



1ST
**INTERNATIONAL
CONFERENCE ON SMART
ENERGY CARRIERS**

21–23 JANUARY 2019
NAPOLI, ITALY

www.smartcats.eu



DI
C
Ma
PI

PROGRAM

Monday 21 st - Session I: Oxygenated Fuels		
10:30 - 10:45	High Pressure Oxidation of Alternative Fuels for Diesel Engines	I-1
	H. Hashemi, J. M. Munkholdt, P. Glarborg	
	DTU Chemical Engineering, Technical University of Denmark, Lyngby, Denmark	
10:45 - 11:00	Impact of the Blending of n-Butanol on the Low and Intermediate Temperature Heat Release of a Gasoline Surrogate	I-2
	A.S. Tomlin ¹ , I. Gorbatenko ^{1,2,3} , C. Michelbach ^{1,4}	
	1. School of Chemical and Process Engineering, University of Leeds, UK 2. School of Mechanical Engineering, University of Leeds, UK, 3. EPSRC CDT in Fluid Dynamics, University of Leeds, UK 4. EPSRC CDT in Bioenergy, University of Leeds, UK	
11:00 - 11:15	Measurements of Laminar Burning Velocities and NO Concentration in Neat and Blended Ethanol and n-Heptane Flames	I-3
	M. Lubrano Lavadera, C. Brackmann, G. Capriolo, T. Methling, A.A. Konnov	
	Division of Combustion Physics, Lund University, Sweden	
11:15 - 11:30	The Pyrolysis of Resorcinol: Search for Direct CO₂ Pathways	I-4
	H.-H. Carstensen ^{1,2} , D.C. Vargas ² , D.A. Streitwieser ³ , K.M. Van Geem ² , G.B. Marin ² , M.U. Alzueta ⁴	
	1. Fundación Agencia Aragonesa para la Investigación y Desarrollo (ARAID), Zaragoza, Spain 2. Laboratory of Chemical Technology, Ghent University, Belgium 3. Departamento de Ingeniería Química, Universidad San Francisco de Quito, Ecuador 4. Department of Chemical and Environmental Engineering, University of Zaragoza, Spain	
11:30 - 11:45	Insights on the Effect of Ethanol on the Formation of Aromatics	I-5
	Qi Wang ¹ , A. Violi ^{1,2}	
	1. Department of Mechanical Engineering, University of Michigan, Ann Arbor, USA 2. Departments of Chemical Engineering, University of Michigan, Ann Arbor USA	
11:45 - 12:00	Experimental and Modeling Study of the Oxidation of Benzaldehyde	I-6
	S. Namysl ¹ , M. Pelucchi ² , O. Herbinet ¹ , A. Stagni ² , T. Faravelli ² , F. Battin-Leclerc ¹	
	1. Laboratoire Réactions et Génie des Procédés - CNRS, Nancy, France 2. Dipartimento Chimica, Materiali, Ingegneria Chimica, Politecnico di Milano, Italy	
12:00 - 12:15	NO_x Formation in Low-pressure Flames of Oxygenated Cyclic Ether Compounds	I-7
	N. Lamoureux, L. Giarracca, L. Gasnot, P. Desgroux	
	lab. PC2A, Université de Lille, UMR8522/CNRS, France	
12:15 - 12:30	Combined Molecular Beam and Theoretical Studies on the Oxidation of Unsaturated Aliphatic and Aromatic Hydrocarbons: Primary Products and Branching Ratios	I-8
	P. Casavecchia ¹ , A. Caracciolo ¹ , P. Recio Ibañez ¹ , N. Balucani ¹ , C. Cavallotti ²	
	1. Dipartimento di Chimica, Biologia e Biotecnologie, Università di Perugia, Italy. 2. Politecnico di Milano, Dipartimento Chimica, Materiali, Ingegneria Chimica, Italy	
12:30 - 12:45	Automatic Mechanism Generation for Auto-ignition of the Promising e-Fuels Oxymethylene Ethers (OMEn, n = 2-4)	I-9
	L. Cai ¹ , S. Jacob ² , F. vom Lehn ¹ , R. Langer ¹ , K.A. Heufer ² , H. Pitsch ¹	
	1. Institute for Combustion Technology, RWTH Aachen University, Germany 2. Physico-Chemical Fundamentals of Combustion, RWTH Aachen University, Germany	

