12th ECCRIA WEBSITE

CONFERENCE HOME PAGE

PROGRAMME

EVENT LOCATION

EVENT DETAILS

REGISTRATION

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**Outline Programme**

**Wednesday, 5th September 2018**

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<td>Opening Session</td>
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<td>09.15 – 09.25</td>
<td>Welcome Address from Professor Rudolf Allemann, Pro Vice Chancellor, University of Cardiff</td>
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<td>Opening Address from Dr. David J.A. McCaffrey, 12th ECCRIA Conference Chairman and FERF General Secretary</td>
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<td>09.25 – 09.55</td>
<td>Keynote address by Professor Patricia Thornley, Director of the SuperGen BioEnergy Hub</td>
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**16.30 – 18.00** **Poster Session**, Queens Building, The Forum
**18.00 – 19.30** **Poster Reception and Buffet**, Queens Building, The Forum
Thursday 6th September 2018

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<td>10.20-10.45</td>
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<td>Session 5A</td>
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<td>15.25-16.45</td>
<td>Session 7A</td>
<td>Session 7B</td>
<td>Carbon Capture &amp; Storage</td>
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19.00 - 22.30  Conference Dinner, Aberdare Hall, Corbett Road, Cardiff

Friday 7th September 2018
Queens Building Lecture Theatre S.1/32
09.00 - 10.40 Session 8A
Opening New Fuels Projects
Queens Building Lecture Theatre S.1/24
Session 8B
Instrumental Methods
Queens Building Lecture Theatre S.1/25
Session 8C
Coal 2

10.40 - 11.05 Break

Track A
Queens Building Lecture Theatre S.1/32
11.05 - 12.45 Session 9A
Coal 3
Track B
Queens Building Lecture Theatre S.1/24
Session 9B
Gasification and Pyrolysis

12.45 - 13.00 Closing Address from Dr. David J.A.McCaffrey, 12th ECCRIA Conference Chairman and FERF General Secretary

13.00 - 14.30 Lunch

Detailed Programme

Already on website

Poster Session.

01 A nickel-doped Pyrochlore catalyst for rich biogas reforming in presence of 10ppm H2S
Zainab Alfatlawi, Keele University, UK

02 Predicting moisture content of biomass in a fluidized bed dryer using electrostatic sensor arrays and a dynamic neural network
Yong Yan, University of Kent, UK

03 Computational Analysis of Pre-Combustion Carbon Capture via Pressure Swing Adsorption
Rebecca Solares, University of Birmingham, UK

04 New approach to materials behaviour studies in high-speed oxy-steam combustion flue gas
Carmen Mayoral, Instituto de Carboquimica-CSIC, Zaragoza, Spain

05 Reconstruction of 3-Dimensional Temperature of Flame Using a Single Light Field Camera combined with Tikhonov regularization algorithm
Chuanlong Xu, Southeast University, China

