

4th International Freiberg Conference on IGCC & XtL Technologies



3-5 May 2010
Dresden, Germany

Programme



Sunday 2 May – Thursday 6 May

Hilton Hotel Dresden

Sunday 2 May 2010

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| 18:00 – 20:00 | Registration |
| 19:00 – 22:00 | Welcome Evening Restaurant Bierhaus Dampfschiff Hilton Hotel |

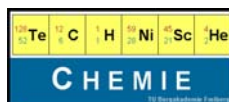
Monday 3 May 2010

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| 08:30 – 09:00 | Opening Ceremony | |
| 09:00 – 09:40 | Plenary Session | |
| |  | <p>Prof. Dr.-Ing. Bernd Meyer – Rector TU Bergakademie Freiberg [Germany]</p> <p>Prof. Bernd Meyer is Rector of the Technische Universität Bergakademie Freiberg (since 2008) and director of the Department for Energy Process Engineering and Chemical Engineering. He got his PhD in 1978 and after working for several years as Research Associate at the German Institute for Fuel Technologies and as Chief Scientist at Rheinbraun AG he was awarded a full professorship at TU Bergakademie Freiberg in 1994.</p> <p>Research and education at the Department for Energy Process Engineering and Chemical Engineering are focussing on the energetic and non-energetic use of fossil fuels and renewable feedstock. Main topics are thermochemical conversion/biomass, high pressure gasification/partial oxidation, gasifier modelling, flow sheet simulation and mineral matter reactions. Since 2005 Prof. Meyer has been organising the International Freiberg Conference on IGCC & XtL Technologies.</p> |
| |  | <p>Prof. Li Zheng – Director Tsinghua BP Clean Energy Research and Education Centre [China]</p> <p>Zheng Li got his bachelor and master degrees from the Department of Thermal Engineering, Tsinghua University in 1986 and 1988. He then worked for three years in industry before he reentered Tsinghua University and got his PhD in 1994. He became a faculty member of the Department of Thermal Engineering at the end of 1994 and became a full professor in 2000. He founded Tsinghua BP Clean Energy Research and Education Center in 2003 and has been the director of the center since then. Prof. Li was awarded the National Award of Science and Technology of China for his contribution in the development of simulation technology for circulating fluidized bed power plant. He has been Changjiang Scholar Professor since 2008. Besides technical studies, Prof. Li also works on energy strategy and policy study for China and leads several national and international research projects.</p> |

