

REGISTRATION & PROGRAMME

7TH EUROPEAN CONFERENCE ON COAL RESEARCH & ITS APPLICATIONS



Organised by the Coal Research Forum
<http://www.coalresearchforum.org>



3rd – 5th September 2008

Cardiff School of Engineering
Cardiff University
Aberconway Building
Cardiff
Wales UK

Sponsored by

BCURA, Doosan Babcock Energy Ltd., E.ON, IEA Clean Coal Centre,
International Power plc, Rio Tinto plc, RWEpower plc and SRK Consulting (UK) Ltd.

BACKGROUND

The Coal Research Forum was formed in 1989 to encourage, promote and co-ordinate basic research on coal, coal characterisation, coal products and coal utilisation in the UK. Particular emphasis is given to the promotion and co-ordination of contact between academe and industry and the assessment and co-ordination of resources and needs concerned with coal utilisation and conversion.

The UK National Meeting on Coal Research and its Applications was first held in 1996 and, with the seventh meeting planned for September 2008; this is now an established biennial event. The sixth meeting, held in 2006 at the University of Kent, was successful in attracting nearly 100 abstracts, which were given mainly as oral presentations with around 35 poster presentations. A special publication of FUEL was subsequently prepared which included a number of the presentations as full papers. Building on this success the seventh meeting is to be held at Cardiff University.

Wales has undergone many changes in the last decade and nowhere is this more apparent than the transformation of the capital city, Cardiff. Very compact for a city, and far quieter than London, it attracts large numbers of visitors who come for the shopping, the nightlife, the peaceful parks and surrounding countryside and the modern delights of the city centre and Bay development. Cardiff was proclaimed capital of Wales in 1955, and is Europe's youngest capital city. Situated on the Bristol Channel, Cardiff has a proud heritage of being one of the great seaports of the world. Today Cardiff is an exciting city to visit, a rich blend of ancient and modern, where the cities fine Victorian and Edwardian architecture is being complemented by some of the most innovative of new developments.

It is hoped that attendees from outside the UK will continue to support this event and enjoy their visit to Wales.

SCOPE AND PURPOSE

The purpose of this conference is to bring together researchers in universities with participants from industry who also carry out research or are interested in the application of the research in industry. Papers are invited which describe applications in coal utilisation and preparation with particular reference to the following areas: *improving efficiency and reducing emissions in conventional power generation, CO₂ removal and storage technologies, advanced power generation, modelling, sensors, instrumentation and control, emissions issues – including, mercury, VOC's and fine particulates, co-firing of coal, particularly with biomass and wastes, carbonisation and other metallurgical uses, coal preparation and handling and other coal conversion processes.* Research students are also strongly encouraged to submit papers attend and give presentations and there will be a reduced fee for students.

PROCEEDINGS

All authors of accepted papers are invited, should they wish, to send a full paper to the Conference Secretary by 30th September 2008. It is intended that these will be published in a special edition of FUEL. All full papers will be subject to the normal refereeing requirements of FUEL and should be prepared in accordance with the instructions for authors, which are published by the journal.

REGISTRATION

One of the principal aims of this conference is to encourage wide participation and to enable this to happen the cost to participants has been kept to a reasonable level. The Conference Fee will be £260 for members of the CRF, the Coal Utilisation Subject Group of the IChemE (CUSG) and the Mineral Engineering Society (MES). For non-members the fee is £390. The fee will include tea/coffee and lunches, a buffet reception on the evening of Wednesday 3rd September and a Conference Dinner, which will take place on the evening of Thursday, 4th September. There will be a reduced fee of £130 for bona-fide research students of CRF, CUSG and MES members. Student registrations should be accompanied by a letter from their supervisor confirming student status. The fee for students from non-CRF, CUSG or MES members is £260. There will also be a single day rate, which is set at £115 for CRF, CUSG or MES members or students of non-CRF, CUSG and MES members, £165 for non-members and £65 for students of CRF, CUSG or MES members. The single day rate includes tea/coffee and lunch on that day only. The cost for the buffet dinner on Wednesday 3rd is £22 and for the Conference dinner on Thursday 4th is £32. All participants are asked to meet their own accommodation and travel costs and details of accommodation options are given below. **It should be noted that a surcharge of £50 per application will be charged for if Conference Registration fees are submitted after 31st July 2008.**