Monday 21st - Session II: New and Smarter Processes and Technologies

14:30 - 14:45	Innovative Approach for Improved Modelling Accuracy in Case of 3D CFD Sewage Sludge Combustion Simulations	II-1
	A. Žnidarčič, T. Seljak, T. Katrašnik	
	LICeM Laboratory, Department of Energy Engineering, Faculty of Mechanical Engineering, University of Ljubljana, Slovenia	
14:45 - 15:00	Fluidized Bed Sorption-enhanced Methanation by CaO	II-2
	A. Coppola ¹ , F. Massa ¹ , P. Salatino ^{1,2} , F. Scala ^{1,2}	
	1. Dipartimento di Ingegneria Chimica, Materiali e Produzione industriale, Università Federico II Napoli, Italy 2. Istituto di Ricerche sulla Combustione - C.N.R., Napoli, Italy	
15:00 - 15:15	Experimental Investigation of Lean Premixed Combustion with Exhaust Gas Recirculation in a Swirl-Stabilized Turbine Burner	II-3
	S. Giorgetti ^{1,2} , W. De Paepe ² , L. Briceux ² , F. Contino ³ , J. Klingmann ⁴ , A. Parente ¹	
	1. Université Libre de Bruxelles (ULB), Belgium 2. Université de Mons, Belgium 3. Vrije Universiteit Brussel (VUB), Belgium 4. Lund University, Sweden	
15:15 - 15:30	Turbulence-chemistry Interaction Modelling with Extended Eddy Dissipation Concept and Partially Stirred Reactor in MILD Combustion Regime	II-4
	M.T. Lewandowski ¹ , Z. Li ² , A. Parente ² , J. Pozorski ¹	
	1. Institute of Fluid Flow Machinery, Polish Academy of Sciences, Gdańsk, Poland 2. Aero-Thermo-Mechanics Laboratory, Université Libre de Bruxelles, Belgium	
15:30 - 15:45	Alternative Storage of Hydrogen: Robust Design Optimization of A Standalone Wind-powered Ammonia Plant	II-5
	K. Verleysen ¹ , D. Coppitters ¹ , A. Parente ² , W. De Paepe ³ , F. Contino ¹	
	1. Vrije Universiteit Brussel, Belgium 2. Université Libre de Bruxelles, Belgium 3. Université de Mons, Belgium	

Tuesday 22nd - Session III/1: Non-carbon Fuels

10:45 - 11:00	Auto-ignition Kinetics of Ammonia/Hydrogen Mixtures at Intermediate Temperatures and High Pressures	III-8
	X. He ¹ , B. Shu ¹ , K. Moshhammer ¹ , M. Costa ² , R.X. Fernandes ¹	
	1. Physikalisch-Technische Bundesanstalt (PTB), Department of Physical Chemistry, Braunschweig, Germany 2. IDNEC, Mechanical Engineering Department, Instituto Superior Técnico, Universidade de Lisboa, Lisboa, Portugal	
11:00 - 11:15	Experimental and Numerical Study of Premixed Ammonia-Methane-Air Flames	III-2
	C. F. Ramos ¹ , R. C. Rocha ¹ , P. M. R. Oliveira ¹ , M. Costa ¹ , X.-S. Bai ²	
	1. IDMEC, Mechanical Engineering Department, Instituto Superior Técnico, Lisboa, Portugal 2. Division of Fluid Mechanics, Lund University, Sweden	
11:15 - 11:30	Modeling for Nitromethane Oxidation	III-3
	K. Prasad Shrestha ¹ , L. Seidel ² , T. Zeuch ³ , F. Mauss ¹	
	1. Thermodynamics and Thermal Process Engineering, Brandenburg University of Technology, Cottbus, Germany 2. Lund Combustion Engineering, LOGE Germany 3. Institut für Physikalische Chemie, Georg-August-Universität, Göttingen, Germany	
11:30 - 11:45	Fuel Derived Methylidyne Radical Reactions with Ammonia and Substituted Amines Probed by Synchrotron VUV Photoionization Mass Spectrometry	III-4
	J. Bourgalais ¹ , K. Caster ² , O. Duri ³ , D. Osborn ⁴ , S. D. Le Picard ³ , F. Goulay ²	
	1. LATMOS/IPSL, UVSQ Université Paris-Saclay, Sorbonne Université, CNRS, Guyancourt, France 2. Combustion Research Facility, Sandia National Laboratories, Livermore, USA 3. Department of Chemistry, West Virginia University, USA 4. UMR CNRS 6251, Université de Rennes 1, France	
11:45 - 12:00	An Experimental and Kinetic Modeling Study of NH₃ Oxidation in a Jet Stirred Reactor	III-5
	A. Stagni ¹ , Y. Song ² , O. Herbinet ² , F. Battin-Leclerc ² , T. Faravelli ¹	
	1. Dipartimento di Chimica, Materiali e Ing. Chimica "G. Natta" – Politecnico di Milano, Italy 2. Laboratoire Réactions et Génie des Procédés - CNRS, Nancy, France	
12:00 - 12:15	Combustion of NH₃-CH₄-air and NH₃-H₂-air Mixtures in a Porous Burner: Experiments and Kinetic Modeling	III-6
	R. C. Rocha ¹ , C. F. Ramos ¹ , M. Costa ¹ , X.-S. Bai ²	
	1. IDMEC, Mechanical Engineering Department, Instituto Superior Técnico, Lisboa, Portugal 2. Division of Fluid Mechanics, Lund University, Sweden	
12:15 - 12:30	Experimental and Modeling Study of CH₄/H₂S Oxidation at High Pressures	III-7
	J.M. Colom-Díaz, M. Abián, Á. Millera, R. Bilbao, M.U. Alzueta	
	Department of Chemical and Environmental Engineering, University of Zaragoza - Spain	

