



PROGRAM OF THE  
FIFTH MEDITERRANEAN COMBUSTION SYMPOSIUM

El Mouradi Skanes Beach Hotel  
Monastir, Tunisia, September 9-13, 2007



<b>Time</b>	<b>Monday, 10</b>	<b>Tuesday, 11</b>	<b>Wednesday, 12</b>	<b>Thursday, 13</b>
<b>9:00</b>	Opening	Ashwani K. Gupta, USA	Leonardo Tognotti, Italy	Fawzy Elmahallawy, Egypt
<b>9:45</b>	Brian S. Haynes, Australia	Andrea d'Anna, Italy	Emmanuel Kakaras, Greece	Tarek Echehki, USA
<b>10:40</b>	Coffee Break			
<b>11:00</b>	Fire and Explosions Reaction Kinetics of Combustion Combustion Diagnostics and Radiative Transfer	Fire and Explosions Reaction Kinetics of Combustion Combustion Diagnostics and Radiative Transfer	Solid Fuels, Waste Combustion and Gasification Turbulent Combustion Pollutants Formation and Control	Laminar Flames Stationary Combustion Propulsion and Engines Combustion
<b>13:05</b>	Lunch Break			
<b>15:30</b>	JoAnn Slama Lighty, USA	Andres Cabanillas, Spain	Free Afternoon	Poster Session
<b>16:20</b>	Afternoon tea			Afternoon tea
<b>16:40</b>	Solid Fuels, Waste Combustion and Gasification Turbulent Combustion Pollutants Formation and Control	Solid Fuels, Waste Combustion and Gasification Turbulent Combustion Pollutants Formation and Control		Laminar Flames Stationary Combustion Propulsion and Engines Combustion

Registration: Sunday afternoon / Monday morning  
Welcome reception: Sunday evening, 9<sup>th</sup> of September  
Gala Dinner: Wednesday evening, 12<sup>th</sup> of September

## Monday, 10 September

<b>8:00</b>	<b>Registration</b>		
<b>9:00</b>	<b>Opening</b>		
	<b>Plenary Session</b>		<b>Chair: F. Beretta</b>
<b>9:45</b>	<i>Process Heat for Microreactors</i> Brian S. Haynes, University of Sydney, Australia		
<b>Coffee Break</b>			
<b>Parallel sessions</b>			
	<b>Fire and Explosions</b> <b>Chairs: M. Sassi</b>	<b>Reaction kinetics of combustion</b> <b>Chairs: A. D'Anna</b>	<b>Combustion diagnostics and radiative transfer</b> <b>Chairs: M. Mansour</b>
<b>11:00</b>	<b>VIII-1.</b> <i>Characterisation of Dalmarnock Fire Test 1</i> C. Abecassis Empis, P. Reszka, T. Steinhaus, A. Cowlard, H. Biteau, S. Welch, G. Rein & J.L. Torero	<b>IX-1.</b> <i>A Journey from Heptane to Liquid Transportation Fuels. 1. The role of the Allylic Radical and its Related Species in Aromatic Precursor Chemistry</i> H.R. Zhang, E.G. Eddings and A.F. Sarofim	<b>VI-1.</b> <i>Simultaneous Rayleigh Temperature, OH- and CH<sub>2</sub>O-LIF Imaging of Autoigniting Methane Flames Issuing into a Vitiated Coflow</i> R.L. Gordon, A.R. Masri, E. Mastorakos
<b>11:25</b>	<b>VIII- 2.</b> <i>Real Time Heat Release Rate Assessment in a Compartment Fire Fighting</i> H. Besnard, E. Lambert, M.M. Lebey	<b>IX-2.</b> <i>Cool Flame Ignition Tabulation for ECFM-3Z Model</i> M. Ban, N. Duic and P. Priesching	<b>VI-2.</b> <i>LII Experiments in a Hybrid Flame for TiO<sub>2</sub> Synthesis</i> F. Cignoli, S. Maffi, C. Bellomunno, S. De Iuliis and G. Zizak
<b>11:50</b>	<b>VIII- 3.</b> <i>Heat Release Rate of Energetic Materials by Calorimetric Methodology</i> H. Biteau, A. Fuentes, G. Marlair, and J.L Torero	<b>IX-3.</b> <i>Starting Temperature Effect on Reaction Kinetics of Coal Oxidation at Low Temperatures</i> A. Arsoy, B.B. Beamish and C. Mortimer	<b>VI-3.</b> <i>Scattering-extinction measurements of soot formation in a shock tube</i> S. De Iuliis, N. Djebaïli-Chaumeix, C.-E. Paillard
<b>12:15</b>	<b>VIII- 4.</b> <i>Sensor Driven Prediction of Upward Flame Spread</i> A. Cowlard, L. Auersperg, J-B. Richon, G. Rein, S. Welch, A. Usmani, J.L. Torero	<b>IX-4.</b> <i>Kinetic Analyses of a Detailed Chemical Mechanism for HCCI Engines</i> H.S. Soyhan, F. Mauss	<b>VI-4.</b> <i>Diagnosis of Turbulence Radiation Interaction in Turbulent Flames and Implications for Modeling in Large Eddy Simulation</i> D. Poitou, B. Cuenot, M. El Hafi
<b>12:40</b>	<b>VIII- 5.</b> <i>Investigation of Possible Tunnel-Curvature's Impact on the Propagation and Distribution of the Consequences of Large-Scale Accidental Fire - A CFD Approach</i> M. Muhasilovic, M. O. Deville	<b>IX-5.</b> <i>Combustion of Pyrolysis Gas Involved in Wildland Fire: Experimental Study</i> V. Leroy, E. Leoni, P.A. Santoni, V. Bertin, D. Falaise, L. Bonneau	<b>VI-5.</b> <i>Some Possible Improvements of the Zone Method Predictions in a Rectangular Furnace by Smoothing the Direct Exchange Areas</i> R. Méchi, H. Farhat, R. Said, D. Puechberty
<b>13:05</b>	<b>Lunch break</b>		