ACCOMMODATION

Accommodation will be available in the Halls of Residence. The cost for single room bed and breakfast accommodation with en-suite facilities is £30 per night. Those wishing to reserve the above accommodation should include both their registration and accommodation costs when they return the registration form. Participants wishing to reserve accommodation in local hotels should indicate on the registration form and information will be sent for them **to make their own arrangements.**

ORGANISING COMMITTEE

Prof. J.W. Patrick	University of Nottingham	(Chairman)
Dr A.W. Thompson	Consultant	(Secretary)
Dr D.J.A. McCaffrey	McEnergy	(Treasurer)
Mr R.M. Davidson	IEA Clean Coal Centre	(Programme Co-ordinator)
Prof. A.J. Griffiths	Cardiff University	(Local Organiser)
Prof. K. Williams	Cardiff University	(Local Organiser)
Dr R. Marsh	Cardiff University	(Local Organiser)
Mr B.W. Smith	Doosan Babcock Energy Ltd.	(Industrial Representative)
Mr P. Cook	E.ON	(Industrial Representative)

FURTHER INFORMATION

If further information is required please contact:

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Mickleover,
Derby, DE3 9GA,
UK.

Tel: +44 (0) 1332 514768
Fax: +44 (0) 115 902 4006
e-mail: awt_crf@btinternet.com

IEA CLEAN COAL CENTRE WORKSHOP

An IEA Clean Coal Centre Workshop on Perspectives on Cofiring and Coprocessing will take place the day before the 7th European Conference on Coal Research & its Applications. It will begin at lunchtime on Tuesday, 2 September 2008. It will be hosted by the Clean Coal Centre and there will be no fee to attend the event; lunch and refreshments will also be provided. Anyone interested in attending or contributing to the workshop should contact Robert Davidson at the Clean Coal Centre, robert@iea-coal.org.uk

Tuesday, 2nd September 2008

Details concerning registration for the conference and for accommodation in the Halls of Residence will be described in the Conference Joining Instructions which will be sent to every registered attendee shortly before the conference.

Wednesday, 3rd September 2008

08.30am	Arrival, registration, coffee, tea	
09.20am	Welcome from Professor Hywel Thomas, Cardiff University.	
09.30am	Opening address by Dr Mike Farley, Doosan Babcock Energy Ltd.	
10:10am	Session 1A: CARBON CAPTURE 1	Session 1B: COMBUSTION MODELLING
11:10am	Break	
11:40am	Session 2A: COFIRING & COPROCESSING BIOMASS	Session 2B: ANALYTICAL TECHNIQUES
1:00pm	Lunch	
2:30pm	Session 3A: COMBUSTION	Session 3B: PYROLYSIS & CARBONISATION
3:50pm	Break	
4:30–7:30pm	Poster session and buffet dinner (Julian Hodge building).	

Thursday, 4th September 2008

9:00am	Session 4A: OXYFUEL & CHEMICAL LOOPING COMBUSTION	Session 4B: FLUE GAS CLEANING
10:20am	Break	
10:50am	Session 5A: COFIRING AND COPROCESSING WITH WASTES	Session 5B: MODELLING & MONITORING
12:10pm	Lunch	
1:40pm	Session 6A: CARBON CAPTURE 2	Session 6B: MODELLING OF COFIRING
3:00pm	Break	
3:30pm	Session 7A: SLAGGING & FOULING IN CO-FIRING	Session 7B: UCG/ECBM
7:00pm	Conference dinner (Aberdare Hall)	

Friday, 5th September 2008

9:00am	Session 8A: EMISSIONS FROM COFIRING	Session 8B: GASIFICATION
10:20am	Break	
10:50am	Session 9A: CARBON CAPTURE 3	Session 9B: COAL DERIVED PRODUCTS
11:50am	Closing address :	
12:00 Noon	Lunch	