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Monday 3 May 2010

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|---------------|---|---|
| 08:00 – 16:00 | Registration | |
| 08:30 – 16:00 | Posters and Exhibition | |
| 08:30 – 09:00 | Conference Centre - Opening Ceremony | |
| 09:00 – 09:40 | Conference Centre - Plenary Session | |
| | Clean Coal – Quo vadis? - Prof. Dr.-Ing. Bernd Meyer – Rector TU Bergakademie Freiberg [Germany] Prof. Li Zheng – Director Tsinghua BP Clean Energy Research and Education Centre [China] | |
| 09:40 – 10:10 | Coffee Break | |
| 10:10 – 12:00 | Conference Centre - Session 1: Polygeneration Chair: Dr. Gerhard Beysel | |
| 10:10 – 10:40 | 01-1: Keynote: Gasification: status, outlook and technical developments / Frank Hannemann – Siemens Fuel Gasification Technology GmbH & Co. KG [Germany] | |
| 10:40 – 11:00 | 01-2: A dual-gas sourced approach to methanol/power polygeneration systems design and analysis / Fen He - State Key Laboratory of Power Systems, Department of Thermal Engineering, Tsinghua University [China] | |
| 11:00 – 11:20 | 01-3: CtL/CtG – boundary conditions and chances of implementation / Dr. Frank Schwendig - RWE Power AG [Germany] | |
| 11:20 – 11:40 | 01-4: XtL – the Topsøe approach / Maibrutt Mastrup - Haldor Topsøe A/S [Denmark] | |
| 11:40 – 12:00 | 01-5: Polygeneration - evaluation of technologies and concepts for demand driven co-production of electricity and liquids from coal / Robert Pardemann – TU Bergakademie Freiberg [Germany] | |
| 12:00 – 13:00 | Lunch | |
| 13:00 – 15:10 | Conference Centre - Session 2: IGCC / CCS Chair: Dr. Hubert Höwener | Salon Europa - Session 3: Integration of nuclear process heat in chemical processes I Chair: Prof. Martin Bertau |
| 13:00 – 13:30 | 02-1: Keynote: RWE's 450-MW IGCC-CCS project – status and perspective / Werner Renzenbrink - RWE Power [Germany] | 03-1: Keynote: Research activities using nuclear systems as energy source for the gasification of coal / Prof. Dr. Kurt Kugeler - RWTH Aachen [Germany] |
| 13:30 – 13:50 | 02-2: Advances in gasification projects and technology for the next generation of IGCC and CCS plants / Marcus Scholz - GE Energy [Spain] | 03-2: Survey on 20 years of nuclear heat applications in Germany I / Dr. Werner von Lensa, Dr. Karl Verfondern - FZ Jülich [Germany] |
| 13:50 – 14:10 | 02-3: RAM evaluation for gasification and IGCC plants / Dr. Ariane Sutor - Siemens Corporate Technology [Germany] | 03-3: Survey on 20 years of nuclear heat applications in Germany II / Dr. Werner von Lensa, Dr. Karl Verfondern - FZ Jülich [Germany] |
| 14:10 – 14:30 | 02-4: R&D plant results and experience in the Puertollano IGCC / Francisco García Peña – ELCOGAS, S.A. [Spain] | 03-4: High temperature reactors: The nuclear cogeneration alternative for fossil fuel usage in process industry / Sander de Groot - NRG [The Netherlands] |
| 14:30 – 14:50 | 02-5: Environmental performance of IGCC power plants / Stephen Jenkins - CH2MHILL, INC. [USA]; speaker Christopher Higman – Syngas Consultants GmbH [Germany] | 03-5: The importance of high temperature reactors for the gasification of coal in Poland / Ludwig Pienkowski - University of Warsaw [Poland] |
| 14:50 – 15:10 | 02-6: Progress update of the MHI air blown IGCC and gasification plant / Koichi Sakamoto - Power Systems Headquarters, Mitsubishi Heavy Industries, Ltd. [Japan] | 03-6: Nuclear options for process heat generation / Dr. Dittrich Knoche – Westinghouse Germany GmbH [Germany] |
| 15:10 – 15:40 | Coffee Break | |
| 15:40 – 17:00 | Conference Centre - Session 4: Biomass to Liquid Chair: Dr. Steffen Krzack | Salon Europa - Session 5: Integration of nuclear process heat in chemical processes II Chair: Prof. Antonio Hurtado |
| 15:40 – 16:00 | 04-1: Bio energy with CO ₂ capture and storage (BECCS): conversion routes for negative CO ₂ emissions / Michiel Carbo - Energy Research Centre of the Netherlands (ECN) [The Netherlands] | 05-1: Potential Applications of Nuclear Cogeneration in Coal / Dr. Manuela Musella - European Commission [The Netherlands] |
| 16:00 – 16:20 | 04-2: BTL process development: simulation and techno-economic assessment of several technical options / Dr. Guillaume Boissonnet - CEA Grenoble [France] | 05-2: Potential use of nuclear energy in the future oil and gas industry / Jacques Ruer - Saipem [France] |
| 16:20 – 16:40 | 04-3: Bio-syngas via CHOREN's gasification technology / Matthias Rudloff – CHOREN Industries GmbH [Germany] | 05-3: CO ₂ as a raw material in chemical synthesis and fuel refinery – potential contribution of nuclear process heat / Prof. Dr. Martin Bertau – TU Bergakademie Freiberg [Germany] |
| 16:40 – 17:00 | 04-4: Determination of production costs and LCA for BtL fuels using different gasification and synthesis systems / René Stahlschmidt – TU Bergakademie Freiberg [Germany] | 05-4: Nuclear – coal synergy for coal liquefaction with CO ₂ recycling / Dr. Jerzy Cetnar - University of Krakow [Poland] |
| 19:00 – 22:00 | Conference Dinner Coselpalais | |