<i>Plenary session</i>		<b>Chairs: M. Mansour</b>	
<b>15:30</b>	<p><i>The Effects of Flame Conditions and Structure on Soot Oxidation</i>  <i>JoAnn Slama Lighty, University of Utah, USA</i></p>		
<i>Afternoon Tea</i>			
	<b><i>Solid fuels, waste combustion and gasification</i></b> <b>Chairs: L. Tognotti</b>	<b><i>Turbulent Combustion</i></b> <b>Chairs: A. Masri</b>	<b><i>Pollutants formation and control</i></b> <b>Chairs: J. Slama Lighty</b>
<b>16:40</b>	<p><b>III-1.</b> <i>Fluidized Bed Combustion of Biomass and Waste-Derived Pelletized Fuels</i>  R. Chirone, P. Salatino, F. Scala, R. Solimene, M. Urciuolo</p>	<p><b>II-1.</b> <i>Experimental Study of Turbulent Flame Kernel Propagation</i>  M. Mansour, N. Peters, L.-U. Schrader</p>	<p><b>VII-1.</b> <i>Determination of Soot Formation Rate From Laminar Smoke Point Measurements</i>  T. Beji, J.P. Zhang, M. Delichatsios</p>
<b>17:05</b>	<p><b>III-2.</b> <i>Effect of Air Excess on the Optimization of Heating Appliances for Biomass Combustion</i>  D. Menghini, F. S. Marra, C. Allouis, F. Beretta</p>	<p><b>II-2.</b> <i>A Solution for the Mixing and Reacting Flow Inside a Channel</i>  A.L. De Bortoli</p>	<p><b>VII-2.</b> <i>Measurement of Soot Surface Growth Kinetics</i>  A. Yozgatligil, M.R. Zachariah</p>
<b>17:30</b>	<p><b>III-3.</b> <i>Co-firing of Olive Residue with Lignite in Bubbling FBC</i>  Z. Gogebakan, Y. Gogebakan, N. Selcuk</p>	<p><b>II-3.</b> <i>Turbulence Modulation in Dispersed Two-Phase Flows Using the Eulerian Lagrangian Approach</i>  M.A. Mergheni, T. Boushaki, H. Ben Ticha, J.C. Sautet, S. Ben Nasrallah</p>	<p><b>VII-3.</b> <i>An experimental and modelling study of particulate formation in flames burning methane</i>  A. D'Anna, M. Sirignano, M. Commodo, R. Pagliara, P. Minutolo</p>
<b>17:55</b>	<p><b>III-4.</b> <i>Thermal Degradation of Olive Solid Waste: Comparison Between Pyrolysis, Gasification and Combustion</i>  A. Chouchene, B. Khiari, M. Jeguirim, D. Kehrli, F. Zagrouba</p>		<p><b>VII-4.</b> <i>The Effects of Composition on the Burning Velocity and NO Formation in Premixed Flames of C<sub>2</sub>H<sub>4</sub> + O<sub>2</sub> + N<sub>2</sub></i>  A.A. Konnov, I.V. Dyakov, J. De Ruyck</p>

