

# 10<sup>th</sup> ECCRIA – Detailed Programme (provisional)

Monday, 15<sup>th</sup> September - 09.15-09.55

## **Opening Session**

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Monday, 15<sup>th</sup> September - 10.00-11.20

## **Session 1A - CO<sub>2</sub> capture technology**

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- 10.00 *Pilot plant results for advanced CO<sub>2</sub> capture process using amine scrubbing*  
Adam Tatarczuk, Institute for Chemical Processing of Coal, Poland
- 10.20 *Integration of calcium looping technology in existing cement plant for CO<sub>2</sub> capture: process simulation and economic perspectives*  
Konstantinos Atsonios, Centre for Research and Technology Hellas, Greece
- 10.40 *Identification of heat integration opportunities in calcium looping CO<sub>2</sub> capture plant*  
Dawid Hanak, Cranfield University, UK
- 11.00 *A CO<sub>2</sub> capture technology using multi-walled carbon nanotubes with polyaspartamide surfactant*  
Jacob M Ngoy, University of the Witwatersrand, South Africa

## **Session 1B - Gasification 1**

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- 10.00 *Production of syngas by pressurised fluidised bed gasification of German lignite in a steam/carbon dioxide atmosphere*  
Xiangyi Long, Imperial College London, UK
- 10.20 *Study of operating and material parameters for continuous lock-free feeding into gasification using briquetting press*  
Alexander Rosin, TU Bergakademie Freiberg, Germany
- 10.40 *Pressurised gasification of coal chars under CO<sub>2</sub>/CO atmospheres – a kinetic study*  
Grzegorz Tomaszewicz, Institute for Chemical Processing of Coal, Poland
- 11.00 *Power generation and CO<sub>2</sub>-free hydrogen production from coal and biomass gasification: the Sotacarbo experience*  
Caterina Frau, Sotacarbo SpA, Italy

Monday, 15<sup>th</sup> September - 11.45-13.05

## **Session 2A - Modelling of oxy-fuel and CCS**

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- 11.45 *Modelling and simulation of a coal-fired supercritical power plant integrated to a CO<sub>2</sub> capture plant*  
Elvis Agbonghae, University of Leeds, UK
- 12.05 *Estimation of density for partially carbonated alkanolamine solutions using quantitative structure-property relationships (QSPR)*  
Maran Stec, Institute for Chemical Processing of Coal, Poland
- 12.25 *LES and RANS of air and oxy-coal combustion in a pilot-scale facility: predictions of radiative heat transfer*  
Alessandro Pranzitelli, University of Leeds, UK
- 12.45 *Lattice Monte Carlo simulation of single coal char particle combustion under oxy-fuel conditions*  
Rastko Jovanovic, Institute of Nuclear Sciences "Vinca", Serbia

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<b>Session 2B - Torrefaction of biomass</b>	
11.45 <i>The effect of particle size on the torrefaction of willow and eucalyptus</i> Leilani Darvell, University of Leeds, UK	
12.05 <i>Experimental study on cofiring high shares of torrefied fuels in a 500KW pulverized coal boiler</i> Collins Ndibe, Universität Stuttgart, Germany	
12.25 <i>Possibilities of torrefied biomass co-gasification and co-firing</i> Kathrin Bienert, DBFZ (Deutsches Biomasseforschungszentrum), Germany	
12.45 <i>Characterization and co-firing potential of a high ash coal with Bambusa Bacooa</i> Samson Bada, University of the Witwatersrand, South Africa	

Monday, 15<sup>th</sup> September - 14.20-16.00

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<b>Session 3A - CO<sub>2</sub> capture, modelling aspects</b>	
14.20 <i>Neural network approach for predicting drum-boiler dynamics in coal-fired subcritical power plant</i> Eni Oko, University of Hull, UK	
14.40 <i>Modelling and simulation of intensity regenerator for post combustion CO<sub>2</sub> capture</i> Atuman Joel, University of Hull, UK	
15.00 <i>Modelling and optimisation of a post-combustion CO<sub>2</sub> capture process using neural networks</i> Jie Zhang, Newcastle University, UK	
15.20 <i>Dynamic modelling and simulation of steam generation in once-through supercritical boiler: distributed vs lumped parameter approach</i> Meihong Wang, University of Hull, UK	
15.40 <i>Optimal functioning parameters for a Stirling engine heater</i> Fethi Aloui, Université de Monastir, Tunisia	

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<b>Session 3B - Coal-derived products 1</b>	
14.20 <i>Predicting coking pressures through a combination of different analytical parameters</i> Miguel Castro-Diaz, University of Nottingham, UK	
14.40 <i>Impact of coking conditions on CSR</i> Philip Bennett, ALS Coal, Australia	
15.00 <i>Investigation in properties of new cokes of metallurgical quality: porous structure, optical texture, wettability with blast-furnace slag</i> Ilya Moskalev, Institute of Technical Chemistry of Ural Branch of the RAS, Russia	
15.20 <i>Evaluation of coking coals</i> Philip Bennett, ALS Coal, Australia	
15.40 <i>Feasibility of cyclic CO<sub>2</sub> injections in SA coals to evaluate CH<sub>4</sub> desorption for ECBM potential</i> Kasturie Premllal, Tshwane University of Technology, South Africa	