**10:10am – 11:10am, Wednesday,
3rd September 2008**

1A: CARBON CAPTURE 1

Session Chair :-

Mr Greg Kelsall, Alstom Power

- 10.10am Investment in coal with carbon capture under regulatory uncertainty
DW Stupples, OC Pearce
- 10.30am Techno-economic evaluation of advanced IGCC lignite coal fuelled power plants with CO₂ capture
JD Mondol, D McIlveen-Wright, S Rezvani, Y Huang and N Hewitt
- 10.50am Optimal design of large-scale coal-fired power plant with CO₂ capture ability
A Lawal, P Stephenson, M Wang and H Yeung

1B: COMBUSTION MODELLING

Session Chair :-

Professor Nick Syred, Cardiff University

- Advances in modelling of pulverised coal burners using CFD
A Duncan and S Vijapurapu
- Evaluation and characterisation of the temperature of a coal-fired flame through CFD modelling and practical measurement
T Le Bris, P Molcan, G Lu, S Caillat and Y Yan.
- A new char combustion kinetic model for pulverised fuel: Formulation and validation
AF Rojas G, JM Barraza B, R Barranco and EH Lester

**11:40am – 1:00pm, Wednesday,
3rd September 2008**

2A: COFIRING AND COPROCESSING WITH BIOMASS

Session Chair :-

Professor Tony Griffiths,
Cardiff University

- 11.40am Production of H₂ by co-gasification of coal with biomass and petroleum coke
B Arias, J Feroso, MG Plaza, C Pevida, F Rubiera and JJ Pis
- 12.00noon Characterising biomass particle behaviour under co-combustion conditions
M Flower and J Gibbins
- 12.20pm Study of flame properties and emissions in co-firing of biomass and pulverized coal on 3MW low-NO_x furnace
P Molcan, T Le Bris, B Taupin, G Lu, Y Yan and S Caillat
- 12.40pm Pyrolysis residues for co-firing
A Sanna, N Altawell, and JM Andrésen

2B: ANALYTICAL TECHNIQUES

Session Chair :-

Mr Fraser Wigley,
Imperial College London

- Predicted mineral melt formation by the CRE Coal Sample Bank coals: variations with atmosphere and comparison with reported ash fusion test data
D Thompson
- The application of average structural parameter calculations to the characterisation of novel synthetic coal tar pitches
TJ Morgan, AA Herod, M Millan-Agorio, A George, R Kandiyoti, P Álvarez, M Granda, J Sutil, and R Menéndez.
- A study of deposits from coal and petroleum liquids by solvent extraction, SEC, UV-fluorescence and TGA methods
S Venditti, C Berrueco, F Tay, T Morgan, AA Herod and R Kandiyoti
- Coal still the ultimate precursor for high density activated carbons for H₂ storage
D Jorda-Beneyto, F Suarez-Garcia, D Lozano-Castello, D Calorza-Amoros and A Linares-Solano

**2:30pm – 3:50pm, Wednesday,
3rd September 2008**

3A: COMBUSTION

Session Chair :-

Professor Dennis Dugwell,
Imperial College London

- 2.30pm Development of technology for reducing NO_x emission and unburned carbon concentration in fly ash using in-furnace blending method
M Ikeda and H Shirai
- 2.50pm Temperature profiling of a coal-fired flame and its correlations with the formation of gas species
G Lu, T Le Bris, S Caillat and Y Yan
- 3.10pm Numerical investigation on the combustion behaviour of predried Greek lignite
M Agraniotis, P Grammelis and E Kakaras
- 3.30pm Modelling of NO_x formation in reburning combustion of pulverized coal
P Molcan, T Le Bris, F Cadavid, S. Caillat and B Baudouin

3B: PYROLYSIS AND CARBONISATION

Session Chair :-

Professor John Patrick,
University of Nottingham

- Pyrolysis behaviour of novel anthracene oil derived products
P Álvarez, M Granda, J Sutil, R Menéndez, TJ Morgan, AA Herod, M Millan-Agorio and R Kandiyoti.
- Feedstock recycling of plastic wastes/oil mixtures in coke making
MA Diez, R Alvarez, S Melendi, and C Barriocanal
- Fundamental properties of coal during carbonization from shear-rate tests and from combining rheometry with ¹H NMR
KM Steel, M Castro Díaz, JJ Duff and CE Snape
- Characterisation of pyrolytic carbon by optical microscopy and image analysis
R Barranco, JW Patrick, T Wu and RM Poultney

4:30pm – 7:30pm, Wednesday, 3rd September 2008

POSTER SESSION

The carbonation-calcination cycles as a system to capture CO₂ in post-combustion.