06 Negative-emission ready polygeneration of power, heat, and lime
Sebastian Michal, Cranfield University, UK

07 The use of aluminosilicate-based additives to improve melting and deposition behaviour of biomass ash
Lee Roberts, University of Leeds, UK
08 Investigation of Subbituminous coal and lignite combustion processes in the aspect of Hg and As removal
Marta Marczak, AGH University of Science and Technology, Krakow, Poland
09 Combustion Modelling of Fuel-Flexible Gas Turbine Swirl Burners
Ali Alsaegh, Cardiff University, UK
10 Experimental study on drag reduction using different micro structured surfaces at different angles
Haydee Martinez Zavala, Cardiff University, UK
11 Effect of Feedstock Composition to Cracking Behaviour of Fluid Catalytic Cracking (FCC)
Abubakar Haruna Mashi, University of Nottingham, UK
12 Hydrothermal carbonisation of peat
Kristina Krysanova, Joint Institute for High Temperatures of the Russian Academy of Sciences, Russia
13 Evaluation of briquettes made from blends of coal, biomass and binder to produce metallurgical coke
Laura Florentino-Madiedo, Instituto Nacional del Carbon, Oviedo, Spain
14 Influence of the carbonization conditions on the quality of metallurgical coke
Laura Florentino-Madiedo, Instituto Nacional del Carbon, Oviedo, Spain
15 Liquefied Biomethane as an Alternative Transportation Fuel
Sayed Hashemi, Norwegian University of Science and Technology, Norway
16 Liquefaction Mechanisms and Kinetics of Beypazari Lignite in Tetralin with Ultraviolet Irradiation Using Discrete Time Models
Fatih Gulec, Ankara University, Turkey
17 Introduction of biomass forestry waste charcoal in the coking process to produce green biocoke
Jon Solar, School of Engineering of Bilbao, Spain
18 Pyrolysis of wheat straw pellets in a bench-scale auger reactor for producing char with enhanced adsorption capabilities
Filipe Rego, Aston University, UK
19 Performance Analysis of a Powered Cascaded PEM Electrolyser System
Fan Zhang, University of South Wales, UK
20 Optimal Scheduling of a Fuel Cell for Combined Heat and Power
Stephen Carr, University of South Wales, UK
21 Applicability of Mechanical Strength Tests for Biomass Pellet Characterisation
Orla Williams, University of Nottingham, UK
22 Breakage Matrix Method to Predict Degradation of wood Pellets in Pneumatic Conveying
Susanthia Dissanayake, University of Greenwich, UK
23 Radial Swirler Low NOx Combustion for 18 – 25kW Thermal Power
Gordon Andrews, University of Leeds, UK
24 CFD predictions of Radial Fuel injection into a High Velocity Air Cross Flow in a Low NOx Combustor for Gas Turbines
Gordon Andrews, University of Leeds, UK
25 Process Modelling and analysis of CO2 absorption by using monoethanolamine (MEA) in rotating packed bed (RPB)
Meihong Wang, University of Sheffield, UK
26 Liquid-liquid extraction of aromatics from pyrolysis oils obtained from consumer waste plastic
Daniel Torres, Cranfield University, UK
27 Investigations into the Impact of Coal Moisture on Burner Performance through Flame Imaging and Spectroscopic Analysis
Gang Lu, University of Kent, UK
28 Low reactivity coke-like char from Victorian brown coal
Alan Chaffee, Monash University, Australia
29 Conductive activated carbon honeycomb monoliths prepared directly from brown coal and its application in gas and liquid adsorptions
Alan Chaffee, Monash University, Australia
30 Burner Condition Monitoring based on Flame Imaging and Data Fusion Techniques
Gang Lu, University of Kent, UK
31 The potential of by-product ammonia from coking as a low-carbon fuel in power generation
Sally Hewlett, Cardiff University, UK
Gang Lu, University of Kent, UK
33 Gas Emission from Coals of different Regions during Storage and Transport
Ali Kiani, CSIRO Energy, North Ryde, Australia
34 Biogas upgrading via H2 enriched anaerobic digester
Shiplu Sarker, Norwegian University of Science and Technology, Norway
Introduction.

The formation of the Fuel and Energy Research Forum was planned and initiated during 2016 with the aim of bring together all those with interests in fuel and energy research, particularly fossil fuel, biomass and waste and to promote and integrate these interests in the UK and worldwide. These research areas are increasingly important as carbon-based fuels continue to play a key role in the energy mix of today. These fuels provide a widely-distributed, secure and reliable source of energy that is relatively easy to obtain. Clean carbon-fuel technology is the order of the day, with particular attention being paid to carbon capture and storage in view of global warming and carbon dioxide emissions from carbon-based fuel usage.

The First Conference in this series was held in 1996 at Loughborough University and building on the success of the previous eleven ECCRIA conferences, this twelfth conference is to be held at Cardiff University.

Wales has undergone many changes in the last two decades and nowhere is this more apparent than the transformation of the capital city, Cardiff. Home to over 360,000 people including more than 40,000 students at Cardiff University and the University of South Wales, Cardiff is very compact for a city and far quieter than London. It attracts a large number of visitors who come for the shopping, the nightlife and the modern delights of the city centre, the Bay development as well as the peaceful parks and the surrounding countryside and wildlife. The city’s attractions include the historic Cardiff Castle and several historic houses. Culture and entertainment feature strongly with opera, ballet, musicals, and live music from top acts held at venues such as the Wales Millennium Centre. The city is also home to several important galleries, (the National Museum of Wales), and museums, (the Cardiff Story Museum and Cardiff Bay’s Maritime Heritage Museum). The city’s sporting attractions include the Principality, (formerly the Millennium), Stadium, Cardiff Arms Park, home of Cardiff Blues Rugby Club and Ninian Park, the home of Cardiff City Football Club. It is hoped that attendees from outside the UK will continue to support this event and enjoy their visit to Wales.