## Tuesday, 11 September

<b>Plenary sessions</b>		<b>Chairs: A. Cabanillas</b>	
<b>9:00</b>	<i>High Temperature Air Combustion: Energy Savings, Pollution Reduction and Fuel Reforming</i> Ashwani K. Gupta, University of Maryland, USA		
<b>9:45</b>	<i>Combustion formed fine particles</i> Andrea D'Anna, University of Naples Federico II, Italy		
<b>Coffee Break</b>			
<b>Parallel sessions</b>			
	<b>Fire and Explosion</b> <b>Chairs: F. Tamanini</b>	<b>Reaction kinetics of combustion</b> <b>Chairs: B. Haynes</b>	<b>Combustion diagnostics and radiative transfer</b> <b>Chairs: E. Mastorakos</b>
<b>11:00</b>	<b>VIII-6.</b> <i>In-Depth Temperature Measurements in Wood Exposed to Intense Radiant Energy</i> P. Reszka, J.L. Torero	<b>IX-6.</b> <i>Thermochemical Similarities Among Three Reaction Systems: Vinyl + O<sub>2</sub> – Phenyl + O<sub>2</sub> – Dibenzofuranyl + O<sub>2</sub></i> N. Sebbar, H. Bockhorn, J. W. Bozzelli	<b>VI-6.</b> <i>On Radiative Phenomena in a Combustion Chamber for Industrial Applications</i> A. F. Brancelli, A. Di Nardo, G.Langella, C. Noviello
<b>11:25</b>	<b>VIII-7.</b> <i>Gas Explosions Mitigation by Ducted Venting</i> A. Di Benedetto, P. Russo, E. Salzano	<b>IX-7.</b> <i>Evaluation of Reduced Kinetic Models for Autoignition of Automotive Reference Fuels in HCCI Applications</i> H.S. Soyhan, J.C.G. Andrae	<b>VI-7.</b> <i>A Comprehensive Fluidized Bed Combustion Model Coupled with a Radiation Model</i> D.E. Alagoz, G. Kulah, N. Selcuk
<b>11:50</b>	<b>VIII-8.</b> <i>A Calorimetric Study of Wildland Fuels</i> C. Schemel, A. Simeoni, H. Biteau, J.L. Torero	<b>IX-8.</b> <i>Numerical Study on Low and High Temperature Air Combustion Using Different Chemical Mechanism</i> M. Ghamari, S. Tabejamaat and A. Mardani	<b>VI-8.</b> <i>Radiative Heat Transfer in Pulverized Coal Combustion: Effects of Gas and Particles Distributions</i> A. Boutoub, H. Ettouati, H. Benticha, M. Sassi
<b>12:15</b>	<b>VIII-9.</b> <i>Field Modelling of Soot Formation and Carbon Monoxide Production in Buoyancy-Driven Vertical Wall Fire</i> H.Y. Wang	<b>IX-9.</b> <i>Optimization of SynGas Production in Noncatalytic Auto Thermal Partial Oxidation of Methane Process</i> M. Khoshnoodi, M. D. Mohammad	<b>VI-9.</b> <i>Artificial Neural Networks for Solving of Inverse and Direct Problems of Combustion Diagnostics</i> V.S. Abrukov, R.A. Pavlov, P.V. Ivanov, L.A. Maksimova, V.O.Tkach
<b>12:40</b>	<b>VIII-10.</b> <i>The Number Defining the Realization of the Hot Spot Mechanism at Detonation of Heterogeneous Explosives</i> S. S. Rybanin, Yu. M. Mikhailov		<b>VI-10.</b> <i>CFD Modeling of a Radiant Heater</i> M. D. Ahanj, M. Rahimi
<b>13:05</b>	<b>Lunch break</b>		
<b>Plenary session</b>		<b>Chairs: N. Selcuk</b>	
<b>15:30</b>	<i>Contribution of Energy Conversion Technologies to improve the use of coal in an environmental friend way</i> Andres Cabanillas, CIEMAT, Spain		
<b>Afternoon Tea</b>			

