>	5H09: Mass burning rate and merging behaviour of double liquid pool fires under cross winds <i>F. Tang, L. Deng, Q. He, J. Zhang</i>	5J09: An extended FGM model with transported PDF for LES of spray combustion <i>A. Hadadpour, S. Xu, Y. Zhang, X.-S. Bai, M. Jangi</i>	
14:45	5A10: Characterization of the low-temperature oxidation chemistry of an unsaturated aldehyde 2-butenal in a jet-stirred reactor <i>Z. Liu, H. Chen, Q. Hou, X. Fan, H. Liao, J. Yang, L. Zhao, F. Zhang, B. Yang</i>	5B10: Laminar flame speed and autoignition characteristics of surrogate jet fuel blended with hydrogen <i>X. Gong, X. Wang, H. Zhou, Z. Ren</i>	5C10: Unraveling the radical chain mechanism in the pyrolysis of β -O-4 linked lignin: The role of aliphatic substituents <i>W.-I. Xie, B. Hu, Y. Liu, H. Fu, J. Liu, B. Zhang, Q. Lu</i>	5D10: Effectiveness of flame suppressants on cool flames and hot flames <i>C.B. Reuter, Z. Wang, W. Xu, Y. Ju</i>	5E10: Exploring fuel molecular structure effects on the pyrolysis chemistry of branched hexenes <i>C. Cao, M. Pelucchi, J. Zhang, W. Li, A. Nobile, J. Yang, L. Zhao, Y. Li, T. Faravelli</i>	5F10: Predicting real-time fire heat release rate by flame images and deep learning <i>Z. Wang, T. Zhang, X. Huang</i>	5G10: Measurements of Rayleigh-Brillouin scattering spectra of Ar, N ₂ , and CH ₄ at pressures up to 20 atm <i>K. Teav, A.M. Steinberg</i>	5H10: Flame geometric characteristics of large-scale pool fires under controlled wind conditions <i>J. Lei, W. Deng, S. Mao, Y. Tao, H. Wu, C. Xie</i>	5J10: LES of HCCI combustion of iso-octane/air in a flat-piston rapid compression machine <i>W.T. Chung, N. Ly, M. Ihme</i>	

15:05	BREAK (50 minutes)									
Room	Ballroom A	Ballroom B	Ballroom C	Mtg Room 1	Mtg Room 2&3	Mtg Room 8&15	Mtg Room 11	Mtg Room 12	Mtg Room 13	Hall A
	Gas-Phase Reaction Kinetics <i>Chairs:</i> D. Couch	Laminar Flames <i>Chairs:</i> T. Bierkanadt	Solid Fuel Combustion <i>Chairs:</i> J.O.L. Wendt P. Glarborg	Fire Research I <i>Chairs:</i> Y. Lai		Numerical Combustion I <i>Chairs:</i> W.T. Chung	Low-Emission Combustion Technologies <i>Chairs:</i> B. Atakan A.F. Ghoniem	Fire Research II <i>Chairs:</i> A. Fuentes	Numerical Combustion II <i>Chairs:</i> M. Day S. Deng	
15:55	5A11: Methanol oxidation up to 100 atm in a supercritical pressure jet-stirred reactor <i>Z. Wang, H. Zhao, C. Yan, Y. Lin, A.D. Lele, W. Xu, B. Rotavera, A.W. Jasper, S.J. Klippenstein, Y. Ju</i>	5B11: Theoretical analysis on the forced ignition of a quiescent mixture by repetitive heating pulse <i>D. Yu, Z. Chen</i>	5C11: Characteristics of chars formed during rapid pyrolysis of biomass model components at high temperature <i>C. Deng, H. Wu</i>	5D11: Fire suppression using trifluoroiodo-methane (CF ₃)-carbon dioxide (CO ₂) mixtures <i>P. Papas, C. Cao, W. Kim, E. Baldwin, A. Chattaway</i>		5F11: Investigation of the generalization capability of a generative adversarial network for large eddy simulation of turbulent premixed reacting flows <i>L. Nista, C.D.K. Schumann, T. Grenga, A. Attili, H. Pitsch</i>	5G11: CO ₂ /CH ₄ conversion to synthesis gas (CO/H ₂) in an internal combustion engine <i>S. Drost, W. Xie, R. Schießl, U. Maas</i>	5H11: Experimental study of elevated- and ground pool fire flame horizontal lengths in cross airflows: Air entrainment change due to Coandă effect <i>Y. Chen, K. Fukumoto, X. Zhang, Y. Lin, F. Tang, L. Hu</i>	5J11: Accelerating turbulent reacting flow simulations on many-core/GPUs using matrix-based kinetics <i>H.A. Uranakara, S. Barwey, F.E. Hernández Pérez, V. Vijayarangan, V. Raman, H.G. Im</i>	
<p>The 39th International Symposium on Combustion would like to thank our Gold Sponsor:</p> <p style="text-align: center;">LaVision</p> <p>The 39th International Symposium on Combustion would like to thank our Silver Sponsors:</p> <p style="text-align: center;">Carleton University ELSEVIER FM Global KAUST Toronto Metropolitan University SIEMENS Energy</p>										

