

JOINT MEETING:
FRENCH AND ITALIAN SECTIONS
IFRF and THE COMBUSTION INSTITUTE

23, 24 April 2014, Hotel San Ranieri, Pisa, Italy

PROGRAMME

Tuesday, April 22nd

Visit to **IFRF experimental facilities** in Livorno (25 min from Pisa by bus)

- 13:45 First bus departs from Hotel San Ranieri for Livorno
- 15:15 Second bus departs from Hotel San Ranieri for Livorno
- 16:00 First departure from Livorno for Hotel San Ranieri
- 17:30 Second departure from Livorno for Hotel San Ranieri

Wednesday, April 23rd

9:00-9:25 Welcome breakfast & registration

9:30 **Welcome address**

Sébastien CAILLAT (CF IFRF)

9:34 **Short presentation of the Combustion Institute**

Andrea D'ANNA (CI) & Armelle CESSOU (GFC)

9:40 **Short presentation of the IFRF**

Tomasz KLAJNY & Leo TOGNOTTI (IFRF)

Session A Towards an accurate modelling of multi-scale combustion systems

Chair: Barbara APICELLA (IRC-CNR, Napoli)

9:50 Keynote: **Progress and challenges towards accurate simulations of large-scale combustion systems** - Denis VEYNANTE (EM2C, CNRS, Paris)

10:35 **Oral presentations** (2 min per poster)

Pause and poster session A

12:15 *Lunch*

Session B Heterogeneous and spray combustion

Chair: Bertrand LEROUX (Air Liquide)

14:00 Keynote: **Oxidation of solid carbon: what we know and what we need to know** - Osvalda SENNECA (IRC-CNR, Naples)

14:45 **Oral presentations** (2 min per poster)

Pause and poster session B

17:00 **Energy in HORIZON 2020 workshop**

Chiara POCATERRA (APRE - Agenzia per la Promozione della Ricerca)

19:30 Gala dinner

Thursday, April 24th

Session C Air pollution control & environmental impact including CO₂ emissions

Chair: Guillaume LEGROS (UPMC, Paris)

- 9:00 Keynote: **New challenges in combustion for power generation**
Alessandro SAPONARO (Ansaldo, Gioia del Colle)
- 9:45 **Oral presentations** (2 min per poster)
Pause and poster session C
- 12:00 *Lunch*

Session D Alternative fuels

Chair: Andrea D'ANNA (DICMAPI, Napoli)

- 13:45 Keynote: **An experimental and modeling study of laminar flames of cyclic ether biofuels** - Frédérique BATTIN-LECLERC (LRGP, Nancy)
- 14:30 **Oral presentations** (2 min per poster)
Pause and poster session D
- 16:30 **Closing address**
Andrea D'ANNA (DICMAPI, Napoli)