Tuesday 22nd - Session III/2: Non-carbon Fuels

13:30 - 13:45	Experimental Study of Laminar Burning Velocities of Ammonia/Hydrogen/Air Mixtures at Elevated Temperatures	III-8
	<i>C. Lhuillier¹, P. Brequigny¹, F. Contino^{2,3}, C. Mounaïm-Rousselle¹</i>	
	<i>1. PRISME Laboratory, Université d'Orléans, France</i> <i>2. Thermo and fluid dynamics (FLOW), Vrije Universiteit Brussel, Belgium</i> <i>3. Combustion and Robust Optimization Joint Research Group, VUB-ULB, Brussels, Belgium</i>	
13:45 - 14:00	How to Improve Kinetic Mechanism for Hydrogen Combustion	III-9
	<i>A.A. Konnov</i>	
	<i>Division of Combustion Physics, Lund University, Sweden</i>	
14:00 - 14:15	Novel Humidified Ammonia/Hydrogen Gas Turbine Cycles	III-10
	<i>M. Guteša-Božo¹, A. Valera-Medina²</i>	
	<i>1. Termoinžinjering d.o.o., Research and Development Department, Zrenjanin, Serbia</i> <i>2. Cardiff University, United Kingdom</i>	
14:15 - 14:30	Determination of the Rate Parameters of N/H/O Elementary Reactions Based on H₂/O₂/NO_x Combustion Experiments	III-11
	<i>M. Kovács, T. Varga, C. Olm, Á. Busai, R. Pálvölgyi, I. Gy. Zsély, T. Turányi</i>	
	<i>Institute of Chemistry, ELTE Eötvös Loránd University, Budapest, Hungary</i>	
14:30 - 14:45	Experimental Investigation of Stabilization and Emission Characteristics of Ammonia/air Combustion in MILD Combustion	III-12
	<i>G. Sorrentino¹, P. Sabia², P. Bozza², R. Ragucci², M. de Joannon²</i>	
	<i>1. Dipartimento di Ingegneria Chimica, Materiali e Produzione industriale, Università Federico II Napoli, Italy</i> <i>2. Istituto di Ricerche sulla Combustione - C.N.R., Napoli, Italy</i>	

Tuesday 22nd - Session IV: Bio-derived Fuels

14:45 - 15:00	Development of TDLAS-Based Diagnostics for Combustion of Preheated Lean Dimethyl Ether/Air Mixtures	IV-1
	V. Nevrlý ¹ , P. Bitala ¹ , V. Klečka ¹ , Z. Zelinger ² , M. Dostál ^{1,2} , V. Válek ¹ , J. Suchánek ² , M. Vašínek ³ , T. Blejchař ⁴ , J. Wild ⁵	
	1. Faculty of Safety Engineering, VŠB-Technical University of Ostrava, Czech Republic 2. J. Heyrovský Institute of Physical Chemistry, Czech Academy of Sciences, Prague, Czech Republic 3. Faculty of Electrical Engineering and Computer Science, VŠB-Technical University of Ostrava, Czech Republic 4. Faculty of Mechanical Engineering, VŠB-Technical University of Ostrava, Czech Republic 5. Faculty of Mathematics and Physics, Charles University, Prague, Czech Republic	
15:00 - 15:15	Neutron Imaging-based Investigations of Carbon and Hydrogenous Gas-release Dynamics and Interactions During Pyrolysis and Combustion of Woody Biomass	IV-2
	F. Ossler ¹ , L.J. Santodonato ² , J.M. Warren ³ , C.E.A. Finney ⁴ , J.-C. Bilheux ² , R.A. Mills ² , H.D. Skorpenske ² , D.P. Armitage ² , L.L. Daemen ² , A.J. Ramirez-Cuesta ² , H.Z. Bilheux ²	
	1. Combustion Physics, Lund University, Sweden 2. Neutron Scattering Division, Oak Ridge National Laboratory, USA 3. Environmental Sciences Division and Climate Change Science Institute, Oak Ridge National Laboratory, USA 4. Energy and Transportation Science Division, Oak Ridge National Laboratory, USA	
15:15 - 15:30	Experimental Analysis of Minimum Ignition Temperature of Selected biomasses	IV-3
	L. Medic Pejic ¹ , M. Larrad-Moreno ¹ , J. García Torrent ^{1,2} , B. Castells Somoza ¹	
	1. Department of Energy and Fuels, UPM Technical University of Madrid, Spain 2. Laboratorio Oficial Madariaga, UPM Technical University of Madrid, Spain	
15:30 - 15:45	Towards a Common C0-C2 Mechanism: a Critical Evaluation of Rate Constants for Syngas Combustion Kinetics	IV-4
	M. Pelucchi ¹ , *, U. Burke ² , L. Cai ³ , K. P. Somers ² , P. Glarborg ⁴ , T. Turanyi ⁵ , H. Pitsch ³ , H. J. Curran ² , T. Faravelli ¹ , S. J. Klippenstein ⁶	
	1. CRECK Modeling Lab, Politecnico di Milano, Milano - Italy 2. Combustion Chemistry Centre, National University of Ireland, Galway, Ireland 3. Institute for Combustion Technology - RWTH Aachen University, Aachen, Germany 4. Department of Chemical and Biochemical Engineering - Technical University of Denmark, Lyngby, Denmark 5. Institute of Chemistry - Eötvös Loránd University (ELTE), Budapest, Hungary 6. Chemical Sciences and Engineering Division, Argonne National Laboratory, USA	
15:45 - 16:00	Vinasse as a Potential for Renewable Energy and Chemicals Recovery	IV-5
	M.J. Dirbeba, A. Brink, L. Hupa, M. Hupa	
	Johan Gadolin Process Chemistry Centre, Åbo Akademi University, Finland	