Exhibitors

Salon Rotterdam & St. Petersburg



Tuesday 4 May 2010

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| 08:00 – 16:00 | Registration | |
| 08:30 – 16:00 | Posters and Exhibition | |
| 08:30 – 10:10 | Conference Centre - Session 6: Fluidised Bed Gasification Chair: Dr. David Harris | Salon Europa - Session 7: Concept Studies Chair: Luis Robles |
| 08:30 – 08:50 | 06-1: Development and modelling of 3 rd generation gasification concepts for low grade coals / Martin Graebner – TU Bergakademie Freiberg [Germany] | 07-1: CO ₂ load in the process of hydrogen production by coal gasification / Dr. Andrzej Strugala (speaker: Dr. Marek Sciazko) – AGH University of Science and Technology [Poland] |
| 08:50 – 09:10 | 06-2: A Review of Fluidized Bed Gasification Technology / Prof. Todd Pugsley – University of Saskatchewan (speaker Prof. Nader Mahinpey / University of Calgary) [Canada] | 07-2: Hierarchical structured exergetic analysis of an IGCC concept with carbon capture / Christian Kunze – TU München [Germany] |
| 09:10 – 09:30 | 06-3: Gasification of Australian lignites for power generation – research and development needs for power generation and production of exportable fuels / Sankar Bhattacharya – Monash University [Australia] | 07-3: Potential of IGCC-CCS power plants using lignite / Michael Trompelt – TU Bergakademie Freiberg [Germany] |
| 09:30 – 09:50 | 06-4: Biomass fluidized bed gasification for fuel gas / Zhang Yongqi - Institute of Coal Chemistry [China] | 07-4: Polygeneration systems for the provision of SNG, power and heat – a concept study / Stefan Roensch – German Biomasse Research Centre [Germany] |
| 09:50 – 10:10 | 06-5: Gasoline and power via air blown gasification of biomass / Martin Dan Palis Soerensen – Haldor Topsøe A/S [Denmark] | 07-5: Potentials and research demand of UCG-CCS / Stephan Peters – DMT GmbH & Co. KG [Germany] |
| 10:10 – 10:40 | Coffee Break | |
| 10:40 – 12:30 | Conference Centre - Session 8: Entrained Flow Gasification Chair: Karsten Radtke | Salon Europa - Session 9: Fuel Upgrading Chair: Dr. Manfred Wirsum |
| 10:40 – 11:10 | 08-1: Keynote: PRENFLO for biomass + coal co-gasification / Karsten Radtke/ Max Heinitz-Adrian – Uhde GmbH [Germany] | 09-1: Introduction to the Centre for Innovation Competence VIRTUHCON and to the German Centre of Energy Resources / Prof. Christian Hasse, Dr. Heiner Gutte – TU Bergakademie Freiberg [Germany] |
| 11:10 – 11:30 | 08-2: PWR compact gasification development / Dr. Kenneth Sprouse (speaker Timothy Saunders) – Pratt&Whitney Rocketdyne Inc. – United Technologies Corp. [USA] | 09-2: BO ₂ torrefaction technology, an enabling technology for entrained-flow gasification of biomass / Dr. Heiko Gerhauser – ECN Energy Research Centre of the Netherlands [The Netherlands] |
| 11:30 – 11:50 | 08-3: Technology and operational experience – the Shell perspective / Steffen Jancker – Shell Global Solutions Upstream International B.V. [The Netherlands] | 09-3: Coal/biomass pyrolysis as initial step in gasification – experiments and modelling / Denise Reichel – TU Bergakademie Freiberg |
| 11:50 – 12:10 | 08-4: Pressurised entrained flow gasification of slurries from biomass / Ralph Stahl – Forschungszentrum Karlsruhe [Germany] | 09-4: Rotary kiln pyrolysis – first results of a 3 MW pilot plant / Michael Halwachs – Bioenergy 2020+GmbH [Austria] |
| 12:10 – 12:30 | 08-5: New insights into coal conversion and slag formation during entrained flow gasification and their impacts on gasification performance / Dr. Daniel Roberts – CSIRO Energy Technology [Australia] | 09-5: Promoting projects to optimise biomass energy use - A programme in the framework of the German Climate Initiative / Diana Pfeiffer – German Biomass Research Centre [Germany] |
| 12:30 – 13:30 | Lunch | |
| 13:30 – 15:10 | Conference Centre - Session 10: Fixed Bed Gasification Chair: Martin Gall | Salon Europa - Session 11: Fundamentals and Ash Behaviour Chair: Prof. Frans Waanders |
| 13:30 – 13:50 | 10-1: Pipe reactor gasification studies – petrographic particle type analysis as a function of feed coal particle size / Prof. Frans Waanders – North-West University [South Africa] | 11-1: Upgrading of brown coal for enhancing gasification rate / Kouichi Miura – Kyoto University [Japan] |
| 13:50 – 14:10 | 10-2: Updraft gasification: A status on the Harboore technology / Robert Heeb – Babcock & Wilcox Vølund A/S [Denmark] | 11-2: Coal ash behaviour in reducing environments (CABRE) III / Joshua Stanislawski – Energy & Environmental Research Center (EERC) [USA] |
| 14:10 – 14:30 | 10-3: Commercial application of BGL gasifiers / Mathias Olschar – Envirotherm GmbH [Germany] | 11-3: Model-based evaluation and reduction of heavy metals dissolved in the slag by batch/continuous extraction of recycling char in an IGCC process / Prof. Yoshihiko Ninomiya – Chubu University [Japan] |
| 14:30 – 14:50 | 10-4: Trace elements behaviour in solids delivered from gasification of Australian coals / Dr. Alexander Ilyushechkin (speaker Dr. Daniel Roberts) – CSIRO [Australia] | 11-4: On the determination of the structure by high temperature X-ray diffraction on molten levitated coal slag / Dr. Patrick Masset – TU Bergakademie Freiberg [Germany] |
| 14:50 – 15:10 | 10-5: Oxygen-blown gasification and fixed-bed Fischer-Tropsch synthesis of coal and biomass / Joshua Strege (speaker Jason Laumb) – Energy & Environmental Research Center (EERC) [USA] | 11-5: Flow characteristics and rheological properties of coal ash slag at ultra-high temperature / Song Wenja – East China University of Science and Technology [China] |
| 15:10 – 15:40 | Coffee Break | |
| 15:40 – 17:20 | Conference Centre - Session 12: Gas Cleaning Chair: Jason Laumb | |
| 15:40 – 16:00 | 12-1: A compact granular bed filter for IGCC hot gas clean-up / Kavitha Pathmanathan – University of Science and Technology [Norway] | 11-6: Numerical analysis of a radiant syngas cooler / Hüseyin Yilmaz – University of Duisburg-Essen (LUAT) [Germany] |
| 16:00 – 16:20 | 12-2: Flexible dry HT gas cleaning of syngas from the entrained flow gasification of biogenic slurries / Hans Leibold - Karlsruhe Institute of Technology [Germany] | 11-7: Radiotracer for process investigation / Dr. Albert Zeuner – Fraunhofer-Institut für Zerstörungsfreie Prüfverfahren [Germany] |
| | | Salon Europa - Session 13: Syntheses Chair: Poul Erik Hojlund Nielsen |
| 16:20 – 16:40 | 12-3: Biomorphic ceramics materials for high temperature and pressure industrial filtration processes / José Vicente García-Barbosa – University of Sevilla [Spain] | 13-1: Biomass-to-DME with novel plasma-based technologies / Dr. How-Ming Lee – Institute of Nuclear Energy Research [Taiwan] |
| 16:40 – 17:00 | 12-4: High temperature producer gas treatment for clean gas applications / Stefan Martini – Bioenergy 2020+ GmbH [Austria] | 13-2: New products made of synthesis gas derived from biomass / Tim Schulzke (speaker Kai Girod) – Fraunhofer Institute for Environmental, Safety and Energy Technology UMSICHT [Germany] |
| 17:00 – 17:20 | Development of physical model of rockmass behavior during underground gasification of thin coal seams / Roman Dychkovskiy – National Mining University Dnipropetrovsk [Ukraine] | 13-3: Advanced synthetic jet fuels from combined algae and coal conversion / Rocco Fiato – Accelergy Corporation [USA], speaker Dr. Carsten Heide – EERC [USA] |
| 19:00 – 20:30 | Guided city tour | |