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LIST OF POSTERS

Session A: Towards an accurate modeling of multi-scale combustion systems

KA1	D. Veynante	Progress and challenges towards accurate simulations of large-scale combustion systems
A1	A. Basco, F. Cammarota, V. Di Sarli, E. Salzano, A. Di Benedetto	Towards cRPT phenomenon of CH ₄ /O ₂ mixtures in meso-channels
A2	T. Vela, A. Landi, V. Battaglia, A. Della Rocca	Advanced numerical modelling of combustion and NO _x emissions from syngas burners for the steel industry
A3	F. Bianco, S. Chibbaro, G. Legros	Low-order theoretical modelling of micro-combustion
A4	M. Bissoli, A. Cuoci, A. Frassoldati, T. Faravelli, E. Ranzi	Kinetic modeling of HCCI combustion
A5	K. Bizon, G. Continillo, S. Lombardi, E. Mancaruso, P. Sementa, B.M. Vaglieco	Decomposition methods in engine research
A6	J. Caudal, B. Fiorina, B. Labegorre, O. Gicquel	Numerical simulation of methane autothermal reforming
A7	J. Goulier, K. Bizon, N. Chaumeix, G. Continillo, N. Meynet	Assessment of accurate laminar flame speed measurements
A8	P. Benard, V. Moureau, G. Lartigue, Y. D'Angelo	Large eddy simulations of a mesocombustion chamber with semi-complex finite rate chemistry
A9	S. Iavarone, M. Sirignano, A. De Candia, A. Fierro, L. De Arcangelis, A. D'Anna	Molecular dynamic approach for modelling inception process of combustion-generated carbonaceous nanoparticles
A10	M.G. De Giorgi, A. Sciolti, A. Taurino, A. Ficarella	Flame instability characterization by image processing and frequency analysis
A11	A. Di Stazio, C. Chauveau, G. Dayma, P. Dagaut	Combustion in micro-channels with a controlled temperature gradient
A12	J. Lamouroux, M. Ihme, B. Fiorina, O. Gicquel	Tabulated chemistry approach for diluted combustion regimes with internal recirculation and heat losses
A13	G. Miniati, A. Parente, C. Galletti, L. Tognotti	Chemistry reduction for the modeling of an ethylene jet flame in diluted and heated coflow
A14	T.F. Guiberti, L. Zimmer, D. Durox, T. Schuller	Analysis of heat loss effect on the stabilization of swirled confined flames
A15	M. Vangenechten, D. Lupant	Combustion model validation in a semi-industrial scale furnace equipped with low NO _x burner
A16	R. Mercier, T.F. Guiberti, L. Zimmer, D. Durox, O. Gicquel, N. Darabiha, T. Schuller, B. Fiorina	LES modeling of turbulent combustion in industrial furnaces
A17	C. Movileanu, D. Razus, V. Giurcan, V. Gosa	Experimental and numerical study of ethylene flame propagation in enclosures
A18	P. Sabia, G. Sorrentino, M. De Joannon, A. Cavaliere, R. Ragucci	Mild oxy-combustion of propane in a mesoscale turbulent burner
A19	D. Scarpa, G. Sorrentino, R. Ragucci, A. Cavaliere	Full characterization of material surfaces in transitional gaseous mixing flows
A20	M.A. Soroudi	Large eddy simulation of enclosure fires using fireFOAM and FDS softwares
A21	M.A. Soroudi	Numerical simulation of flame acceleration and DDT in obstructed domains
A22	A. Stagni, A. Frassoldati, A. Cuoci, T. Faravelli, E. Ranzi	Coupling sensitivity analysis and reacting flux analysis for optimal mechanism reduction
A23	A. Urbano, L. Selle, T. Poinso	High-frequency combustion instabilities in LO _x /H ₂ LRE