Room	Ballroom A	Ballroom B	Ballroom C	Mtg Room 1	Mtg Room 2&3	Mtg Room 8&15	Mtg Room 11	Mtg Room 12	Mtg Room 13	Hall A
	Gas-Phase Reaction Kinetics <i>Chairs:</i> D. Couch	Laminar Flames <i>Chairs:</i> T. Bierkanndt	Solid Fuel Combustion <i>Chairs:</i> J.O.L. Wendt P. Glarborg	Fire Research I <i>Chairs:</i> Y. Lai		Numerical Combustion I <i>Chairs:</i> W.T. Chung	Low-Emission Combustion Technologies <i>Chairs:</i> B. Atakan A.F. Ghoniem	Fire Research II <i>Chairs:</i> A. Fuentes	Numerical Combustion II <i>Chairs:</i> M. Day S. Deng	
16:15	5A12: Experimental and kinetic modeling studies of low- to moderate-temperature oxidation of 2-furfuryl alcohol in a jet-stirred reactor <i>J. Wang, X. Gao, W. Ding, P. Luan, X. Zhong, W. Li, T. Lv, Z. Cheng, L. Wei, J. Yang, B. Yan, G. Chen</i>	5B12: Effects of electrodes and imposed flow on forced ignition in premixed hydrogen/air mixtures with large Lewis number <i>X. Chen, S. Xie, H. Böttler, A. Scholtissek, W. Han, C. Hasse, Z. Chen</i>	5C12: Experimental investigation of NOx emission and ash-related issues in ammonia/coal/biomass co-combustion in a 25-kW down-fired furnace <i>P. Ma, Q. Huang, T. Si, Y. Yang, S. Li</i>	5D12: Effect of flame retardants on side-wall quenching of partially premixed laminar flames <i>M. Steinhausen, F. Ferraro, M. Schneider, F. Zentgraf, M. Greifenstein, A. Dreizler, C. Hasse, A. Scholtissek</i>		5F12: A generalized partially stirred reactor model for turbulent closure <i>E. Quadarella, A. Péquin, A. Stagni, A. Parente, T. Faravelli, H.G. Im</i>	5G12: Sintering mechanism of CaO during carbonation reaction in the presence of water vapor <i>C. Li, C. Zhang, X. Guo</i>	5H12: Cell-level hazard evaluation of 18650 form-factor lithium-ion battery with different cathode materials <i>D. Zeng, L. Gagnon, Y. Wang</i>	5I12: Programming approaches for scalability, performance, and portability of combustion physics codes <i>K.A. Schau, D. Purushotham, J.C. Oefelein</i>	
16:35	5A13: Experimental and modeling study of the low to high-temperature oxidation of the methyl isopropyl ketone in O ₂ /N ₂ /Ar and O ₂ /CO ₂ /Ar atmospheres <i>Q. Lin, W. Liao, J. Cheng, C. Zou, B. Yang, W. Xia</i>	5B13: Dynamics of FREI with/without cool flame interaction <i>K. Akita, Y. Morii, Y. Murakami, H. Nakamura, T. Tezuka, K. Maruta</i>	5C13: An extended flamelet/progress variable model for coal/biomass co-firing flame <i>J. Xing, K. Luo, R. Kurose, J. Fan</i>	5D13: Inertial effects on the interaction of water droplets with turbulent premixed flames: A Direct Numerical Simulation analysis <i>J. Hasslberger, R. Conzetti, N. Chakraborty, M. Klein</i>		5F13: Automating the generation of detailed kinetic models for halocarbon combustion with the reaction mechanism generator <i>D.S. Farina Jr., S.K. Sirumalla, R.H. West</i>	5G13: Syngas production from biogas in a polygeneration process - simultaneous partial oxidation and dry reforming in a piston engine <i>K. Banke, S.A. Kaiser</i>	5H13: Impact of flame on the thermal runaway propagation of large-format lithium battery with Li(Ni _{1/3} Co _{1/3} Mn _{1/3})O ₂ as cathode <i>Z. Huang, K. Jin, H. Zhai, J. Sun, Q. Wang</i>		
SESSIONS END AT 16:55 Farewell Reception: 17:30 – 19:00 Vancouver Convention Center, West Wing, Level 3 (Rooms 301-306)										

MONDAY Work-in-Progress Posters

Numerical Combustion

- 1P001: Large eddy simulations of turbulent non-premixed ammonia/hydrogen jet flames at elevated pressure using principal component analysis coupled with deep neural networks
S. Abdelwahid, M. Rafi Malik, H. Hammoud, F. Hernandez Perez, B. Ghanem, H. Im
- 1P002: Numerical method for ODEs of chemical reactions with Carleman linearization toward quantum computings
T. Akiba, Y. Morii, K. Maruta
- 1P003: Evaluation of dynamically Bi-Orthonormal Decomposition (DBO) for Reduced-Order Modeling (ROM) of compressible reacting flows with non-trivial boundary conditions
S. Desai, H. Babaee, J. Chen
- 1P004: Generating a compact model for methane and natural gas using genetic algorithm and abbreviated reaction pathways
K. Hirose, Y. Murakami, K. Shimoyama, H. Nakamura
- 1P005: A DNS study of ignition characteristics of lean NH₃/H₂/air mixtures under HCCI combustion conditions
Y. Hou, G.H. Yu, J.H. Kim, S.H. Chung, C.S Yoo
- 1P006: Numerical study of the interaction of ammonia-methane premixed symmetric flames
E. Jin, Y. Kang, K. Lee
- 1P007: Implementation of the spectral line-based weighted-sum-of-gray-gases model in the finite volume method for radiation modeling in internal combustion engines
F. Jurić, M. Vujanović, P. Coelho, N. Duić
- 1P008: Computationally efficient and robust boundary-layer code for PFAS modeling
G. Kogekar, S. Sharma, F. Goldsmith
- 1P009: Efficient numerical methods for the optimization of large kinetic reaction mechanisms
S. Goitom, M. Papp, M. Kovács, T. Nagy, I.G. Zsély, T. Turányi, L. Pál
- 1P010: Interpolation error of FGM tabulation in an unnormalised progress variable subspace
M. Kovaleva, J.H. Chen, M. Rieth
- 1P011: Data-based instantaneous conditional progress variable dissipation rate modeling for turbulent premixed combustion
C.E. Lacey, S. Sundaresan, M.E. Mueller
- 1P012: Development of a useful tool to predict ignition delay time of multi-component natural gas blend
M.A. Abd El-Sabor Mohamed, S. Yousefian, H.J. Curran, R.F.D. Monaghan, G. Bourque
- 1P013: Numerical study on the effect of methane doping in hydrogen-air rotating detonation engine for various temperatures and pressures
S.N. Appukkuttan, H. Sitaraman, S. Yellapantula, M. Henry de Frahan, M. Day
- 1P014: Application of data-driven manifold modeling for turbulent combustion
B. Perry, M. Henry de Frahan, S. Yellapantula
- 1P015: Effect of the ionic wind on the propagating edge flames
J. Son, M.S. Cha
- 1P016: Simulated bluff body flames subjected to mean pressure gradient and inlet turbulence
T.J. Souders, S.H.R. Whitman, P.E. Hamlington

- 1P017: Chemically explainable graph attention networks for predicting fuel vaporization
Y. Kim, H. Jung, K. Jeong, J. Cho, R. McCormick, P. St. John, S. Kim
- 1P018: Deep learning for knock occurrence prediction in a SI engine
H. Tajima, T. Tomidokoro, T. Yokomori
- 1P019: Assessment of LES-ADM accuracy in modelling ignition and extinction processes in a field of forced homogenous isotropic turbulence
L. Caban, A. Wawrzak, A. Boguslawski, A. Tyliczszak, B. Geurts
- 1P020: Scalar boundedness in large-eddy simulations of compressible reactive flows using high-order numerical methods
Y. Wang, A. Wehrfritz, E. Hawkes
- 1P021: Withdrawn