J Rodrigo-Naharro and C Clemente Jul.

Oxidation of the sulphurized dolomite produced in the desulphurization of the gasification gases.

R Alvarez-Rodriguez and C Clemente Jul.

Trigeneration integrated with absorption enhanced reforming of lignite and biomass.

YD Wang, AP Roskilly and Y Huang.

Co-firing with coal using REA1 biomass methodology.

N Altawell, A Mata and B Goh.

Experimental study of in-situ desulphurization by sorbent addition in bubbling fluidised bed coal combustion.

S Spyrikis, KD Panopoulos, EL Fryda, P Vouliotis, N Koukouzas and E Kakaras.

Effects of the severity of the treatment in the toxicity of novel anthracene oil-derived pitches.

P Álvarez, M Granda, J Sutil, R Menéndez, TJ Morgan, AA Herod, M Millan-Agorio and R Kandiyoti.

Optimization of molecular mass range estimates of complex hydrocarbon mixtures through the use of planar chromatography combined with laser desorption-MS and size exclusion chromatography.

TJ Morgan, AA Herod, M Millan-Agorio, A George, R Kandiyoti, P Álvarez, M Granda, J Sutil and R Menéndez.

Application of chromatographic and spectroscopic techniques to characterization of samples extracted from blast furnaces.

S Dong, N Paterson, DR Dugwell and R Kandiyoti.

Molecular mass ranges of coal tar pitch fractions by mass spectrometry and size exclusion chromatography.

F Karaca, TJ Morgan, AA Herod and R Kandiyoti.

A theoretical study to determine the mechanisms of mercury oxidation along the flue gas path.
J Li, M Maroto-Valer and R Brandwood.

Maximisation of reaction rates of magnesium and calcium silicate mixtures during aqueous underground mineral carbonation.

A Kaminska and M Maroto-Valer.

Ferric iron-bearing sediments as potential repositories for geological carbon dioxide storage: Theoretical and experimental studies.

S Garcia, RJ Rosenbauer, J Palandri and M Maroto-Valer.

Dissolution kinetics of minerals for advanced mineral carbonation.

X Wang and M Maroto-Valer.

Thermal decomposition studies of mercury speciation.

Y Yuan, R Perry and M Maroto-Valer.

A preliminary study of the chemical structure of coal and petroleum derived asphaltenes, and carbon materials, using FTIR and Raman Spectroscopy.

FH Tay, S Dong, TJ Morgan, AA Herod, S Kazarian and R.Kandiyoti.

Influence of additives of various origins on thermoplastic properties of coal.

AM Fernandez, C Barriocanal, MA Diez and R Alvarez.

Method to evaluate boiler efficiency improvement when substituting a conventional wet bottom ash system (WBAS) with a MAC (Magaldi Ash Cooler) system.

A Carrea

The use of ultra filtration as a novel method for investigating the relationship between molecular mass and molecule size for sub-fractions of a coal tar pitch.

A George and T.J. Morgan.

Combustion enhancing additives for coal firing - A comparison between TGA and DTF.

K Le Manquais, CE Snape, I McRobbie and J Barker.

Combined use of micro-hydropyrolysis and compound-specific isotope analysis (CSIA) as a novel approach to identify coal-derived biodegraded PAH flux in the complex environment.

C-G Sun, G Olalere, W Ivwurie, M Cooper and CE Snape.

Ultrahigh capacity co-precipitated manganese oxide sorbents for oxidative mercury capture.

J Lakatos, C-G Sun, R Perry and CE Snape.

A scrubber chemistry approach to trace element removal.

R Ochoa-Gonzalez, M Diaz-Somoano, M Antonia Lopez-Anton and MR Martinez-Tarazona.

The characterisation of biomass/coal blends and their subsequent chars using microscopy and thermogravimetric analysis.

EH Lester and C Avila

Coke manufacture using microwave energy.

EH Lester, S Kingman, C Dodds and M Mediero

Facies control in the development of coal bed methane pools with the coal petrological point of view.