	<b><i>Solid fuels, waste combustion and gasification</i></b> <b>Chairs: A. Cabanillas</b>	<b><i>Turbulent Combustion</i></b> <b>Chairs: T. Echekki</b>	<b><i>Pollutants formation and control</i></b> <b>Chairs: A. Gupta</b>
<b>16:40</b>	<b>III-5.</b> <i>Two-Dimensional Computational Modeling and Simulation of Wood Particles Pyrolysis in a Fixed Bed Reactor</i> C. Ghabi, H. Benticha, M. Sassi	<b>II-4.</b> <i>Joint RANS / LES Simulation of a Flameless Burner</i> V.L. Zimont, V. Battaglia	<b>VII-5.</b> <i>The Effect of Ethanol Solution Modification on Calcium-Sorbents Cyclic Calcination/Carbonation Reaction for CO2 Sequestration</i> Y. Li, C. Zhao, Q. Li, L. Duan
<b>17:05</b>	<b>III-6.</b> <i>Beneficiation of pulverized coal combustion fly ash in fluidised bed reactors</i> A. Cammarota, R. Chirone, R. Solimene and M. Urciuolo	<b>II-5.</b> <i>LES of Hydrogen-Air Deflagrations in a 78.5 m Tunnel</i> V. Molkov, F. Verbecke, D. Makarov	<b>VII-6.</b> <i>Influence of the Regime of Combustion on the Chemical Pathways of NOX Formation During Incineration of Cellulosic and Plastic Materials</i> F. Richard, T. Rogaume, T. Andzi Barhe, J.L. Torero, P. Rousseaux
<b>17:30</b>	<b>III-7.</b> <i>A Physical Model for the Burning Process of the Sawdust Particle in Fluidised Bed Suspension Conditions</i> N.N. Antonescu, N. Antonescu, P.D. Stanescu, L.L. Olea Popescu	<b>II-6.</b> <i>LES of Recirculation and Vortex Breakdown in Swirling Flames</i> K.K.J. Ranga Dinesh, W.Malalasekera, S.S.Ibrahim and A.R.Masri	<b>VII-7.</b> <i>Evaluation of the Performance of Different Exhaust Aftertreatment Systems for Automotive Pollution Control</i> H. Santos, M. Costa
<b>17:55</b>	<b>III-8.</b> <i>Regeneration Strategies of Deactivated Catalysts for TCD Process in a Fluidized Bed Reactor</i> P. Ammendola, R. Chirone, G. Ruoppolo, G. Russo	<b>II-7.</b> <i>A New Analysis of the Modeling of the Pressure Fluctuation Effects on Premixed Turbulent Flames and its Validation Based on DNS Data</i> V. Robin, A. Mura, M. Champion, T. Hasegawa	<b>VII-8.</b> <i>Measurement and Simulation of Pollutant Emissions from Marine Diesel Combustion Engine and Their Reduction by Water Injection</i> N. Larbi, J. Bessrou, M. Sassi
<b>18:20</b>	<b>III-9.</b> <i>Experimental Results Concerning Biomass Co-Combustion With Coal And Carbon Dioxide Separation</i> D. Cebrucean, I. Ionel, A. Savu	<b>II-8.</b> <i>Conical Furnace Intensified Burning Process - Theoretical Aspects and Experiments –</i> P.D. Stanescu, N. Antonescu, N.N. Antonescu, L.L. Olea Popescu	<b>VII-9.</b> <i>Particle Inception in Laminar Premixed Benzene Flames</i> A. D'Anna, M. Commodo, P. Minutolo