Wednesday 23 rd - Session V: Fossil Fuels		
15:30 - 15:45	Study of Oscillations During Methane Oxidation with Species Probing	V-1
	Y. Song ¹ , A. Stagni ² , O. Herbinet ¹ , T. Faravelli ² , F. Battin-Leclerc ¹	
	1. Laboratoire Réactions et Génie des Procédés - CNRS, Nancy, France 2. Dipartimento Chimica, Materiali, Ingegneria Chimica, Politecnico di Milano, Italy	
15:45 - 16:00	Turbulent Reacting Flow Characteristics of Axisymmetric Disk Stabilized Propane Flames, with Inlet Mixture Stratification and Preheat	V-2
	K. Souflas, P. Koutmos	
	Department of Mechanical Engineering and Aeronautics, University of Patras, Greece	
16:00 - 16:15	Simulating the Flame Velocity of Methane- and n-Heptane-air Mixtures with a Reaction Mechanism for Dual Fuel Combustion and Further Mechanism Optimization by Comparison with Experimental Data	V-3
	S. Schuh, F. Winter	
	Institute of Chemical, Environmental and Bioscience Engineering, Technische Universität Wien, Austria	
16:15 - 16:30	Evaporation of Multicomponent Fuel Droplets in Buoyancy Driven Convection	V-4
	A. E. Saufi, E.a Colombo, A. Frassoldati, T.o Faravelli, A. Cuoci	
	Politecnico di Milano, Dipartimento Chimica, Materiali, Ingegneria Chimica, Italy	

Poster Session I	
PI-1	An Experimental Study on MILD Combustion of alcohols in a Cyclonic Burner
	<i>P. Bozza¹, G. Sorrentino², P. Sabia¹, R. Ragucci¹, M. de Joannon¹</i>
	<i>1. Istituto di Ricerche sulla Combustione - C.N.R., Napoli, Italy 2. Dipartimento di Ingegneria Chimica, Materiali e Produzione industriale, Università Federico II Napoli, Italy</i>
PI-2	Measurements of the Laminar Burning Velocities of Ethanol-Water-Air Flames
	<i>L. van Treenk¹, M. Lubrano Lavadera², A. A. Konnov², L. Seidel³, F. Mauss¹</i>
	<i>1. Thermodynamics and Thermal Process Engineering, Brandenburg University of Technology, Germany 2. Division of Combustion Physics, Lund University, Sweden 3. LOGE Deutschland GmbH, Cottbus, Germany</i>
PI-3	Testing Several Butanol Combustion Mechanisms Against a Large Set of Experimental Data and Investigation of Thermochemical Data Inconsistency
	<i>M. Bolla¹, C. Olm¹, T. Nagy², I. Gy. Zsély¹, T. Turányi¹</i>
	<i>1. Institute of Chemistry, ELTE Eötvös Loránd University, Budapest, Hungary 2. MTA TTK Research Centre for Natural Sciences, Budapest, Hungary</i>
PI-4	Combustion Characteristics of Synthetics Fuels: Determination of the Laminar Burning Velocity of OME 1
	<i>S. Eckart, C. Krasselt, H. Krause</i>
	<i>Institute of Thermal Engineering, TU Bergakademie Freiberg, Germany</i>
Poster Session II	
PII-1	Flowfield Features of Cyclonic Patterns for MILD Combustion Technologies
	<i>M. Agrillo¹, G. Sorrentino², C.E. Frouzakis³, R. Ragucci¹</i>
	<i>1. Istituto di Ricerche sulla Combustione - C.N.R., Napoli, Italy 2. Dipartimento di Ingegneria Chimica, Materiali e Produzione industriale, Università Federico II Napoli, Italy 3. Aerothermochemistry and Combustion Systems Laboratory, ETH Zurich, Switzerland</i>
PII-2	CHEMCONNECT: Intelligent Repository Backed by a Knowledge Base Combustion Related Concepts
	<i>E.S. Blurock</i>
	<i>Blurock Consulting AB, Lund, Sweden</i>
PII-3	Flow, Mixing and Combustion Characteristics of a Stratified Bluff Body Burner, Interacting With a Co-annular Swirl Induced Recirculation
	<i>E. Dogkas, P. Koutmos</i>
	<i>Laboratory of Applied Thermodynamics, Department of Mechanical Engineering and Aeronautics, University of Patras, Greece</i>
PII-4	Further Application of the Fast Tabulated CPV Approach
	<i>A. Werner¹, A. Matrisciano^{2,3}, C. Netzer¹, H. Lehtiniemi², A. Borg^{2,3}, L. Seidel⁴, F. Mauss¹</i>
	<i>1. Brandenburg University of Technology, Cottbus, Germany 2. LOGE AB, Lund, Sweden 3. Chalmers University of Technology, Gothenburg, Sweden 4. LOGE Deutschland GmbH, Cottbus, Germany</i>