K Verma and R Saxena

**9:00am – 10:20am, Thursday,
4th September 2008**

4A: OXYFUEL AND CHEMICAL LOOPING COMBUSTION

Session Chair :-

Dr Alan Thompson, Consultant

9:00am Demonstration of an oxyfuel combustion system

*ED Cameron, DW Sturgeon and
FD Fitzgerald.*

9:20am A drop-tube furnace study of the characteristics of coal devolatilisation and char combustion under oxy-fuel firing conditions.

C-G Sun and CE Snape

4B: FLUE GAS CLEANING

Session Chair :-

Dr Nigel Paterson, Imperial College London

The effect of chlorine and oxygen concentrations on the removal of mercury at an FGD batch reactor
*C Acuna-Caro, F Brechtel, G Scheffknecht
and G von Wedel*

Effect of activated carbon pore structure and flue gas components on mercury adsorption
*I Diamantopoulou, G Skodras and
GP Sakellarpoulos*

9:40am Characterisation of rig deposits from oxy-fuel combustion
F Wigley and B Goh

10:00am Chemical-looping combustion using impregnated Ni-based oxygen carriers and syngas as fuel
J Adánez, C Dueso, L de Diego, F García-Labiano, P Gayán, A Abad

The assessment of Selective Catalytic Reduction (SCR) DeNO_x plant performance when firing a range of coals with biomass and waste fuels
R Brandwood, J Brandenstein and M Frank,

Effect of fly ash on Hg heterogeneous oxidation in coal combustion flue gas
P Abad-Valle, Y Zhao, M Diaz-Somoano, MA Lopez-Anto and M R Martinez-Tarazona

**10:50am - 12:10pm, Thursday,
4th September 2008**

**5A: COFIRING AND
COPROCESSING WITH WASTES**

Session Chair :-

Mr Patrick Cook, E.ON

10:50am Co-gasification of coal and wastes in a pilot-scale installation: Effect of catalysts in syngas treatment
F Pinto, C Franco, R. André, H Lopes, I Gulyurtlu and I Cabrita

11:10am Effect of reaction conditions on the co-processing of coal with waste tire
M Sugano, H Andoh, M Tsubosaka, K Tanaka, K Irano and K Mashimo.

11:30am Waste tyres as an alternative co-firing fuel for power plants
S Singh, W Nimmo, BM Gibbs and PT Williams

11:50am Analytical procedure to characterise solid recovered fuels for direct co-firing in large PF power plants
G Dunnu, J Meier and G Scheffknecht

**5B: MODELLING AND
MONITORING**

Session Chair :-

Professor Yong Yan, University of Kent

An integrated sensor system for the optimisation of coal fired combustion plant
RM Carter, Y Yan and S Cornwell

A new power plant simulation method under the framework of virtual plant demonstration model
Y Huang, Y Fang, N Hewitt and D McIlveen-Wright

Characterisation of pneumatic transportation of pulverised coal in a horizontal pipeline through CFD modelling and measurement
A Chinnayya, A. Chtab, R M Carter, Y Yan, and S Caillat

A simulation model for combined hydrogen production/power generation with CO₂ capture in an IGCC plant
A Aranda, R Murillo, MV Navarro, T García and AM Mastral

**1:40pm - 3:00pm, Thursday,
4th September 2008**

6A: CARBON CAPTURE 2

Session Chair :-

Mr Robert Davidson,
IEA Clean Coal Centre

1:40pm The effects of steam and SO₂ on dry sorbent CO₂ capture
A Bosoaga, O Masek and J Oakey

2:00pm Developing low-cost biomass-based adsorbents for CO₂ capture
MG Plaza, C Pevida, B Arias, J Feroso, D Casal, F Rubiera and JJ Pis

6B: MODELLING OF COFIRING

Session Chair :-

Professor Alan Williams, University of Leeds

Investigating particles behaviour in gas-solid horizontal pipe flow by an extended LDA Technique
Y Lu, DH Glass and WJ Easson

Modelling methods for co-fired pulverised fuel furnaces
L Ma, M Gharebaghi, R Porter, M Pourkashanian, JM Jones and A Williams