Wednesday 5 May 2010

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| 08:00 – 12:00 | Registration |
| 08:30 – 13:00 | Posters and Exhibition |
| 08:30 – 10:00 | Conference Centre - Session 14: Syngas Upgrading Chair: Christopher Higman |
| 08:30 – 09:00 | 14-1: Keynote: Selection of wash systems for sourgas removal / Dr. Peter M. Fritz (speaker Barbara Munder) – Linde LE [Germany] |
| 09:00 – 09:20 | 14-2: Advanced H ₂ S and CO ₂ removal technologies for synthesis gases / Howard Meyer – Gas Technology Institute [USA] |
| 09:20 – 09:40 | 14-3: Condensed rotational separation for CO ₂ capture in coal gasification processes / Prof. J.J.H. Brouwers – Eindhoven University of Technology [The Netherlands] |
| 09:40 – 10:00 | 14-5: Performance and economics of a planar WGS membrane reactor for coal gasification / Michael Dolan (speaker Dr. David Harris) – CSIRO Energy Technology [Australia] |
| 10:00 – 10:30 | Coffee Break |
| 10:30 – 12:20 | Conference Centre - Session 15: Gas Technologies Chair: Dr. Rajender Gupta |
| 10:30 – 11:00 | 15-1: Keynote: Air Liquide – Lurgi, Your partner for XtL technologies / Max-Michael Weiss (speaker Dr. Waldemar Liebner) – Lurgi GmbH/Air Liquide Group [Germany] |
| 11:00 – 11:20 | 15-2: Slim POX design for gasification / Hanno Tautz – Linde LE [Germany] |
| 11:20 – 11:40 | 15-3: Development and flame diagnostics of high pressure partial oxidation processes / Dr. Magnus Mörtberg – Lurgi GmbH [Germany] |
| 11:40 – 12:00 | 15-4: STF technology – new technology for production of high octane gasoline from synthesis gas / Dr. Mario Kuschel – CAC Chemnitz [Germany] |
| 12:00 – 12:20 | Conference Centre - Closing Ceremony |
| 12:20 – 13:20 | Lunch |
| 14:00 – 18:30 | Technical Tour 1 Freiberg |

Thursday 6 May 2010

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| 07:00 – 18:00 | Technical Tour 2 Vresova |
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