Multi-Physics Phenomena

- 1P022: Glycerol reforming in a Nanosecond Repetitively Pulsed (NRP) aqueous discharge reactor
S. Bang, M.S. Cha, R. Snoeckx
- 1P023: Numerical model of decomposing carbon fiber epoxy composites
G. Bran Anleu, C. Winters, J. Hewson, M. Kury, D. Roybal, S. Scott
- 1P024: Well-stirred reactor with homogeneous plasma for development of chemical kinetic model of plasma, ammonia and air
G. Faingold, J.K. Lefkowitz
- 1P025: Withdrawn
- 1P026: Integration of a catalyst in a wood stove: From physicochemical characterizations of the effluents to their in-vitro cytotoxicity study
M. Laboureur, M. Hannard, T. Barakat, A. Goel, S. Bram, J. Laloy, P. Renard, T. Duquense, B.-L. Su
- 1P027: Helium atmospheric pressure plasma multi-jet for combustion reactivity enhancement
F. Manseur, A. Stancampiano, S. Dozias, M. Wartel, J.-M. Pouvesle, T. Boushaki, F. Halter, E. Robert, P. Escot Bocanegra
- 1P028: Detection of nickel atom by laser-induced fluorescence in spark discharges
R. Bi, K. Zhang, M. Richter, A. Ehn, J. Ängeby
- 1P029: Evaluation of H-atom recombination rate on SUS and quartz surfaces using a wall stagnation flame
Y. Saiki, Y. Sugimura, K. Yusa
- 1P030: Numerical modeling of hydrogen production by microwave-assisted methane pyrolysis in a fluidized bed
M. Salakhi, M. Dadsetan, M.F. Khan, M. Thomson
- 1P031: Flame synthesized Pt/ZSM-5 catalyst for low temperature oxidation of CO and C₃H₆
S. Daniel, C.K. Fonzou Monguen, Z.Y. Tian
- 1P032: Effect of ultrasonically induced cavitation on heavy fuel oils upgrading
G. Viciconte, E. Colleoni, C. Canciani, S. Saxena, P. Guida, W.L. Roberts
- 1P033: Methane thermal decomposition: Numerical study of flow reactors
A. Volkov, J. Olfert, M. Secanell
- 1P034: Physical characterization of microwave plasma jet for fuel transformation
X. Zhang, M.S. Cha

Fire Research

- 1P035: The role of physical spacing of live fuel particles in influencing ignition and burning behavior
N. Gardner, D. Blunck
- 1P036: Characterizing the scaling and increased air entrainment induced by buoyancy-induced columnar vortices
G. Di Cristina Torres, R. Bryant
- 1P037: Effect of inner diameter on horizontal flame spread over electric wire in a cylindrical tube
A. Funasaki, Y. Konno, N. Hashimoto, O. Fujita
- 1P038: Minimum ignition energy of hydrogen and methane at temperatures as low as 200 K
A. Ghosh, N. Munoz-Munoz, D.A. Lacoste
- 1P039: Simulation of the December 2021 Marshall fire with a hybrid stochastic Lagrangian-cellular automata model
G. Efstathiou, S. Gkantonas, A. Giusti, E. Mastorakos
- 1P040: Pyrolysis products of live vegetative fuel
M. Andersen, K. Niemeyer, D. Blunck, C. Hagen
- 1P041: Verification and validation of 1D peat smoldering model
R. Hakes, M. Kury, R. Hadden, S. McAllister, S. Scott
- 1P042: Numerical simulation of flow field inside a chamber for partial gravity experiment of flame spread over an electric wire insulation
N. Hashimoto, Y. Konno, O. Fujita
- 1P043: Exploring the length-scale dependence of pool fire behavior through computational analysis
J. McConnell, J. Hewson, M. Hansen
- 1P044: Avoiding cascading failure in battery packs through thermal analysis
J. Hewson, A. Kurzawski, R. Shurtz, L. Torres-Castro
- 1P045: Smoldering oxygen limits of bidirectional and unidirectional propagation
Y. Qin, Y. Chen, S. Lin, X. Huang
- 1P046: Transition from the fire whirl to blue whirl
Z. Liu, Z. Chen, L. Liu, H. Xiao
- 1P047: Comparing the combined effects of ambient pressure and external heat flux on flame spread rate behavior
C. Liveretou, C. Scudiere, M. Thomsen, C. Fernandez-Pello, M. Gollner, S. Olson, P. Ferkul
- 1P048: Experimental investigations of opposed-flow flame spread regimes
D. Morrisset, R. Hadden, A. Law
- 1P049: Experimental and theoretical approaches to elucidate fuel bed ignition exposed to firebrand showers and radiant heat
S. Suzuki, S.L. Manzello
- 1P050: Experimental observations of downward flame spread over printed circuit boards: Effects of heat loss from the sample to the sample holder and edge propagation on the flammability limits
Y. Uchigaki, Y. Konno, N. Hashimoto, O. Fujita

1P051: Numerical prediction of fire resistance of BFRP reinforced concrete columns
W. Małgorzata, P. Turkowski, J. Fangrat

1P052: Smart prediction of backdraft in compartment fire with deep learning
T. Zhang, Z. Wang, X. Huang

Propulsion

1P053: H₂-air premixed swirled-stabilized combustor development
C. Caulfield, J. Kolwyck, T. Prater, P. Palies

1P054: Cyclic variations in the flame propagation in a spark-ignited engine operated using port fuel and direct injection
L. Engelmann, J. Laichter, S. Kaiser, A. Kempf

1P055: Development of a model for predicting combustion chamber defects from the exhaust jet of aircraft engines
P. Ignatidis, F. Dinkelacker

1P056: Quantifying CH₄ reduction strategies on a dual-fuel costal marine vessel
N. Jaeger, J. Rochussen, P. Kirchen

1P057: Early detection methods of combustion instability using energy of entropy, zero-crossing rate and spectral spread
J.D. Jin, J.W. Choi, M.K. Kim, J. Hwang, W.J. Lee, M.C. Lee

1P058: Investigation of cyclic variation in a spark-ignition engine with independent component analysis
J. Laichter, S.A. Kaiser

1P059: Numerical investigation of thermal loads in the injection region of liquid rocket engines
A. Remiddi, P.E. Lapenna, G. Indelicato, M. Valorani, M. Pizzarelli, F. Creta

1P060: Symmetry breaking on longitudinal instability in model annular gas turbine combustor
H. Lee, K. Lee, C.S. Yoo, J. Park, S.H. Chung

1P061: Simultaneous characterization of discharge kernel properties induced by an helicopter engine igniter
A. Matino, J. Sotton, M. Bellenoue, C. Viguiet, S. Richard

1P062: Detail analysis of experimentally verified 2D-DNS for knocking in a constant volume vessel with n-heptane fuel
Y. Morij, A. Dubey, K. Akita, H. Nakamura, K. Maruta

1P063: Computational studies on combustion models and flame speeds towards predictive pre-chamber engine modeling
M. Silva, G. Alkhamis, E. Cenker, H.G. Im