Tuesday, 16<sup>th</sup> September - 09.00-10.20

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<b>Session 4A - Flow measurement</b>	
09.00 <i>Flow characterisation of coal and inert particles in a circulating fluidised bed using an electrostatic sensor array</i> Wenbiao Zhang, North China Electric Power University, China	

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09.20 *Development of an electrical array sensor for monitoring particle size, velocity and concentration in a pneumatically conveyed coal/biomass flow*  
James Coombes, University of Kent, UK

09.40 *Concentration measurement of pulverised coal in pneumatic conveying pipelines using acoustic emission and electrostatic sensors*  
Yonghui Hu, North China Electric Power University, China

10.00 *Theoretical study on leakage of urban medium-pressure natural gas pipeline*  
Xingxing Zhang, Tsinghua University, China

### **Session 4B - Low rank and brown coals**

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09.00 *Processing of low rank coal for various applications*  
Roland Aekersberg, Loesche, Germany

09.20 *Reactivity analysis of Thar (Pakistan) lignite under various conditions in a thermogravimetric analyser and combustion in a pulverised fuel rig*  
Muhammad Tayyeb Javed, University of Leeds, UK

09.40 *Numerical investigation of a lignite-fired boiler under low load operating conditions after the application of a new firing concept towards increasing flexibility*  
Nikolaos Nikopoulos, Centre for Research and Technology Hellas, Greece

10.00 *Fast pyrolysis of a German brown coal in a pressurised drop tube reactor*  
Stephan Siegl, TU Bergakademie Freiberg, Germany

Tuesday, 16<sup>th</sup> September - 10.45-12.25

### **Session 5A - Characterisation**

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10.45 *Bond Index and Hardgrove Grindability Index test for biomass and coal*  
Orla Williams, University of Nottingham, UK

11.05 *A novel procedure to identify mercury species in carbonaceous materials*  
Marta Rumayot, CSIC, Spain

11.25 *Combustion perspectives of Pakistani coals with specific emphasis on Salt range and Trans Indus coal*  
Muhammad Akram, University of Leeds, UK

11.45 *Using micro-Raman spectroscopy as tool to predict slagging and fouling propensities of coals*  
Herman Potgeiter, University of the Witwatersrand, South Africa

12.05 *Indian coal classification using self-organising maps*  
Jallu Krishnaiah, BHEL, India

### **Session 5B - Boilers and combustion**

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10.45 *A tale of two boilers*  
David French, CSIRO, Australia

11.05 *CO<sub>2</sub>-enhanced coal gasification in circulating fluidised bed reactor*  
Grzegorz Tomaszewicz, Institute for Chemical Processing of Coal, Poland

11.25 *Comparison of explosion characteristics of Colombian and Kellingley coal*  
Clara Huescar, University of Leeds, UK

11.45 *Coal combustion and performance of a circulating fluidised bed boiler - a case study*  
B Saravana Bavan, Parsons Brinckerhoff, UK

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- 12.05 *Optimal integration of a coal-fired power plant to a CO<sub>2</sub> capture plant based on parametric studies*  
Elvis Agbonghae, University of Leeds, UK

Tuesday, 16<sup>th</sup> September - 13.40-15.00

### **Session 6A - Oxy-fuel combustion**

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- 13.40 *3-D reconstruction and characterisation of oxy-coal flames on a 250KW combustion test facility*  
Gang Lu, University of Kent, UK

- 14.00 *Kinetic study on pressurized oxy-fuel combustion of coal chars*  
Piotr Babinski, Institute for Chemical Processing of Coal, Poland

- 14.20 *Investigations of oxy-fuel char combustion and surface reactions kinetics in the isothermal drop-tube furnace*  
Jaroslaw Hercog, Institute of Power Engineering, Poland

- 14.40 *Exergy analysis on pollutant emission and environmental impact assessment of power plant*  
Wenhuan Wang, Shanghai University, China

### **Session 6B - Emissions**

**Page**

- 13.40 *Fuel enrichment clean coal technology for improving efficiency and reducing emissions*  
Syed Sheraz Daood, International Innovative Technologies, UK

- 14.00 *Conversion of SO<sub>2</sub> during pressurized oxy-fuel combustion*  
Janusz Lasek, Institute for Chemical Processing of Coal, Poland

- 14.20 *Influence of oxy-fuel combustion conditions on mercury retention by fly ashes*  
Nuria Fernandez Miranda, National Institute of Coal, Spain

- 14.40 *Activity and characterization of a Ce-W-Ti oxide catalyst prepared by a sol-gel method for selective catalytic reduction of NO with NH<sub>3</sub>*  
Ye Jiang, China University of Petroleum, China