- 2:20pm Optimisation of regeneration strategies for exhausted sorbents for CO₂
J Blamey, DR Dugwell and PS Fennell
- A techno-economic assessment of the reduction of carbon dioxide emissions through the use of biomass co-combustion
DR McIlveen-Wright, Y Huang, S Rezvani, JD Mondol, NJ Hewitt and BC Williams
- 2:40pm Development of adsorbent technologies for pre- and post-combustion CO₂ capture
CE Snape and TC Drage
- A CFD study of sawdust combustion in a furnace
Y.-S Chin, P Stephenson and M Wang

**3:30PM - 4:50PM, Thursday,
4th September 2008**

**7A: SLAGGING AND FOULING
IN CO-FIRING**

Session Chair :-

Mr Brian Smith, Doosan Babcock Energy Ltd

- 3:30pm Technical and commercial aspects of high levels of co-firing
A Malmgren, G Riley, F Wigley, J Williamson, S Haarmann and A Lythgoe
- 3:50pm Biomass ash characteristics, and the behaviour of the mixed ashes produced when co-firing biomass materials with coal
WR Livingston
- 4:10pm The development of slagging and fouling prediction tool for coal/ biomass fired boilers
P Plaza, AJ Griffiths, N Syred and T Gralton
- 4:30pm Impact of low-ash coal on deposition from coal-biomass mixtures
F Wigley and G Riley

**7B: UNDERGROUND COAL
GASIFICATION / ENHANCED COAL
BED METHANE**

Session Chair :-

Dr Richard Marsh, Cardiff University

- Different gases and their sorption capacity by coals
R Sakurovs, S Day and S Weir
- Upsurge in interest and development in underground coal gasification as a low carbon fuel
K. Fergusson
- The Welsh potential for underground coal gasification determined using Geographical Information Systems software
M Turner, P Brabham, R Marsh, K Williams and AJ Griffiths
- Comprehensive modelling study of UCG gas reburning and co-firing in an opposed wall-fired boiler
G Xu, W Zhou, L Swanson, B Cohen and D Moyeda

**9:00am – 10:20am,
Friday 5th September 2008**

**8A: EMISSIONS FROM
COFIRING**

Session Chair :-

Dr David McCaffrey, McENERGY

- 9:00am The mechanism of the formation of soot and other pollutants during the co-firing of coal and pine wood in a fixed-bed combustor
EM Fitzpatrick, JM Jones, M Pourkashanian, AB Ross, A William, KD Bartle and K Kubica

8B: GASIFICATION

Session Chair :-

Professor Jim Harrison, BCURA

- Comparative assessments of physical absorption, water gas shift membrane reactor and chemical looping integrations in a coal fired IGCC system with CO₂ capture
S Rezvani, Y Huang, D McIlveen-Wright, N Hewitt and JD Mondol

- 9:20am Trace element partitioning synergies in the co-combustion of ternary coal-biomass-waste fuel blends:
A critical comparison between thermodynamic equilibrium modelling and empirical data
A George, P Fennell, R.Kandiyot and DR Dugwell
- 9:40am Particulate emissions from coal co-firing with biofuels in a bubbling fluidized bed reactor
I Gulyurtlu, P Abelha, D Salema, H Lopes, T Crujeira, M Freire, R Pereira and I Cabrita
- 10:00am Study of trace metals present in co-combustion by-products and their partitioning in power plants
*M Rallo, R Perry and M Maroto-Valer**
- Performance of a fluidized bed gasifier under oxy-fuel conditions
N Spiegl, N Paterson, M Millan and R Kandiyoti
- The Zero Emission Carbon concept (ZECA): an investigation of reactions occurring in the gasifier
L Gao, N Paterson, P Fennell, DR Dugwell and R Kandiyoti
- An understanding of lump coal physical property behaviour (density and particle size effects) impacting on a commercial-scale SASOL-Lurgi FBDB gasifier
JR Bunt and FB Waanders