1P064: Combustion of iron particles in laminate solid propellants at elevated pressure
J.C. Thomas, G.D. Lukasik, F.A. Rodriguez, W.D. Kulatilaka, E.L. Petersen

1P065: An internal combustion engine without a crankshaft. Perspectives
S. Tikhonenkov

1P066: Withdrawn

1P067: Electrospray ionization tandem mass spectrometry and molecular dynamics simulations of hydroxylammonium nitrate
G. Vaghjiani, W. Zhou, J. Liu, S. Chambreau

1P068: Experimental investigation and computational prediction of knock intensity in an optical SI engine
J. Zhang, H. Shi, M.B. Luong, Q. Tang, K. Uddeen, G. Magnotti, J. Turner, H. Im

Low Emission Combustion Technologies

1P069: Thermo-acoustic instability behavior of lean-premixed low-swirl combustor
J. Ahn, K. Lee

1P070: Heavy fuel oils characterization and surrogate formulation for gasification process
M. Alabbad, S.M. Sarathy

1P071: Ammonia/hydrogen blends in MILD Combustion
G.B. Ariemma, G. Sorrentino, P. Sabia, R. Ragucci, M. de Joannon

1P072: MILD combustion monitoring by means of optical sensing
G.B. Ariemma, G. Sorrentino, P. Sabia, R. Ragucci, M. de Joannon

1P073: Predictive combustion modeling of HPDI natural gas engine for Class-8 commercial vehicle application
N. Balazadeh Meresht, S. Munshi, M. Shahbakhti, G. McTaggart-Cowan

1P074: Effect of external injection of deionized water and water with impurities on water-assisted flares
O. Bello, E. Abbasi-Atibeh, L. Kostiuik, J.S. Olfert

1P075: Combustion of ammonia and biodiesel in a compression ignition engine by direct injection
K.O.P. Bjørgen, D.E. Emberson, T. Løvås

1P076: Experimental investigation of combustion dynamics in an axial-fuel-staged lean-premixed combustor
Y. Choi, K.T. Kim

1P077: Concurrent techno-economic and life cycle assessment of bio-derived dibutoxymethane
G.M. Cole, S. Lucas, A. Zdanowicz, B. Windom, J.C. Quinn

1P078: Experimental investigation of heavy fuel oil pyrolysis, from fuel structure to gas released
E. Colleoni, P. Guida, S. Saxena, W. Roberts

1P079: Using chamber humidity measurements to correct pollutant concentrations in high dilution applications
W. Culler

1P080: Hydrogen LEAF combustor: Emissions performance and flame dynamics
P.M. de Oliveira, S. Gkantonas, E. Mastorakos

1P081: Multiple high-speed optical diagnostics on a heavy-duty engine with novel piston design
S. Derafshzan

1P082: Phenomenological combustion modelling for a hydrogen-diesel dual fuel engine
R. Farzam, P. Steiche, G. McTaggart-Cowan

1P083: Impact of methane and hydrogen-enriched methane pilot injection on the surface temperature of the CECOST burner nozzle measured using phosphor thermometry
H. Feuk, F. Pignatelli, R. Bi, A. Subash, M. Richter, R.-Z. Szász, X.-S. Bai, D. Lörstad

1P084: Experimental study on flame-flow dynamics and dominant frequency shift for lean-premixed low-swirl blended H₂/CH₄ flames during combustion instability
R. Fujii, Y. Nakazumi, T. Shoji, J. Masugi, S. Tachibana, T. Yokomori, T. Tomidokoro

- 1P085: Overcoming the restrictions of traditional emission correction factors when applied to novel energy carriers
N. Garan, N. Djordjevic
- 1P086: Development and demonstration of a low emission ammonia premixed swirl burner
C.F. Goertemiller, S.P. Kane, D.E. Thomas, W.F. Northrop
- 1P087: Withdrawn
- 1P088: Predictions of emission and flammability limit of MILD combustion of ammonia and syngas
N. Guo, Z. Ren, M.T. Lewandowski, C. Netzer
- 1P089: Automatic control retrofit of residential cord wood stove using multivariate techniques
D. Bennett, N. MacCarty, C. Hagen
- 1P090: Modeling and optimization of a stationary generator system to meet combined electrical and thermal energy needs using blends of hydrogen and methane fuels
K. Haghighi, S.R. Safavi, C. Copeland, G. McTaggart-Cowan
- 1P091: Combustion dynamics of fuel-staged lean-premixed H₂/CH₄/air flames in a model gas turbine combustor
U. Jin, K.T. Kim
- 1P092: Combustion and emissions study of Hydrothermal Liquefaction (HTL) biofuel in optical engine
S. Khare, K.O.P. Bjørgen, D.R. Emberson, K. Kohansal, T. Løvås, T.H. Pedersen, L. Rosendahl
- 1P093: Experimental investigation of temperature structure and pollutant emissions of landfill/ammonia mixtures under non-preheated MILD combustion regime
M. Kiani, M. Kohansal, S. Masoumi, A. Afzalnia, M.J. Inanlu, M. Ashjaee, E. Houshfar
- 1P094: Studies on the combustion characteristics of ammonia-hydrogen/air premixed flames in a swirl model combustor
J.H. Kim, J.W. Ku, J.H. Song, O.C. Kwon
- 1P095: Process simulation evaluation of the effect of ammonia co-firing on the supercritical pulverized coal boiler and circulating fluidized boiler for the reduction of greenhouse gas
S. Kim, J. Lee, T. Chae, Y. Lee, W. Yang, S. Kim
- 1P096: Near zero NO_x burner using internal and external flue gas recirculation technology
S. Kim, M. Kwon
- 1P097: Comprehensive knowledge-driven AI system for NO_x and SO₂ emissions in iG-CLC, CLOU, oxy-fuel and air-firing advanced combustion conditions for combined heating, cooling, and drinking water production
J. Krzywanski, T. Czakiert, A. Zylka, W. Nowak, W.M. Ashraf, M. Sosnowski, K. Grabowska, D. Skrobek, K. Sztekler, A. Kulakowska, Y. Gao
- 1P098: Combustion characteristics of premixed ammonia flames in a high-swirl tangential injection burner
T. Lee, M.-J. Lee, H. Lee, N. Kim, Y.T. Guahk
- 1P099: Relation between MILD combustion and LTC strategies in diluted compression ignition conditions
M.T. Lewandowski, Z. Xue, C. Netzer, D.R. Emberson, T. Løvås
- 1P100: Thermal destruction of Perfluorinated Alkyl Substances (PFAS) in a pilot-scale combustor
J. Krug, W. Roberson, P. Lemieux, C.-H. Lee, J. Ryan, P. Kariher, E. Shields, S. Jackson, W. Linak, L. Wickersham, P. Burnette, J. Nash, L. Virtaranta, W. Preston, M. Denison, K. Davis, D. Swensen, J. Wendt
- 1P101: Compression ignition engine performance of butyl- and propyl-terminated oxymethylene ethers
A. Zdanowicz, S. Lucas, B. Windom