Poster Session II

PII-5	A Preliminary Assessment of Alternative Fuels for Marine Engines using Combustion Chemistry Tools
	<i>G. Vourliotakis¹, M. A. Founti¹, G. Kazangas², L. Kaiktsis², G. Skevis³</i>
	<i>1. Laboratory of Heterogeneous Mixtures and Combustion Systems, School of Mechanical Engineering, National Technical University of Athens, Greece</i> <i>2. Department of Naval Architecture and Marine Engineering, National Technical University of Athens, Greece</i> <i>3. Aerosol & Particle Technology Laboratory, CPERI-CERTH, Thessaloniki, Greece</i>
PII-6	Process Design and techno-economic evaluation of the Organosolv-derived Lignin Pyrolysis Towards Platforms Chemicals and Biofuels
	<i>D. Ipsakis¹, T. Blemputzakos², S. Stephanidis¹, K. Kalogiannis¹, L. Matsakas³, U. Rova³, P. Christakopoulos³, A. Lappas¹, K. Triantafyllidis^{1,4}, E. Heracleous^{1,2}</i>
	<i>1. Chemical Process & Energy Resources Institute (CPERI), Thessaloniki, Greece</i> <i>2. School of Science and Technology, International Hellenic University, Thessaloniki, Greece</i> <i>3. Department of Civil, Environmental & Natural Resources Engineering, Luleå University of Technology, Sweden</i> <i>4. Department of Chemistry, Aristotle University of Thessaloniki, Greece</i>
PII-7	Impact of Heat loss on the Modeling of a Cyclonic Burner with High Levels of Internal Recirculation
	<i>G. Ceriello¹, G. Sorrentino¹, P. Sabia², M. de Joannon², R. Ragucci², A. Cavaliere¹, J. van Oijen³, L.P.H. deGoey³</i>
	<i>1. Dipartimento di Ingegneria Chimica, Materiali e Produzione industriale, Università Federico II Napoli, Italy</i> <i>2. Istituto di Ricerche sulla Combustione - C.N.R., Napoli, Italy</i> <i>3. Department of Mechanical Engineering, Eindhoven University of Technology, Netherlands</i>

Poster Session III

PIII-1	Ammonia as an Alternative to Carbon-based Fuels: Experimental and Modeling Analysis of its Oxidation Process
	<i>M. Abián, Á. de Goñi, Á. Millera, R. Bilbao, M.U. Alzueta</i>
	<i>Department of Chemical and Environmental Engineering, University of Zaragoza - Spain</i>
PIII-2	Research and Development of Ammonia Combustion, low-NO_x, Rich-lean Gas Turbine Combustor
	<i>O. Kurata¹, N. Iki¹, T. Inoue¹, T. Matsunuma¹, T. Tsujimura¹, H. Furutani¹, M. Kawano², K. Arai², Ekenechukwu C. Okafor³, A. Hayakawa³, H. Kobayashi³</i>
	<i>1. National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan</i> <i>2. Toyota Energy Solutions Inc., Toyota-shi, Japan</i> <i>3. Tohoku University, Sendai, Japan</i>
PIII-3	Enabling Ammonia Utilization as a Hydrogen Carrier: Performance Assessment of Catalytic Membrane Reactors for NH₃ Decomposition
	<i>D. Koutsonikolas, G. Pantoleontos, A. Asimakopoulou, G. Skevis</i>
	<i>Aerosol & Particle Technology Laboratory, CPERI-CERTH, Thessaloniki, Greece</i>
PIII-4	Identification of Ammonia Oxidation Regimes in JSFR Reactor. A Survey on Available Kinetic Scheme Performance
	<i>P. Sabia¹, M. V. Manna^{1,2}, M. de Joannon¹, R. Ragucci¹</i>
	<i>1. Istituto di Ricerche sulla Combustione - C.N.R., Napoli, Italy</i> <i>2. Dipartimento di Ingegneria Chimica, Materiali e Produzione industriale, Università Federico II Napoli, Italy</i>