Session B: Heterogeneous and spray combustion

KB2	O. Senneca	Oxidation of solid carbon: what we know and what we need to know
B1	M. Alfè, P. Ammendola, V. Gargiulo, F. Raganati, R. Chirone	CO ₂ uptake capacity of magnetite loaded carbon fine particles in a sound assisted fluidized bed
B2	P.S. Barbato, V. Di Sarli, G. Landi, A. Di Benedetto	Partially coated LaMnO ₃ monoliths as high pressure CH ₄ catalytic combustor
B3	J. Billaud, S. Valin, M. Peyrot, S. Salvador	Biomass gasification between 800 and 1400 °C in the presence of O ₂ : drop tube reactor experiments and simulation
B4	S. Cimino, G. Mancino, L. Vazquez-Gomez, E. Verlato	Pd-FeCr alloy foam catalysts for the oxidation of CO and CH ₄
B5	G. Coraggio, M. Faleni, L. Tognotti, M. Gamba, F. Botteghi, S. Armani	Development of innovative measurement system for gas sampling and in-flame analysis (CO, CO ₂ , nitrogen species, hydrocarbons)
B6	G. Coraggio, P.F. Guagnano, M. Faleni, T. Klajny, L. Tognotti	Design and characteristics of oxy-coal burners: from pilot scale to industrial tests
B7	D. Zabrodiec, P. Scouflaire, N. Darabiha	Experimental analysis of pulverized coal combustion in a laminar strained burner
B8	S. Andreoli, C. Galletti, F.A. Deorsola, R. Pirone	Nanostructured MnOx catalysts for low-temperature NOx SCR for stationary applications
B9	S. Castillo, F.A. Deorsola, S. Bensaid, N. Russo, D. Fino	Synthesis and characterization of multifunctional dual layer catalyst BaO/Pt/CeO ₂ for simultaneous NOx and soot abatement
B10	F.A. Deorsola, N. Russo, D. Fino, R. Pirone	Removal of CH ₄ emitted by CNG vehicles via Pd-SBA-15 and Pd-KIT-6 mesoporous silica catalysts
B11	P. Miceli, S. Bensaid, D. Fino	CeO ₂ -based catalysts with engineered morphologies for soot oxidation to enhance the soot-catalyst contact
B12	M. Piumetti, N. Russo, D. Fino	Complete oxidation of volatile organic compounds over manganese oxide catalysts
B13	C. Galletti, G. Coraggio, E. Giacomazzi, S. Giammartini, L. Tognotti	Novel diagnostics of oxy-coal combustion in a semi-industrial scale furnace
B14	G. Gentile, A. Cuoci, A. Frassoldati, T. Faravelli, E. Ranzi	A comprehensive numerical tool for the advanced modelling of pyrolysis, combustion and gasification of biomass
B15	V. Gargiulo, P. Giudicianni, M. Alfè, C. Chesi, R. Ragucci	Characterization of liquid fraction of steam assisted pyrolysis products of arundo donax and hemicellulose, cellulose and lignin mixtures
B16	E. Kapsuz, Y. Yükselentürk, B. Yilmaz, A. Yilmaz, İ. Gökcalp	Development of pulverized coal burners for high ash lignites
B17	P. Leoni, M. Paci, N. Rossi, G. Coraggio, M. Faleni, F. Cotana	Characterization of lignin by means of devolatilization and combustion tests on an isothermal plug flow reactor (IPFR)
B18	O. Nave, V. Gol'dshtein	Polydisperse fuel spray flame based on droplet size moments
B19	M. Peyrot, G. Ratel, B. Spindler, S. Valin, S. Salvador, J. Billaud	Modelling steam gasification of 0.35 mm and 0.80 mm wood particles in a drop tube reactor
B20	M. Peyrot, C. Perret, G. Ratel, T. Chataing, S. Valin, J. Billaud	CFD simulations of a biomass entrained flow reactor

B21	L. Ricci	Liquid fuel atomizer using porous media
B22	C. Russo, F. Stanzione, A. Tregrossi, A. Ciajolo	Quantitative analysis of aromatic hydrogen for determining the structure of polyaromatic systems typical of carbon materials. Case study: anthracene oil
B23	M.E. Russo, P. Bareschino, G. Diglio, G. Olivieri, R. Chirone, P. Salatino, A. Marzocchella	Biomimetic CO ₂ capture: theoretical study of slurry absorber
B24	M. Calderara, N. Russo, P. Akhter, M. Hussain, G. Saracco	Photocatalytic conversion of carbon dioxide and water vapor to hydrocarbons and hydrogen
B25	F. Scala	Gasification kinetics of lignite char with CO ₂ and H ₂ O in a fluidized bed
B26	O. Senneca, M. Causà, G. Levi, L. Cortese, P. Salatino	Thermochemistry of coal oxidation
B27	O. Senneca, P. Salatino	Design of a carbon looping combustion process
B28	M. Causà, O. Senneca, L. Cortese, G. Levi, P. Salatino	Structural study of low temperature oxygen absorption on coal
B29	P. Skryja, P. Belohradsky	Dual oil-gas burner
B30	T. Tuccillo, O. Senneca	Lumped kinetics of reactions of volatiles and tar from plastic wastes

Session C: Air pollution control and environmental impact including CO₂ emissions