Tuesday, 16<sup>th</sup> September - 15.25-16.45

### **Session 7A - Biomass 1**

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- 15.25 *Single particle flame-combustion studies on solid biomass fuels*  
Patrick Mason, University of Leeds, UK

- 15.45 *Mechanical degradation of woody biomass pellets during storage in stockpiles*  
Shalini Graham, University of Nottingham, UK

- 16.05 *Vinasse – a potential biofuel, co-firing with coal in a fluidised bed*  
Muhammad Akram, University of Sheffield, UK

- 16.25 *Biomass co-firing demonstration for Indian coals*  
Sivaji Seepana, BHEL Trichy, India

### **Session 7B - Coal-derived products 2**

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- 15.25 *Processing of hard coal fines by binder briquetting for use in smelting reduction processes*  
Reinhard Lohmeier, TU Bergakademie Freiberg, Germany

- 15.45 *Inhibition of chlorinated organic compounds production by co-pyrolysis of poly (vinyl chloride) with cation exchanged coal*  
Motoyuki Sugano, Jissen Women's University, Japan

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- 16.05 *Opportunities to improve the utilisation of coals for blast furnace coal injection*  
Julian Steer, Cardiff University, UK
- 16.25 *The micro-criteria for production well and stimulation design in coalbed methane exploitation of Liulin District, Eastern Ordos Basin, China*  
Hongyan Qu, China University of Petroleum (Beijing), China

Wednesday, 17<sup>th</sup> September - 09.00-10.40

- Session 8A - Ash, trace element and deposition** **Page**
- 09.00 *Advances in understanding trace element partitioning during pulverized coal combustion*  
Wayne Seames, University of North Dakota, USA
- 09.20 *Correlations of ash fusion temperatures for ashes from hard coal, lignite, and biomass with mineral composition under different atmosphere conditions*  
Markus Reinmöller, TU Bergakademie Freiberg, Germany
- 09.40 *Major and trace elements in coal bottom ash at different oxy-coal combustion conditions*  
Bilainu Oboirien, CSIR South Africa, South Africa
- 10.00 *A regime-segregated model for trace element partitioning during pulverized coal combustion*  
Wayne Seames, University of North Dakota, USA
- 10.20 *Investigations into clinker formation on boiler surfaces in a large-scale pulverised coal fired boiler*  
Hari Vuthaluru, Curtin University, Australia

- Session 8B - Pyrolysis, UCG, liquefaction** **Page**
- 09.00 *Experimental study on the impact of pressurized gases in the efficient energy conversion of gasified coal-char to syngas in the context of underground coal gasification*  
Eleni Konstantinou, Cardiff University, UK
- 09.20 *Direct liquefaction of lower-rank coals as a sustainable route to fuels*  
Yvonne Traa, University of Stuttgart, Germany
- 09.40 *Partial coal pyrolysis and its implication to enhance coalbed methane recovery, part II: numerical simulation and performance analysis*  
Yidong Cai, China University of Geosciences, China
- 10.00 *A novel nano-Ni/MgO catalyst for hydrogen production from steam reforming or ethanol/methanol*  
Tao Wu, University of Nottingham, UK
- 10.20 *Mechanism of improving slurryability of brown coal by using solvent pre-treatment*  
Meng Liu, Southeast University, China

Wednesday, 17<sup>th</sup> September - 11.05-12.45

- Session 9A - Biomass 2** **Page**
- 11.05 *Experimental ignition of biomass and coal particles in oxy-fuel atmospheres for CO<sub>2</sub> capture*  
Ignacio Trabadela, University of Edinburgh, UK

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- 11.25 *Prediction of biomass char yield and reactivity by universal correlation with aromatic carbon content*  
Philip Jenkinson, University of Nottingham, UK
- 11.45 *Synergetic effect during biomass co-firing under oxy-fuel conditions*  
Timipere Salome Farrow, University of Nottingham, UK
- 12.05 *Experimental study on ignition behaviour of coal and biomass in a visual drop tube furnace*  
Tom Bennet, University of Nottingham, UK
- 12.25 *Simulation of conventional and CO<sub>2</sub> enhanced biomass gasification: a comparative assessment using aspen plus*  
Tao Wu, University of Nottingham, UK
- Session 9B - IGCC and gas turbines**
- 11.05 *Dynamic simulation study on IGCC process with novel activated carbon based pre-combustion carbon capture*  
Yue Wang, University of Warwick, UK
- 11.25 *Large eddy simulation of combustion instability in gas turbine engines*  
Jianguo Wang, University of Hull, UK
- 11.45 *Energy and exergy analysis and optimisation of Integrated Gasification Combined Cycle (IGCC) power plants with carbon capture and storage*  
Ye Huang, University of Ulster, UK
- 12.05 *Application of Helmholtz resonators as combustion dynamics stabilising devices for advanced power generation*  
Philip Rubini, University of Hull, UK
- 12.25 *Heat integration study of combined cycle gas turbine power plant integrated with post-combustion CO<sub>2</sub> capture and compression*  
Xiaobo Luo, University of Hull, UK

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