- 1P102: Lewis number effects in lean premixed H₂-air and CH₄-air flames under combustion instability in a low-swirl combustor
J. Masugi, T. Shoji, Y. Nakazumi, R. Fujii, T. Tomidokoro, S. Tachibana, T. Yokomori
- 1P103: Elucidating the effect of pressure on the low-temperature reaction pathways of 4-butoxyheptane — A novel bioblendstock for diesel fuel
N. Naser, T. Chatterjee, G. Kukkadapu, G. Fioroni, J. Cho, Y. Kim, S. Kim, S. Cooper, E. Petersen, W. Pitz, R. McCormick
- 1P104: Characteristic study of micro-mixer type hydrogen-air combustor nozzle performance
K. Min, M.-K. Kim, H.-S. Kim, J.-H. Cho, J. Hwang, D.W. Kang, W.J. Lee, Y.H Chung, H.-J. Ju
- 1P105: Can-annular thermoacoustic instabilities in a network of ring-coupled lean-premixed combustors
K. Moon, K.T. Kim
- 1P106: Ammonia combustion in engine: Impact of engine design
C. Mounaïm-Rousselle, P. Brequigny
- 1P107: Experimental study of the role of intermediate-temperature heat release on octane sensitivity
J. Peterson, A. Mohammed, I. Gorbatenko, E. Singh, S.M. Sarathy
- 1P108: Investigation of mixing mechanisms to enable premixed hydrogen combustion
T. Prater, C. Caulfield, G. Xiao, P. Palies
- 1P109: MID-IR laser absorption spectroscopy of 1-propanol and 2-propanol in a shock tube facility
L. Sane
- 1P110: The impact of oxygenated and aromatic gasoline components on the formation of engine-out aldehyde emissions
V. Shankar, F. Leach
- 1P111: Structure of non-premixed hydrogen-oxygen impinged jet flame
H. Shehab, Y. Fan, N. Iki, O. Kurata, T. Tsujimura, H. Furutani
- 1P112: Flame transfer function of a swirl ammonia-air premixed flame
N. Shohdy, A. Katoch, D.A. Lacoste
- 1P113: Impact of fuel properties on the combustion of late post injections used for aftertreatment thermal management
S. Subramanian, D. Rothamer
- 1P114: Nitriding effects of ammonia flames on iron-based metal walls
D. Wang, M. Lee, Y. Suzuki
- 1P115: A scalable hydrogen burner with low NO_x emissions
N. Schmidt, M. Müller, S. Will, L. Zigan
- 1P116: Flame stability limits for premixed iso-propanol/air and n-propanol/air flames as potential eFuels for clean LPP aviation combustion
P. Zimmermann, F. Dinkelacker
- 1P117: Fundamental studies on hydrogen-oxygen burner concept at different equivalence ratios
N. Petry, A. Holger, N. Mutalik, A. Fiolitakis, O. Lammel, F. Cornak, T. Burgard

TUESDAY Work-In-Progress Posters

Diagnostics

- 2P001: Optical diagnostics of knocking combustion by using OH* high speed imaging: A novel multiple ignition site approach
K. Uddeen, Q. Tang, H. Shi, G. Magnotti, J. Turner
- 2P002: TDLAS measurement for low pressure and high temperature gas phase study of NH₃ and CO
S. Agarwal, J. Shaoye, Z. Qu, B. Shu, R. Fernandes
- 2P003: Accurate flame thermometry using nonlinear mid-infrared spectroscopy
Z. Song, X. Chao, A.-L. Sahlberg
- 2P004: Optical engine characterization of reference and biofuels
I. Becker, P. Kirchen
- 2P005: N₂ CARS coherence decay-based detection of water vapor in flames dominated by N₂-H₂O (binary) or N₂-H₂O & N₂-CO₂ (ternary) collisions
L. Castellanos, F. Mazza, A. Bohlin
- 2P006: Combined Digital In-line Holography (DIH) and Particle Image Velocimetry (PIV) for combustible dust cloud dispersion diagnostics prior to ignition
C. Schweizer, C.V. Mashuga, W.D. Kulatilaka
- 2P007: Temperature dependend Raman cross sections of gaseous hydrocarbons
K. Dieter, K. Koschnick, J. Lill, A. Dreizler, D. Geyer
- 2P008: Experimental and numerical investigation on the accuracy of phosphor particle streak velocimetry
L. Fan, P. Vena, B. Savard, B. Fond
- 2P009: Multispectral infrared imaging as a diagnostic for quantitative analysis of combustion gas concentration and temperature
B. Saute, J.-P. Gagnon
- 2P010: Differential diffusion effects in the near field of non-premixed NH₃-H₂-N₂ jet flames at elevated pressure
H. Tang, C. Yang, G. Wang, Y. Krishna, T. Guiberti, W. Roberts, G. Magnotti
- 2P011: Simultaneous detection of NO, O, OH, and O₂ in atmospheric flames using a broadband femtosecond laser
M. Hay, P. Parajuli, K. Waruna
- 2P012: Various schemes for EFISH measurement in flames
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K. Koschnick, J. Lill, K. Dieter, A. Dreizler, D. Geyer
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G. Li, M. Lee, Y. Suzuki
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G. Liu, J. Menser, T. Dreier, T. Endres, K. Daun, C. Schulz
- 2P016: Towards the application of ultrabroadband pure-rotational H₂ coherent Raman spectroscopy in high pressure combustion chambers
F. Mazza, L. Castellanos, A. Bohlin