Poster Session III

PIII-5	Optimization of NH₃ Chemical Kinetics for Low Temperature Combustion at High Pressures
	A. Bertolino ^{1,2,3} , M. Fürst ^{1,2,3} , M. Poche ^{3,4,5} , A. Stagni ² , A. Frassoldati ² , F. Contino ^{3,5} , A. Parente ^{1,3}
	1. Université Libre de Bruxelles, Belgium 2. Dipartimento di Chimica, Materiali e Ing. Chimica "G. Natta" – Politecnico di Milano, Italy 3. Combustion and Robust Optimization Joint Research Group, VUB-ULB, Brussels, Belgium 4. iMMC, Université Catholique de Louvain, Louvain-la-Neuve, Belgium 5. Vrije Universiteit Brussel, Brussels, Belgium
PIII-6	Effect of Chemical Kinetics and Heat Transfer in the Dynamics of MILD Hydrogen Combustion
	L. Acampora ¹ , M. Lubrano Lavadera ² , P. Sabia ¹ , R. Ragucci ¹ , M. de Joannon ¹ , F. S. Marra ¹
	1. Istituto di Ricerche sulla Combustione - C.N.R., Napoli, Italy 2. Division of Combustion Physics, Lund University, Sweden

Poster Session IV

PIV-1	Particulate Matter Formation During Softwood Combustion in a Drop Tube Furnace: a Preliminary Study
	Ts. Petrova ¹ , I. Naydenova ¹ , M. Costa ²
	1. Technical University of Sofia, Sofia, Bulgaria 2. IDMEC, Instituto Superior Técnico, Lisboa, Portugal
PIV-2	Comparison of Detailed NO_x Reaction Mechanisms on Syngas Combustion Systems
	A. Gy. Szanthoffer, I. Gy. Zsély, T. Turányi
	Institute of Chemistry, ELTE Eötvös Loránd University, Budapest, Hungary
PIV-3	Gasification of Agricultural Residues and Municipal Waste (MSW) for CHP
	M. Trninic, A. Jovovic, D. Stojiljkovic, N. Manić
	Faculty of Mechanical Engineering, University of Belgrade, Serbia
PIV-4	Spontaneous Atomic Radiant Emission of K and Na During Combustion of Wood and Straw Pellets
	N. Striūgas, M. Sadeckas
	Laboratory of Combustion Processes, Lithuanian Energy Institute, Kaunas, Lithuania
PIV-5	Experimental Investigation of Pollutant's Emissions During Solid Biofuels Combustion Under FBC Condition
	O. Sandov ¹ , I. Naydenova ² , F. Wesenauer ² , F. Nones ^{2,3} , T. Laminger ² , F. Winter ²
	1. Technical University of Sofia, College of Energy and Electronics, Sofia, Bulgaria 2. Technische Universität Wien, Institute of Chemical, Environmental & Bioscience Engineering, Vienna, Austria 3. University of Trento, Department of Industrial Engineering, Trento, Italy
PIV-6	The Future Role of Biofuel as a Energy Carrier in Construction Sector
	A. Hamdi Tekin
	Istanbul Arel University, Turkey

PIV-7	Dynamic Features and Control Perspectives in Novel Hydrocarbons and Biogas Reforming Processes
	G. Pantoleontos ¹ , D. Ipsakis ² , N.D. Vlachos ¹ , S. Lorentzou ¹ , S. Voutetakis ² , G. Skevis ¹ , A.G. Konstandopoulos ¹
	1. Aerosol & Particle Technology Laboratory, CPERI-CERTH, Thessaloniki, Greece 2. Laboratory of Process Systems Design and Implementation, CPERI-CERTH, Thessaloniki, Greece
PIV-8	Experimental Comparison on Real m-CHP Fuelled by Different Biomasses
	M. Costa ¹ , G. Di Blasio ¹ , M.V. Prati ¹ , M.A. Costagliola ¹ , G. Ruoppolo ² , M. Urciuolo ² , D. Cirillo ³ , M. La Villetta ³ , V. Rocco ⁴ , C. Caputo ^{1,3,4} , R. Tuccillo ⁵ , G. Martoriello ^{1,2,5}
	1. Istituto Motori - C.N.R., Napoli, Italy 2. Istituto Ricerche sulla Combustione – C.N.R., Napoli, Italy 3. CMD S.p.A., S. Nicola La Strada (Caserta), Italy 4. Industrial Engineering Department, University of Rome "Tor Vergata", Italy 5. , Industrial Engineering Department, University Federico II of Naples, Italy
PIV-9	MgO Supported on Activated Carbon for Conversion of Bio-ethanol Into Butanol: Effect of MgO Load and of the Presence of Water on the Catalytic Performance.
	J. Apuzzo, S. Cimino, L. Lisi
	Istituto Ricerche sulla Combustione – C.N.R., Napoli, Italy
Poster Session V	
PV-1	Mechanism Reduction by Necessity Analysis: A Gas-phase Reaction Mechanism of Iso-Octane
	H. Serhad Soyhan ^{1,2} , H. Karadeniz ³ , C. Soruşbay ⁴
	1. Faculty of Engineering , SA.U., Sakarya, Turkey 2. Team-SAN Co., SA.U., Sakarya, Turkey 3. Robert Bosch, Germany 4. Faculty of Mechanical Engineering , I.T.U., Istanbul- Turkey
PV-2	Testing the Validity of a Mechanism Describing the Oxidation of Binary n-Heptane/Toluene Mixtures at Engine Operating Conditions
	Z. Malliotakis ¹ , C. Banyon ² , K. Zhang ³ , S. Wagnon ³ , J.J.R. Henriquez ⁴ , G. Vourliotakis ¹ , C. Keramiotis ¹ , M. Founti ¹ , F. Mauss ⁴ , W.J. Pitz ³ , H. Curran ²
	1 School of Mechanical Engineering, National Technical University of Athens, Greece 2 National University of Ireland, Galway, Ireland 3 Lawrence Livermore National Laboratory, USA 4 Thermodynamics and Thermal Process Engineering, Brandenburg University of Technology, Cottbus, Germany
PV-3	Experimental Investigation of Cold Mixing and Flame Stabilization Downstream of a Disk Stabilizer Under Variable Fuel-air Inlet Mixture Conditions
	G. Paterakis, G. Z. Karamountzou, P. Koutmos
	Department of Mechanical Engineering and Aeronautics, University of Patras, Greece
PV-4	Comparison of Methane Combustion Mechanisms Based on Shock Tube and RCM Ignition Delay Time Measurements
	P. Zhang, I. Gy. Zsély, V. Samu, T. Turányi
	Institute of Chemistry, ELTE Eötvös Loránd University, Budapest, Hungary