**10:50AM – 11:50AM,
Friday 5th September 2008**

9A: CARBON CAPTURE 3

Session Chair :-

Mr Roger Brandwood, E.ON

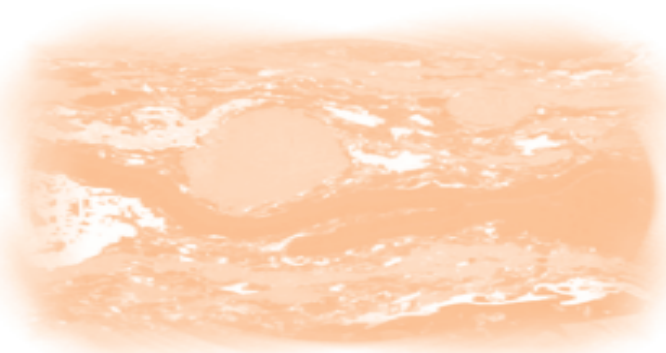
- 10:50am An experimental investigation of the carbonation and sulfation characteristics of two Greek sorbents subjected to FBC conditions
P Basinas, P Grammelis, JR Grace, CJ Lim and GP Sakellariopoulos
- 11:10am Integration of a chemical process model in a power plant modelling tool for the simulation of an amine-based CO₂ scrubber
P Galindo Cifre, F Brechtel, S Hoch, H Garcia, N Asprion, H Hasse and G Scheffknecht
- 11:30am Partial O₂-fired coal power plant with post-combustion CO₂ capture:
A retrofitting option for CO₂ "capture ready" plants
P Klimantos, P Grammelis, M Whitehouse, G Riley and E Kakaras

9B: COAL DERIVED PRODUCTS

Session Chair :-

Professor Keith Williams, Cardiff University

- Novel industrial impregnation and binder pitches obtained from the air blowing of anthracene oil
P Álvarez, M Granda, J Sutil, R Menéndez, TJ Morgan, AA Herod, M Millan-Agorio and R Kandiyoti.
- Utilisation of pulverised fuel ash derived from imported coals into value added products
MN Mahmud and M Maroto-Valer
- Co-firing biomass with pulverised coal: some effects on ash properties
AW Thompson and EH Lester



REGISTRATION FORM

**PLEASE REGISTER AND SUBMIT ALL CONFERENCE PAYMENTS BEFORE 31st JULY 2008,
OTHERWISE A LATE PAYMENT SURCHARGE WILL NEED TO BE LEVIED**

Name: _____

Company/Institution: _____

Full Address: _____

Telephone: _____ **Fax:** _____

Email: _____

REGISTRATION FEES (please circle as appropriate)

	Full Conference Fee	Single Day Fee*
CRF/CUSG/MES Member	£260	£115
Student member of CRF/CUSG/MES Member	£130	£65
Non-member	£390	£165
Student of a Non-member	£260	£115

* excludes evening meals

Day(s) of attendance (please circle as appropriate) WED 3rd THUR 4th FRI 5th

CATERING AND ADDITIONAL CATERING (*Please circle as appropriate, including those paying the Full Conference Fee, (costs are per person))

	Buffet Dinner	Conference Dinner
I am paying the Full Conference Fee and I wish to attend	Included	Included
I wish (an) accompanying person(s) to attend	£22.00*	£32.00*
I am a Single Day attendee and I wish to attend	£22.00*	£32.00*

ACCOMMODATION:

	Price	SUN 31 st	MON 1 st	TUE 2 nd	WED 3 rd	THU 4 th	FRI 5 th
Single en-suite	£30.00						

Cost of registration plus any additional Catering, (A) £

£50 surcharge if Conference Registration Fee submitted after 31st July 2008, (B) £

Cost of Accommodation (C) £

TOTAL PAYMENT ENCLOSED: (A+B+C) £

(Please make cheques or bankers draft payable to "The Coal Research Forum" or make payment by direct bank transfer using the following details : For payments within the UK, The Coal Research Forum, Bank, HSBC Bank plc, 2, The Promenade, Cheltenham, Glos., GL50 1LS, UK., Sort Code : 40-17-10, Account No., 31544829. For payments from Overseas, Sort Code: MIDLGB2103P, Account No., GB62MIDL40171031544829. Please note that Credit Card Payments and payments to any other bodies will not be accepted.)

SPECIAL NEEDS: (Please advise the Conference Secretary of any dietary or access needs, etc.)

Please return the completed Conference Registration Form with payment to:

Dr Alan Thompson

9 Thorpe Drive

Mickleover

Derby DE3 9GA

United Kingdom.

Tel: +44 (0) 1332 514768; Fax: +44 (0) 115 902 4006

e-mail: awt_crf@btinternet.com