## Wednesday, 12 September

### *Plenary sessions*

**Chair: R. Chirone**

<b>9:00</b>	<i>Structure and content of a solid fuel combustion characterisation database</i> Leonardo Tognotti, University of Pisa, Italy
<b>9:45</b>	<i>Towards the Zero Emissions Power Plant in the electricity generation sector</i> Emmanuel Kakaras

### *Coffee break*

### *Parallel sessions*

	<b><i>Solid fuels, waste combustion and gasification</i></b> <b>Chairs: F. Scala</b>	<b><i>Turbulent Combustion</i></b> <b>Chairs: F. Marra</b>	<b><i>Pollutants formation and control</i></b> <b>Chairs: C. Allouis</b>
<b>11:00</b>	<b>III-9.</b> <i>Gasification of Porous Carbon Particle in Steam and Carbon Dioxide</i> V.M. Gremyachkin	<b>II-9.</b> <i>Stability Characteristics and Flame Structure of Low Swirl Burner</i> M. Mansour, Y.-C. Chen	<b>VII-10.</b> <i>CFD Simulation of Combustion in the Claus Furnace of a Sulphur Recovery Plant</i> M. Sassi, S. Ben Rejeb, A.K. Gupta
<b>11:25</b>	<b>III-10.</b> <i>Gasification Behaviour of Carbon Residue in Bed Solids of Black Liquor Gasifier</i> X. Zhang, F. Preto, J. Wang	<b>II-10.</b> <i>Study of the Flame-Burning Velocity Ratio Using PDF Monte Carlo Model</i> M. Lajili, S. Rachid	<b>VII-11.</b> <i>Turbulent methane/air diffusion impinging flame. Part I: Influence of dilution rate</i> N. Ghiti, S. Hanchi
<b>11:50</b>	<b>III-11.</b> <i>Thermochemical Modeling of Biomass Pyrolysis Pilot Plant For Regulation of Pyrolysis Fumes Combustion Used as Energy Resource</i> M. Ammar Abbassi, N. Grioui, K. Halouani, A. Zoulalian, B. Zeghmati	<b>II-11.</b> <i>Vaporisation rate in Turbulent Flow</i> A.A. Burluka, M. S. Sidhu	<b>VII-12.</b> <i>Comparison and Parametric Study of Flameless Oxidation in a Gas Turbine Using Two Kinetics Mechanisms</i> M. Hamdi, H. Benticha, M. Sassi

**Thursday, 13/6**

*Plenary sessions*

**Chairs: A. D'Anna**

*Combustion and Heat Transfer in Fire and Water tube Boiler Furnaces*  
Fawzy Elmahallawy, Cairo University, Egypt

*Towards Model-Based Closure in Turbulent Combustion*  
Tarek Echekki, North Carolina State University, USA