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M. Mhanna, M. Sy, A. Elkhazraji, A. Farooq
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Y. Mizuno, H. Kondo, T. Kudo, A. Hayakawa
- 2P019: Prediction temperature field in turbulent sooting flames based on two-dimensional soot volume fraction and OH distributions using a CNN network
X. Nie, Z. Sun, W. Zhang, G. Nathan, P. Medwell, X. Dong
- 2P020: Reconstruct temperature field in turbulent sooting flames based on two-dimensional soot volume fraction and OH distributions using a CNN network
X. Nie, W. Zhang, X. Dong, G. Nathan, P. Medwell, Z. Sun
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S. Nilsson, H. Feuk, M. Richter
- 2P022: Development of a machine vision driven sensor for fuel feeding rate estimations for combustion and gasification processes
Y. Ögren, A. Sepman, E. Fooladgar, F. Weiland, H. Wiinikka
- 2P023: Two-photon LIF imaging of atomic hydrogen in high-pressure flames using femtosecond pulses
P. Parajuli, Y. Wang, M. Hay, V.R. Katta, W.D. Kulatilaka
- 2P024: Simultaneous H-atom imaging and Kr thermometry using a single, broadband femtosecond laser source
P. Parajuli, M. Hay, W.D. Kulatilaka
- 2P025: 1-kHz femtosecond OH-PLIF imaging in high-pressure flames
Y. Wang, P. Parajuli, W. Swain, R. Katta, D. Kulatilaka
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Y. Ren, H. Pitsch, F. Cameron
- 2P027: High-speed, broadband mid-infrared dual-comb spectrometer based on mode-locked fiber combs for combustion studies
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- 2P029: Improvements for tomographic 3D reconstructions of flame fields in optically access limited applications and in-situ high speed 2D flame imaging in a multi-fuel sterling engine
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- 2P030: High-speed flame kernel imaging diagnostics during combustible dust cloud ignition
C. Schweizer, C.V. Mashuga, W.D. Kulatilaka
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J. Sinrud, R. Walker, F. Goldsmith, C. Fuller, R. Schwind
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A. Desclaux, M. Idir, A. Comandini, A. Bleyer, A. Bentaib, N. Chaumeix
- 2P043: Analysis of turbulence-chemistry interaction of lean premixed hydrogen-air flames at elevated pressure: A DNS study
W. Song, F.E. Hernandez-Perez, H.G. Im
- 2P044: Local displacement speed and local consumption speed of circular fractal turbulence generator in V-shape flame
J. Kim, M. Kang, M. Juddoo, A.R. Masri, K. Lee, C. Yoo, Z. Li
- 2P045: Analysis of turbulent flame characteristics in hybrid fractal grid by the number of geometry iteration
J. Kim, K. Lee
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K. Kim, Y.J. Kim, A. Aspden, D.-H. Shin
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Y. Yuvraj, Y. Naderzadeh, W. Song, H.G. Im, S. Chaudhuri
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M. Nozari, B. Savard, L. Fan, P. Vena, M. Day, L. Esclapez
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L. Mojtaba, P. Haghighi Tajvar, M.M. Salehi

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H. Tummalapalli, E. Hawkes, A. Wehrfritz
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M. Vabre, B. Savard, S. Jella, P. Versailles, G. Bourque, M. Day
- 2P054: Distributed turbulent premixed combustion: Radical and reaction zone behaviors
K. VanderKam, M.E. Mueller
- 2P055: General correlations of turbulent flame speed of NH₃/CH₄/H₂/air-mixtures subjected to intrinsic flame instabilities
S. Wang, A. Elbaz, G. Wang, W. Roberts, Z. Wang
- 2P056: Global instability in a hydrogen jet flame
A. Wawrzak, K. Wawrzak, A. Boguslawski, A. Tyliczszak
- 2P057: Direct numerical simulation of nonpremixed ignition at gasoline compression-ignition engine conditions
Z. Li, A. Wehrfritz, E. Hawkes

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J. Schihl, A. Gandomkar, A. Skiba, C. Carter, P. Allison
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S. Colson, H. Yamashita, T. Kudo, A. Hayakawa, H. Kobayashi
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J.W. Gärtner, A. Kronenburg, A. Rees, M. Oswald
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S. Mosadegh, S. Kheirkhah
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- 2P066: Experimental investigation of the impact of water spray injection on premixed hydrogen/air flames in upward and downward propagation conditions
H. Quintens, R. Caruso, A. Comandini, A. Bentaib, N. Chaumeix
- 2P067: Study of the effects of spray shape on flame stability limits of liquid ammonia spray combustion
H. Yamashita, K. Oku, S. Colson, K.D.K.A. Somarathne, E.C. Okafor, O. Kurata, T. Tsujimura, S. Ito, M. Uchida, T. Kudo, A. Hayakawa, H. Kobayashi
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A.A. Almaleki, P. Hellier, M. Talibi, N. Ladommatos
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A. Baumgart, G. Blanquart
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- 2P072: Ignition behind decaying shock waves: Application to cellular detonations
K. Cheevers, M. Radulescu
- 2P073: Stereo visualization of reflected shock wave induced detonation initiation
V. Yousefi Asli Mozhdhehe, G. Ciccarelli
- 2P074: Effects of non-thermal reactivity on wedge-induced oblique detonation waves
S. Desai, Y. Tao, R. Sivaramakrishnan, J. Chen
- 2P075: Comparison of a methane-oxygen rotating detonation engine with two inlet configurations using ILES
S. Galindo-Lopez, M.J. Cleary, B. Thornber, A. Pudsey
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L. Kagan, P. Gordon, G. Sivashinsky
- 2P077: A new method to derive three-step mechanisms for detonation applications
A. Millán-Merino, S. Taileb, F. Veiga-López, J. Melguizo-Gavilanes, P. Boivin
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K. Norimatsu, S. Nishiura, Y. Wakita, T. Kudo, A. Hayakawa, H. Kobayashi
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A. Roque, S. Nagaraju, S. Abid, A. Comandini, N. Chaumeix
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L. Ruwe, T. Heidermann, M. Kreißig, H. Kant, D. Schmidt, F. Gutte, D. Bartsch, P. Bosse, A. Lucassen
- 2P082: Validation of a reactive solver based on OpenFOAM 2012 for detonation modeling
V. Sankar, K.P. Chatelain, J. Melguizo-Gavilanes, D.A. Lacoste
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H. Yang, W. Rakotoarison, A. Sow, Z. Liang, M. Radulescu
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R. Zhu, X. Fang, M. Zhao, Z. Huang, H. Zhang, M. Davy