KC3	A. Saponaro	New challenges in combustion for power generation
C1	B. Apicella, M. Alfè, A. Ciajolo, V. Gargiulo, C. Russo, A. Tregrossi, D. Deldicque, P. Pré, J.-N. Rouzaud	High resolution electron transmission microscopy (HRTEM) and raman spectroscopy for studying soot nanostructure evolution in flames
C2	M. Balsamo, A. Erto, A. Lancia, F. Montagnaro	Application of activated carbons incorporating [Emim][Gly] ionic liquid for post-combustion CO ₂ capture
C3	S. Bertagna, C. Morreale, G. Migliavacca, R. Rota, M. Derudi	Bioethanol fireplaces and other combustion sources of indoor air pollution: a comparative study
C4	E. Delangle, B. Lecordier, C. Lacour, A. Cessou	Laminar propagation of lean premixed flames ignited in stratified mixture
C5	R. Dondè, A. Capruzzi, F. Cozzi	Ignition delay of kerosene/water emulsion
C6	S. Bejaoui, M. Creyx, E. Delacourt, E. Therssen, C. Morin, B. Desmet	Characterization of particle emissions and temperature profiles in a domestic wood pellet-fuelled boiler: influence on the radiative heat flux at the combustion chamber wall
C7	C. Carotenuto, F. Di Natale, L. D'Addio, A. Lancia, A. Jaworek, A. Krupa, M. Szudyga, D. Gregory, M. Jackson, P. Volpe, S. Cimino, L. Lisi, A. Charchalis, R. Beleca, N. Mannivannan, M. Abbod, W. Balachandran	Abatement of ultrafine particles and acid gases by electrostatic seawater scrubbing
C8	G. De Falco, M. Commodo, P. Minutolo, A. D'Anna	An experimental study of adhesion and attractive forces of different flame-formed carbon nanoparticles using atomic force microscopy
C9	F. Migliorini, S. Maffi, S. De Iuliis	Investigation of carbonaceous particles by using laser-induced incandescence measurements
C10	A. Di Nardo, G. Calchetti	CO ₂ diluted premixed combustion in a high internally recirculated burner

C11	A. Di Nardo, G. Calchetti	Oxy-fuel combustion in a conventional gas turbine burner
C12	R. Dondè, F. Migliorini, S. De Iuliis	Applicability of laser-induced breakdown spectroscopy for local equivalence ratio measurements
C13	S. Ferrario, C. Saggese, A. Frassoldati, A. Cuoci, E. Ranzi, T. Faravelli	Sensitivity analysis on soot formation and PSDFs
C14	A. Filippi, S. Armani	The polimiter – a new concept instrument for real time monitoring of fly ash, loss of ignition, ammonia concentration and granulometry – a help to reduce environmental impact and ash waste disposal
C15	M.L.V. Di Blasi, S. Gasperetti, C. La Marca	Enel I&R experience on mercury behavior across the flue gas treatment systems in fossil fuel power plant
C16	G. Boutin, D. Honoré	A high temperature endoscope for chemiluminescence imaging in combustion facility
C17	I. Hudak, P. Belohradsky, P. Skryja	Investigation of oxygen-enhanced combustion method on combustion characteristics in non-premixed gaseous flames
C18	A. Jocher, H. Pitsch, T. Gomez, J. Bonnetty, G. Legros	Magnetic forces influencing soot and emission in laminar diffusion flames
C19	D.A. Lacoste, J.P. Moeck	Effect of non-thermal plasma on the dynamics of a lean premixed methane-air flame
C20	P. Leoni, S. Gasperetti, M. Paci, E. Tosi, N. Rossi, G. Coraggio, M. Faleni	Characterization tests of an EFMGT (externally-fired micro gas turbine) power plant with conventional and non-conventional biomass feedstocks
C21	M. Lubrano Lavadera, P. Sabia, M. De Joannon, R. Ragucci	H ₂ O effect on propane autoignition delay times under mild combustion operative conditions
C22	C. La Marca, A. Mangiaracina, L. Zangrilli	Results of the 2.25 t/h post-combustion CO ₂ capture pilot plant of Enel at the Brindisi coal power plant
C23	M. Marin, F. Baillet	Experimental study of non-premixed methane air flame lifting by air-side or fuel-side dilution
C24	N. Merlo, T. Boushaki, C. Chauveau, S. De Persis, İ. Gökalp	Oxygen-enhanced turbulent non-premixed swirling methane flames for CO ₂ capture applications
C25	G. Angrisani, K. Bizon, R. Chirone, G. Continillo, B. Cosenza, G. Fusco, S. Lombardi, F.S. Marra, F. Miccio, M. Miccio, C. Roselli, M. Sasso, R. Solimene, F. Tariello, M. Urciuolo	Automatic control and load regulation of a solar-biomass powered prototype combining a fluidized bed and a stirling engine for household cogeneration
C26	A. Coppola, F. Montagnaro, L. Palladino, F. Scala, P. Salatino	Steam hydration-induced reactivation of calcium looping spent limestone-based sorbents
C27	M. Passaro, V. Gargiulo, A. Tregrossi, X. Wang, N. Spinelli, B. Apicella	Quantitative on-line analysis of flame-formed PAH by molecular beam time of flight mass spectrometry (MB-TOFMS)
C28	P. Pedata, M. Marano, L. Malorni, P. Minutolo, A. D'Anna	In vitro study of apoptotic and proinflammatory effect of combustion-generated organic nanoparticles
C29	C. Tregambi, F. Montagnaro, P. Salatino, R. Solimene	Modeling CO ₂ capture from flue gas via calcium looping in a fluidized bed multiple reactor system operated without auxiliary fuel
C30	M. Troiano, F. Montagnaro, L. Pirro, R. Solimene, P. Salatino	Experimental investigation of particle-wall interactions at different length scales relevant to entrained-flow slagging coal gasifiers
C31	Q. Wang, J. Bonnetty, C. Morin, G. Legros	Simultaneous soot volume fraction and soot temperature fields in axis-symmetric flames by modulated absorption/emission technique