**Coffee Break**

**Parallel sessions**

	<i>Laminar flames</i> <b>Chairs: M. Ben Chiekh</b>	<i>Stationary combustion</i> <b>Chairs: F. Beretta</b>	<i>Propulsion and engines combustion</i> <b>Chairs: A. D'Anna</b>
<b>9:00</b>	<i>Combustion and Heat Transfer in Fire and Water tube Boiler Furnaces</i> Fawzy Elmahallawy, Cairo University, Egypt		
<b>9:45</b>	<i>Towards Model-Based Closure in Turbulent Combustion</i> Tarek Echekki, North Carolina State University, USA		
<b>Coffee Break</b>			
<b>Parallel sessions</b>			
	<i>Laminar flames</i> <b>Chairs: M. Ben Chiekh</b>	<i>Stationary combustion</i> <b>Chairs: F. Beretta</b>	<i>Propulsion and engines combustion</i> <b>Chairs: A. D'Anna</b>
<b>11:00</b>	<b>I-1.</b> Numerical Analysis of Flame Flashback in Laminar Premixed Combustion Chambers N.S. Mehdizadeh, A.S. Nichkoohi	<b>IV-1.</b> Combustion Dynamics Linked to Flame Behaviour in a Partially Premixed Swirled Industrial Burner F. Biagioli, F. Güthe and B. Schuermans	<b>V-1.</b> Experimental Study of Lean Premixed Pre-vaporised Combustion Fluctuations in a Gas Turbine Burner C. Allouis, A. Amoresano, F. Beretta
<b>11:25</b>	<b>I-2.</b> Comparison of Laminar Flame Velocity Measurement Techniques based on the Closed Vessel Method S. Jerzembeck, N. Peters	<b>IV-2.</b> Ignition Behaviour of Recirculating Spray Flames Using Multiple Sparks T. Marchione, S.F. Ahmed, E. Mastorakos	<b>V-2.</b> Diesel Engine Simulations with Multi-Dimensional Conditional Moment Closure G. De Paola, Y.M. Wright, K. Boulouchos, E. Mastorakos
<b>11:50</b>	<b>I-3.</b> Analysis of Premixed Flames Propagation in a Rotating Closed Vessel by Numerical Simulation F.S. Marra	<b>IV-3.</b> Experimental Evaluations of Stability Conditions of Diffusion Flames Produced by Atomization of Fuel Oils C.A. Montalbán, G.C. Krieger, F.D.A. Sousa, N.B. Ghisi	<b>V-3.</b> A Numerical Study of the Effects of IEGR on the Set-off Auto-Ignition in an HCCI Engine P. Osei-Owusu, S. Ibrahim and R. Chen
<b>12:15</b>	<b>I-4.</b> Oscillations of Premixed Flames in Tubes Near the Flashback Conditions V.N. Kurdyumov, J.-M. Truffaut, J. Quinard, A. Wangher, G. Searby	<b>IV-4.</b> Effects of Inclined Jets on Turbulent Oxy-Flame Characteristics in a Triple Jets Burner T. Boushaki, M.A. Mergheni, J.-C. Sautet, B. Labegorre	<b>V-4.</b> Investigation of Hydrogen Fuel on Diesel Engine C. Erman, R. Şahin, Ş. Özcan
<b>12:40</b>	<b>I-5.</b> Frequency Response of Counter Flow Diffusion Flames to Strain Rate Harmonic Oscillations A. Cuoci, A. Frassoldati, T. Faravelli, E. Ranzi		<b>V-5.</b> Evaluation of Engine Performance Using Net Diesel Fuel and Biofuel Blends B. Ghobadian, H. Rahimi, G. Najafi
<b>13:05</b>	<b>Lunch break</b>		
<b>15:30</b>	<b>Poster Session</b>		
<b>Afternoon Tea</b>			
	<i>Laminar flames</i> <b>Chairs: A. Simeoni</b>	<i>Stationary combustion</i> <b>Chairs: F. Biagioli</b>	
<b>16:40</b>	<b>I-6.</b> Influence of degradation gases on laminar flames from forest fuels V. Tihay, A. Simeoni, P.A. Santoni, J.P. Garo and J.P. Vantelon	<b>IV-5.</b> Conditional Moment Closure Modelling for Spark Ignition in a Turbulent n-heptane Spray E.S. Richardson, E. Mastorakos	
<b>17:05</b>	<b>I-7.</b> Study on Dilution Effect of N2 and CO2 on Extinction of Counter Flow Flame Y. Afarin, S. Tabejamaat	<b>IV-6.</b> A comparison between spray combustion simulations of raw and water-in-oil emulsified Fuel D. Tarlet, J. Bellettre, M. Tazerout, C. Rahmouni	