Road : The city has road links via the M4 Motorway
Rail : Direct rail links mean that Cardiff is only 2:05 hrs from London.
Air : Cardiff has an international airport nearby, (12 miles), with Bristol International Airport only 45 miles away.
Bus : There are great bus services running throughout the day and throughout the city, linking the University to all major city attractions.
EVENT DETAILS PAGE.

Scope and Purpose.

The purpose of this conference is to bring together researchers in universities and participants from industry who are also carrying out research or are interested in the application of the research in industry. Papers which describe the applications of research in fuel and energy characterisation, utilisation and preparation are now invited.

The closing date for abstract submission was 26th January 2018.

Although the Call for Abstracts for this programme has now closed one or more further abstracts may be submitted for consideration as poster presentations at any time up to 27th July 2018. Such abstracts, which must conform to the specified format (see template), should be submitted by E-mail, where for such abstracts to be considered, the prospective authors must simultaneously register to attend this Conference via this website.

Although the Conference Programme is currently full, prospective authors of such abstracts may ask for an oral presentation, and such consideration will be given should a suitable slot appear in the Conference Programme.

Call for Abstracts.

Abstracts are now invited which describe the current academic and industrial research into cleaner fuel and energy research on fossil fuels, biomass and waste and their applications including but not limited to:

- Improving efficiency and reducing emissions for carbon-based fuel technologies in conventional combustion power generation. This includes optimising the flexible operation of power plant and ash and slagging issues.
- Advanced Power Generation, (APG), based on thermal processes, including enabling technologies and innovative process design for APG.
- Industrial scale combustion, gasification and pyrolysis including issues associated with co-firing and with the combustion of biomass and waste.
- CO₂: Pre and post combustion capture, transport, storage and utilisation techniques, including oxyfuel combustion, chemical looping, fuel characterisation and plant diagnostics.
- All emissions issues including alternate NOx, SOx, particulates and trace elements reduction techniques to meet more stringent emissions standards throughout the world.
- Pre-treatment of biomass and waste feedstocks, (torrefaction, washing), and issues associated with the safe storage, processing, handling and feeding of biomass and waste into process systems.
• Hydrogen: Its potential use as a fuel.
• Energy storage, thermal storage, mechanical storage and integration with power generation processes.
• Case studies on the challenges facing the users of biomass and waste.
• Carbonisation and other metallurgical uses, fuel-derived products, fuel preparation and handling, underground coal gasification and coal bed methane, and all other carbon-based fuel conversion processes, including coal to liquids.
• Policy studies, including legislation towards power from carbon-based fuels, government policy, legislative framework, both UK and international.

Research students are also strongly encouraged to submit papers, attend and give presentations - there is a reduced conference fee for students.

Prospective authors are asked to submit one or more abstracts by 26th January 2018. Abstracts must conform to the format specified in the template below, and must be submitted by the named presenter (not a third party). For papers accepted, the named presenter/author will present the paper at the conference either as an oral presentation or as a poster. This author must register and pay his/her conference fee before 27th July 2018 in order for their paper/poster to be confirmed in the programme.

Sponsors.

We are grateful to the following sponsors for their support of this conference.

AMBITION (Aston University) - Silver Sponsor and Exhibitor
BRISK2 (Aston University) - Silver Sponsor and Exhibitor
EDF Energy plc. - Bronze Sponsor
EURACOAL - Bronze Sponsor
Retsch UK Ltd. and Carbolite - Silver Sponsorship and Exhibitor
RSC Energy Sector - Special Sponsor of Poster Session
The Advance Power Generation Technologies Forum (APGTF) - Silver Sponsor and Exhibitor
Uniper Technologies Ltd. - Silver Sponsorship and Exhibitor
University of Greenwich - Silver Sponsorship and Exhibitor

Please include Sponsors logos from 12th ECCRIA Conference website here.