Laminar Flames

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- 2P086: Investigating the stability limits of premixed syngas combustion in micro channels
A. Kutkut, V. Akkerman, M. Baumgardner, M. Ayoobi
- 2P087: Measurements of laminar burning velocity of C7-C9 arenes and anisole
N. Delort, O. Herbinet, R. Bounaceur, F. Battin-Leclerc
- 2P088: Two-dimensional quantitative flame diagnostics of propane/CO₂ flames in a linear Hencken burner: soot, temperature, and OH*/CH* chemiluminescence
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- 2P089: The effect of sodium chloride on charge state of soot particles small laminar diffusion flame
O. Bello, M. Kazemianesh, L. Kostiuik, J.S. Olfert
- 2P090: An experimental and modeling study on the laminar burning velocity of pyrrole/air mixtures
J. Chen, M. Lubrano Lavadera, A.A. Konnov
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Y.-C. Chien, D.P. Stocker, U. Hegde, D. Dunn-Rankin
- 2P092: Numerical simulation of water-vapor addition into a laminar diffusion methane/air flame at elevated pressures using PeleLM
B. Esquivias Rodriguez, H. Girodon, Y.-C. Chien
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S. Cho, E. Jin, K. Lee
- 2P094: Soot production in high pressure inverse diffusion flames with enriched oxygen in the oxidizer stream
P. Liu, C. Chu, I. Alsheikh, S. Gubba, S. Saxena, O. Chatakonda, J. Kloosterman, F. Liu, W. Roberts
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F. Creta, P.E. Lapenna, F. D'Alessio
- 2P096: An experimental and modeling study on extinction strain rate and laminar burning velocity in C₂H_x flames
S. Eckart, C. Yu, S. Lin, B. Yang, U. Maas, H. Krause
- 2P097: Combined experimental and numerical study on the extinction limits of non-premixed H₂/CH₄ counterflow flames with varying oxidizer composition
S. Eckart, A. Scholtissek, F.R. Zijje, C. Hasse, H. Krause
- 2P098: Numerical study on the effect of initial ignition condition on flame propagation of Dimethyl Ether (DME)/air mixture
A. Hashimoto, K. Akita, Y. Morii, K. Maruta
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Y. Jeon, H.T. Nam, M.Y. Kim, S. Lee, H. Jung
- 2P100: Flame-acoustics interaction for flames propagating in a narrow duct: Effects of heat losses and the Lewis number
C. Jiménez, V.N. Kurdyumov
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M. Meulemans, A. Durocher, G. Bourque, J.M. Bergthorson
- 2P106: Numerical simulations of the laminar burning velocity of hydrogen-air, methane-air, ethane-air, ethylene-air, and propane-air flames at low temperatures
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D. Nakao, Y. Hirano, T. Tezuka, Y. Morii, H. Nakamura, K. Maruta
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S.H. Park, M.S. Cha
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R. Pelé, G. Dayma, C. Mounaim-Rousselle, P. Brequigny, F. Halter
- 2P114: Numerical analysis of flame behavior initiated from flame ball in weakly-stretched counterflow field
K. Sagawa, T. Akiba, A. Tsunoda, Y. Morii, H. Nakamura, K. Maruta
- 2P115: Effects of a DC electric field on laminar CH₄/air diffusion flames
W. Badat, B. Sarh, V. Gilard, A. Elorf, T. Boushaki
- 2P116: Study of hydrodynamic instabilities in laminar diffusion flames at elevated pressure
R. Serrano-Bayona, I. Alsheikh, P. Liu, W.L. Roberts
- 2P117: Cellular structures of laminar lean premixed H₂/CH₄/air polyhedral flames
S. Shi, J. Trabold, A. Breicher, S. Hartl, R.S. Barlow, A. Dreizler, D. Geyer
- 2P118: Study of flammability domain of H₂/CO mixtures at conditions representative of the late phase of a severe accident in a PWR
L. Vastier, S. Nagaraju, A. Desclaux, A. Comandini, A. Bentaib, N. Chaumeix
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- 3P002: The role of interaction reactions in ignition of ammonia/n-heptane mixtures
V.A. Alekseev, E.J.K. Nilsson
- 3P003: Effect of exhaust gas recirculation and nitric oxide on the autoignition of oxygenated gasoline
K. Aljohani, M.A. Abd El-Sabor, H. Luc, H. Curran, A. Farooq
- 3P004: H₂S and CH₄-H₂S oxidation: An experimental and modeling study
S. Arunthanayothin, A. Stagni, O. Herbinet, T. Faravelli, F. Battin-Leclerc
- 3P005: An upgraded chemical kinetic mechanism for iso-octane oxidation with focus on PAHs prediction
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- 3P006: Experimental and modeling study of acetone combustion
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- 3P007: Experimental and modeling study of ozone-assisted oxidation of ethylene in a jet-stirred reactor
C. Smith Lewin, O. Herbinet, F. Battin-Leclerc, J. Bourgalais
- 3P008: Withdrawn
- 3P009: An experimental and modeling study on the ignition of three butyl nitrites isomers in an RCM
Z. Chu, Z. Liu, W. Liao, Y. Wang, C.K. Law, B. Yang
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F. Citrangolo Destro, R. Fournet, V. Warth, P.-A. Glaude, B. Sirjean
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- 3P012: Automated determination of fully representative mechanism stereochemistry
S.N. Elliott, K.B. Moore III, A.V. Copan, C.R. Mulvihill, L. Pratali Maffei, S.J. Klippenstein
- 3P013: Systematically derived thermodynamic properties for alkane oxidation
S.N. Elliott, M. Keceli, K.B. Moore III, A.V. Copan, Y. Georgievskii, K.P. Somers, M.K. Ghosh, H.J. Curran, S.J. Klippenstein
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E. Guzman, R. Schwind, C. Almodovar, F. Goldsmith
- 3P015: Study on rate constant of N₂O consumption using a micro flow reactor with a controlled temperature profile
T. Harada, Y. Murakami, K. Tamaoki, K. Kanayama, H. Nakamura
- 3P016: An experimental and modeling work on the oxidation of ammonia-based fuel blends at intermediate temperatures and atmospheric pressure
X. He, K. Moshhammer