Poster Session V

PV-5	Model Calibration for NO Formation in MILD Combustion: Sensitivity to Model Uncertainties and Feasibility of Parameter Estimations
	S. Iavarone ¹ , S.T. Smith ² , C. Galletti ³ , A. Parente ¹
	1. Combustion and Robust Optimization Group (BURN), VUB-ULB, Brussels, Belgium 2. University of Utah, Salt Lake City, USA 3. University of Pisa, Department of Civil and Industrial Engineering, Pisa, Italy
PV-6	Early Aggregation in the Soot Formation Region of an Ethylene Flame.
	C. Russo, B. Apicella, A. Tregrossi, M. M. Oliano, A. Ciajolo
	Istituto di Ricerche sulla Combustione - C.N.R., Napoli, Italy
PV-7	Predictability of Existing Chemical Kinetics in MILD Combustion
	M. Fürst ^{1,2,3} , A. Bertolino ^{1,2,3} , A. Frassoldati ² and A. Parente ^{1,3}
	1. Université Libre de Bruxelles, Belgium 2. Department of Chemistry, Materials and Chemical Engineering, Politecnico di Milano, Milano, Italy 3. Combustion and Robust Optimization Group (BURN), VUB-ULB, Brussels, Belgium
PV-8	Effect of Hydrogen Addition on MILD Combustion in an Industrial Furnace
	M. Ferrarotti ^{1,2,3} , S. Vicens de Cabo ¹ , A. Fita-Codina ^{1,3} , W. de Paepe ² , A. Parente ^{1,3}
	1. Université Libre de Bruxelles, Belgium 2. Thermal Engineering and Combustion Unit, Université de Mons (UMONS), 7000 Mons, Belgium 3. Combustion and Robust Optimization Group (BURN), VUB-ULB, Brussels, Belgium
PV-9	CFD Modelling of a Large-scale Pulverized Coal MILD-OXY Combustion Boiler
	A. Klimanek ¹ , S. Śladek ¹ , W. Adamczyk ¹ , A. Szłęk ¹ , Nils Erland L. Haugen ² , Øyvind Langørgen ²
	1. Institute of Thermal Technology, Silesian University of Technology, Gliwice, Poland 2. SINTEF Energi A.S., Trondheim, Norway
PV-10	NO Formation in Low-pressure, Premixed Laminar H₂/CH₄/CO/O₂/N₂ Flames in Presence of Benzene
	M. Cafiero ^{1,2} , V. Dias ³ , A. Stagni ⁴ , H. Jeanmart ³ , A. Coussement ^{1,2} , A. Parente ^{1,2}
	1. Université Libre de Bruxelles, Belgium 2. Combustion and Robust Optimization Group (BURN), VUB-ULB, Brussels, Belgium 3. Université catholique de Louvain (UCLouvain), Louvain-la-Neuve, Belgium. 4. Department of Chemistry, Materials and Chemical Engineering, Politecnico di Milano, Italy
PV-11	Reaction of Cyclopentadiene with CH(X²Π) Radicals, a New Route Toward the Formation of Benzene
	O. Durif ¹ , K. Caster ² , T. Selby ³ , F. Goulay ² , S. D. Le Picard ¹
	1. Institut de Physique de Rennes, UMR 6251, France 2. Department of Chemistry, West Virginia University, United States 3. Department of Chemistry, University of Wisconsin, United States
PV-12	CFD Modelling and Simulation of Gaseous Fuels Combustion in Constant-volume Chamber and Direct-injection Spark-ignition Engine
	C.A. Chasos
	Frederick University, Nicosia, Cyprus
PV-13	Optimization of Methane-Hydrogen Blends in a Spark-ignition Engine Using a Quasi-dimensional Combustion Model and Genetic Algorithm
	A. Paykani, C.E. Frouzakis, K. Boulouchos
	Aerothermochemistry and Combustion Systems Laboratory, ETH Zurich, Switzerland