Sponsorship and Exhibition Packages.

Sponsors and exhibitors are encouraged to support this well-established event. Sponsorship packages are as follows:

Bronze Package - £500
 Organisation logo on all the of the conference publications and inclusion of organisation’s literature or brochure in delegate packs
Silver Package - £750
 As Bronze Package, plus an Exhibition Stand
Gold Package - £1,000
As Bronze Package, plus named sponsorship of one of the Conference Lunches
Diamond Package - £1,500
As Bronze Package, plus sponsorship of the Poster Buffet Dinner
Platinum Package - £TBA
As Bronze package, plus sponsorship of the Conference Dinner
Exhibitor Package - £475
An exhibition stand with one trade stand staff who will have access to daytime catering only. This package excludes access to technical sessions, evening dinners (these may be bought as extras) logo and literature inclusion.

Important Dates.

26th January 2018 - Closing date for abstract submission
9th March 2018 - Authors informed of acceptance
6th April 2018 - Provisional Programme published
13th July 2018 - Last date for 'early bird' registration fees
27th July 2018 - Last date for registration by oral and poster presenters
28th September 2018 - Closing date for full paper submission to 'FUEL' special issue
Registration.

One of the principal aims of the conference is to encourage wide participation and to enable this the fees to participants are kept at a reasonable level.

The 12th ECCRIA 'Early bird' Conference fees up to 13th July 2018 are as follows:

£405   Fuel and Energy Research Forum Member  
£203   Student of Fuel and Energy Research Forum Member  
£601   Non-member  
£304   Student of non-member

The Conference fee includes full attendance, refreshments, lunches, Poster Buffet reception and the Conference Dinner at Aberdare Hall. No day rates are available.

After 13th July 2018, the following late registration fees will apply:

£465 Fuel and Energy Research Forum Member  
£263 Student of Fuel and Energy Research Forum Member  
£661 Non-member  
£364 Student of non-member

All participants are asked to cover their own accommodation and travel costs. Accommodation at Cardiff University may be booked at the time of conference registration.

Accommodation Rates.

£35-00 per person per night bed and breakfast at Senghennydd Court, Cardiff University (a nearby Halls of Residence - 2 mins walk from the conference centre).

There are several hotels nearby the closest being the Mercure Cardiff Holland House, where bookings can be made directly with the hotel at Cardiff University rates - £83-00 bed and breakfast per person per night.
FURTHER INFORMATION.

Proceedings.

All authors of accepted abstracts are invited to submit, by 28th September 2018 at the latest, a full paper for possible publication in 'FUEL' and for inclusion in a Virtual Special Issue to be put on the 'FUEL' website. The papers submitted must be prepared strictly in accordance with the Guide for Authors and must be submitted electronically via http://ees.elsevier.com/jfuel/. Authors should clearly indicate that the paper is from the 12th ECCRIA Conference for inclusion in the Virtual Special Issue of 'FUEL'.

Conference Organising Committee.

Dr David McCaffrey, McEnergy Consultancy (Conference Chairman)
Dr Robert Berry, University of Greenwich (Conference Secretary)
Dr Gerry Riley, RJM International (Conference Finance Officer)
Dr Alan Thompson, AWT Fuel Consultancy (Conference Programme Co-ordinator)
Dr Richard Marsh, Cardiff University (Main Local Organiser and Programme Sub-group)
Dr Malgorzata Wiatros-Motyka, IEA Clean Coal Centre (Publicity Officer)
Dr Julian Steer, Cardiff University (Sponsorship Officer and Local Organiser)
Prof. Phil Bowen, Cardiff University (Local Organiser)
Prof. Ed Lester, University of Nottingham (Programme Sub-Group)
Dr Katie Chong, Aston University (Programme Sub-Group)
Dr Leilani Darvell, University of Leeds (Committee Member)
Mr Andrew Morris, EDF Energy, (Industrial Representative)

Downloads.

Conference Announcement and Call for Abstracts.

This is already on the FERF website.