- 3P017: Shock-tube study of the ignition and product formation of fuel-rich CH₄/ozone/air and natural gas/ozone/air mixtures at high pressure
J. Herzler, C. Schulz, M. Fikri
- 3P018: C7 reaction mechanism and its self-imitation in the kinetic modeling of PAH formation
H. Jin, A. Farooq
- 3P019: Numerical simulation study of shock wave reactor for hydrocarbon cracking
J. Liu, B. Xiao, S. Yang, G. Wang
- 3P020: Theoretical calculations for decomposition of gas-phase ethylene carbonate and species measurements for pyrolysis of ethylene carbonate doped with dimethyl carbonate
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- 3P021: Machine learned compact kinetic models Using a compute intensification algorithm
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- 3P023: The role of ammonia as strong collider in third-body reactions of H₂/O₂ oxidation
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- 3P024: Characterization of dynamic behaviors for NH₃-H₂ oxidation
M.V. Manna, P. Sabia, T. Viola, R. Ragucci, M. de Joannon
- 3P025: Experimental study of the low-temperature oxidation of the three isomers of xylene in a jet-stirred reactor
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A. Mohanan, S. Bang, R. Snoeckx, M.S. Cha
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- 3P029: Mechanism reduction-assisted kinetic parameter optimization for the n-pentanol chemistry of the NUIGMech multifuel combustion mechanism
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- 3P030: Computations of a micro flow reactor with a controlled temperature profile using Cantera
H. Nakamura, Y. Morii, K. Maruta
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- 3P032: Iterative workflow for quantification and minimization of reduced chemistry-induced uncertainties in reacting flow simulation
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- 3P034: Reduced gas-phase chemistry for methane pyrolysis
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- 3P040: The effects of nitrogen dioxide and exhaust gas composition on propane autoignition and flame speed in a rapid compression machine
C. Slunicka, A. Zdanowicz, B. Windom, D. Olsen, A. Marchese
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J. Subburaj, T.A. Kashif, A. Farooq
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K. Tamaoki, Y. Murakami, K. Kanayama, T. Tezuka, H. Nakamura
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G.Y. Su, D.X. Tian, Z.H. Jin, Z.H. Zheng, X.P. Yu, K.R. Jin, M. Braun-Unkhoff, Z.Y. Tian
- 3P047: A detailed kinetic study of ethylene oxidation at elevated pressure
J.Y. Jia, M. Wen, X.P. Yu, G.Y. Su, Z.H. Jin, Z.H. Zheng, Y.Z. Yao, Z.Y. Tian
- 3P048: Oxidation of norbornadiene: Initial consumption and oxygenated intermediates
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- 3P049: Oxidation study of iso-propylamine with SVUV-photoionization molecular-beam mass spectrometry
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- 3P050: Oxidation study of CH₄ in a jet-stirred reactor at 12 atm
M. Wen, J.Y. Jia, X.P. Yu, G.Y. Su, Z.H. Jin, Z.H. Zheng, Y.Z. Yao, Z.Y. Tian
- 3P051: Comparison of methane combustion mechanisms based on large amount of species concentration measurements
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- 3P054: Foundational fuel chemistry model version 2.0
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- 3P055: Explore the low-temperature chemistry of alkanes during the first stage ignition in shock tube: Multi-species time-history measurements and kinetic modeling
J. Zou, M. Adil, A. Elkhazraji, M. Sy, M. Mhanna, A. Farooq
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A.G. Szanthoffer, I.G. Zsély, L. Kawka, M. Papp, T. Turányi
- 3P057: Testing reaction mechanisms for the combustion of acetone using a large amount of experimental data
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J. Hameete, T. Homan, N. Dam, P. de Goey
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- 3P063: Laminar burning velocity of hybrid methane-iron-air flames
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J. Jean-Philippe, X. Mi, A. Fujinawa, J.M. Bergthorson
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Y. Lei, Y. Niu, W. Ma
- 3P067: Preparation and combustion characteristics of solid fuel hydrochar over hydrothermal carbonization of Red Jujube branch
Z. Li, W. Yi, Z. Li, C. Tian, P. Fu, Y. Zhang, L. Zhou, J. Teng
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- 3P070: A five-stage combustion model for single micron-sized iron particles
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- 3P071: Experimental study on characteristics of combustion for bench-scale furnace according to flexible operation
L. Jaewook, C. Taeyoung, Y. Won, K. Hyungeun, K. Sewon
- 3P072: Oxy-waste combustion of municipal solid waste on the moving grate boiler
P. Wienchol, A. Szlęk, M. Ditaranto
- 3P073: Characterization of single aluminum particle combustion using high speed imaging
Z. Wu, M. Stiti, A.A. Subash, A. Roth, E. Berrocal, M. Aldén, Z. Li

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- 3P075: Prediction of mass yield, morphology and composition of soot particles generated by pyrolysis of methane
M. Adib, M.R. Kholghy
- 3P076: Synthesis of magnetic nanoparticles using diesel engine fueled with ferrocene-diesel blend and its application to dye removal
A. Anagri, S. Nishida, S. Mori
- 3P077: Mapping soot band gap fields via hyperspectral absorption tomography
F.J. Bauer, P.A.B. Braeuer, M.W.R. Wilke, S.J. Grauer, S. Will
- 3P078: Laser-Induced Incandescence (LII) for studying soot maturity using fluence curve analysis
P.-E. Bengtsson, S. Török, S. Bergqvist, M. Mannazhi, K.C. Le
- 3P079: Laser-Induced Fluorescence (LIF) for studying the influence of K- and Na salts on PAH concentration during soot formation
S. Bergqvist, M. Mannazhi, K.C. Le, P.-E. Bengtsson
- 3P080: Numerical study on the temperature dependence of soot formation within acetylene pyrolysis with various additives
H. Böhm, M. Braun-Unkhoff, M. Fikri
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M. Litten, R. Demarco, F. Escudero, I. Verdugo, J.J. Cruz, N. Gutiérrez-Cáceres, D. Chen, X. He, K. Wang, A. Fuentes
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L. Di Liddo, F. Cepeda, J. Saldinger, P. Elvati, A. Violi, S. Dworkin
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- 3P086: Experimental characterization of the chemical composition and structure of molecular soot precursors and soot particles in a laminar diffusion flame by coupling ToF-SIMS and Raman spectroscopy
J. Elias, A. Faccinetto, C. Irimiea, N. Nuns, C. Pirim, C. Focsa, X. Mercier
- 3P087: Binary diffusion coefficients of planar molecules: A gas kinetic theory and molecular dynamics study
A. Jayaraman, N. Kateris, C. Liu, H. Wang
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Y. Karakaya, M. Gonchikzhapov, T. Kasper
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A. Khanehzar, M. Jadidi, L. Zimmer, S. Dworkin
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H. Rahbar, E. Goudeli, M.R. Kholghy
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P. Johnson, B. Kumfer
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P. Lang, M. Lang, F.J.T. Huber, S. Aßmann, S. Will
- 3P093: Numerical investigation of laminar methane flames doped with iron(III) nitrate/1-butanol aerosol in a novel matrix burner
M. Nanjiah, P. Wollny, P. Narasu, S. Apazeller, H. Wiggers, C. Schulz, E. Gutheil, A. Kempf, I. Wlokas
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L. Pascazio, A. Menon, F. Farazi, S. Mosbach, J. Akroyd, M. Kraft, D. Nurkowski
- 3P095: Fate of early formed iron oxide nanoparticles in iron-doped-flames
M. Lalanne, P. Wollny, M. Nanajiah, J. Menser, H. Wiggers, C. Schulz, S. Cheskis, I. Wlokas, I. Rahinov
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U. Trivanovic, M. Pereira Martins, G. Kelesidis, S. Pratsinis
- 3P101: Isolated soot nanoparticles acting as an efficient source of singlet oxygen: Effect of molecular aggregation and its energetic structure
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3P103: Very low soot production in nonpremixed dimethoxymethane flames

J. Zhu, A. Gelner, C. McEnally, L. Pfefferle

3P104: Phenols have low sooting tendencies compared to analogous aromatic hydrocarbons

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