Session D: Alternative fuels

KD4	F. Battin-Leclerc	An experimental and modeling study of laminar flames of cyclic ether biofuels
D1	L. Acampora, E. Mancusi, F.S. Marra	An algorithm for the continuation analysis of detailed kinetics schemes
D2	S. Epesse Misse, S. Caillat, M. Obounou, L.M. Ayina, A. Brillard, C. Schönnenbeck, J.-F. Brilhac	Oil palm kernel potential as fuel for metallurgical applications: thermo gravimetric analysis study for bed combustion modelling
D3	A. Comandini, N. Chaumeix, A. Bentaib	Flammability diagrams of H ₂ /CO/CH ₄ mixtures diluted with helium or carbon dioxide
D4	M. Conturso, M. Sirignano, A. D'Anna	Effect of alkylated aromatics on particle formation in diffusion flames
D5	M. Cerea, R. Rota, M. Derudi	Preliminary study on mild combustion characteristics of a butanol-containing fuel
D6	T. Florea, C. Marty, T. Nocquet, M. Al Haddad	Nitrogen oxides abatement numerical investigation within a reciprocating grate biomass fired boiler
D7	A. Ba, A. Cessou, X. Paubel, D. Honoré	On the potential of reactants preheating for the improvement of low calorific oxyfuel combustion
D8	M. Kashif, J. Bonnetty, G. Legros	Yield sooting indices of some gasoline surrogate fuels
D9	G. Mosca, D. Lupant	Diluted combustion of low calorific, alternative fuels on a 30 kW furnace
D10	X. Paubel, R. Tsiava, C. Renna	Alternative fuel oxy-firing in fluidized bed
D11	M. Pelucchi, A. Frassoldati, E. Ranzi, T. Faravelli	Kinetic modeling study of C1-C5 aldehydes oxidation in shock tubes
D12	P. Brachi, R. Chirone, F. Miccio, M. Miccio, A. Picarelli, G. Ruoppolo	Fluidized bed co-gasification of biomass and plastic wastes
D13	H.H. Kim, V. Sadasivuni, C. Periasamy	First order evaluation of combustion characteristics of LCV fuels for industrial burner development

Delegates will receive a printed Abstract Book (ISBN: 978-88-88104-16-4).

Pdf's will be downloadable from the website of the Italian Section of The Combustion Institute:

<http://www.combustion-institute.it/>