Poster Session VI	
PVI-1	Latest Biofuel Technologies for Sustainable Tourism
	G. Soyhan ^{1,2} , O. Batman ³ , E. Oruc ⁴
	1. TEAMSAN Co., Sakarya, Turkey
	2. Ph.D. Student at the institute of Social Sciences, S.U.B.U., Sakarya, Turkey 3. Faculty of Tourism, S.U.B.U., Sakarya, Turkey 4. Faculty of Business Administration, D.U., Bilecik, Turkey
PVI-2	Correlation of Chemiluminescent Signal and Pollutant Emission of a Liquid-fueled Turbulent Swirl Burner
	G. Hidegh, V. Józsa
	Department of Energy Engineering, Faculty of Mechanical Engineering, Budapest University of Technology and Economics, Budapest, Hungary
PVI-3	Evaluation of Material Property Estimating Methods of n-Alkanes, Primary Alcohols, and Methyl Esters
	D. Csemány, I. Gujás, V. Józsa
	Department of Energy Engineering, Faculty of Mechanical Engineering, Budapest University of Technology and Economics, Budapest, Hungary
PVI-4	Theoretical and Kinetic Modeling Study of Phenol and Phenoxy Radical Decomposition to CO and C₅H₆/C₅H₅ in Pyrolysis Conditions
	L. Pratali Maffei, M. Pelucchi, T. Faravelli, C. Cavallotti
	Department of Chemistry, Materials, and Chemical Engineering, Politecnico di Milano, Italy
PVI-5	Perovskite Solar Cells
	A. Abate
	Dipartimento di Ingegneria Chimica, Materiali e Produzione industriale, Università Federico II Napoli, Italy
PVI-6	Torrefaction as Potential Pretreatment for Biomass Saccharinification
	P. Brachi ¹ , A. Procentese ¹ , G. Ruoppolo ¹ , M. E. Russo ¹ , A. Marzocchella ² , R. Chirone ¹
	1. Istituto di Ricerche sulla Combustione - C.N.R., Napoli, Italy 2. Dipartimento di Ingegneria Chimica, Materiali e Produzione industriale, Università Federico II Napoli, Italy
PVI-7	Insights on the Role of Secondary Tar Reactions in Soot Inception During Fast Pyrolysis of Coal
	C. Russo ¹ , O. Senneca ¹ , F. Cerciello ¹ , F. Stanzione ¹ , L. Cortese ¹ , A. Ciajolo ¹ , S. Heuer ² , V. Scherer ² , B. Apicella ¹
	1. Istituto di Ricerche sulla Combustione - C.N.R., Napoli - Italy 2. Department of Energy Plant Technology, Ruhr-Universität Bochum, GERMANY
PVI-8	Experimental and Kinetic Modeling Study of the Oxidation of a Biofuel Nitrogen-Containing Model Compound
	C.A.R. Pappijn ¹ , F. H. Vermeire ¹ , O. Herbinet ² , F. Battin-Leclerc ² , M. Reyniers ¹ , G.B. Marin ¹ , K.M. Van Geem ¹
	1. Laboratory for Chemical Technology, Ghent University, Belgium 2. Laboratoire Réactions et Génie des Procédés, CNRS, Nancy, France
PVI-9	Tuning the Microtexture of Carbonaceous Particles Produced by a Spark Generator System
	M. Alfè ¹ , V. Gargiulo ¹ , V. Cozzolino ² , P. Sabia ¹ , R. Ragucci ¹ , M. de Joannon ¹
	1. Istituto di Ricerche sulla Combustione - C.N.R., Napoli, Italy 2. Dipartimento di Ingegneria Chimica, Materiali e Produzione industriale, Università Federico II Napoli, Italy
PVI-10	Characteristics of Char produced by Means of Slow Pyrolysis of Residual Lignin from Bio-ethanol Production Chain
	C.M. Grottola, P. Giudicianni, R. Ragucci
	Istituto di Ricerche sulla Combustione - C.N.R., Napoli - Italy
PVI-11	Chemical/physical Features of Particulate Emitted from an Heavy-Duty SI LPG Engine
	M. Alfè ¹ , V. Gargiulo ¹ , P. Napolitano ² , S. Alfuso ² , C. Beatrice ² , C. Guido ²
	1. Istituto di Ricerche sulla Combustione - C.N.R., Napoli, Italy 2. Istituto Motori - C.N.R., Napoli, Italy
PVI-12	Coal Combustion: Integrating Nitrogen and Sulfur Fraction in a Single Kinetic Mechanism
	P. Debiagi ¹ , E. Ranzi ² , T. Faravelli ² , C. Hasse ¹
	1. STFS, Technische Universität Darmstadt, Darmstadt - Germany 2. CRECK modeling group, Politecnico di Milano, Milano - Italy