

## 2<sup>nd</sup> International Freiberg Conference on IGCC & XtL Technologies



Siemens Fuel Gasification Technologies GmbH



CHOREN Industries GmbH



IEC – Institute of Energy Process Engineering and Chemical Engineering



Sustec Schwarze Pumpe GmbH



Sokolovská uhelná a.s.

May 8 – 12, 2007

### Information platform



German  
Centre for  
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## Programme

Wednesday, 9th May, 2007

8.00-9.00 am **Registration**

### Session 1 - Chairman: Bernd Meyer

0.1	9.00-9.15 am	Opening Address	Bernd Meyer (IEC/DeZeV); <i>TU Bergakademie Freiberg (Germany)</i>
0.2	9.15-9.30 am	Opening Address	Mayor, Rector; <i>Freiberg/ TU Bergakademie Freiberg (Germany)</i>
1.1	9.30-9.50 am	German Participation in European and International Activities Related to Clean Coal Technologies Including Carbon Capture and Storage	Hubert Höwener; <i>Forschungszentrum Jülich GmbH (Germany)</i>
1.2	9.50-10.10 am	ZIK	Institut für Energieverfahrenstechnik und Chemieingenieurwesen; <i>TU Bergakademie Freiberg (Germany)</i>
10.10-10.30 am Coffee Break			

### Session 2 - Chairman: Bernd Meyer

2.1	10.30-11.00 am	<b>Plenary Session:</b> Zero-CO <sub>2</sub> IGCC Power Plant of RWE Power AG – First Steps Toward Commercial Implementation	Johannes Ewers, Werner Renzenbrink, Karl-Josef Wolf; <i>RWE Power AG (Germany)</i>
2.2	11.00-11.30 am	<b>Plenary Session:</b> Gasification– History and Activities within the Vattenfall Group	Thomas Porsche <sup>1</sup> , Hubertus Altmann <sup>1</sup> , Dmitry Korobov <sup>1</sup> , Nicklas Simonsson <sup>2</sup> ; <sup>1</sup> <i>Vattenfall Europe Generation AG &amp; Co. KG (Germany)</i> , <sup>2</sup> <i>Vattenfall R&amp;D AB (Sweden)</i>
2.3	11.30-12.00 am	<b>Plenary Session:</b> Siemens IGCC and Gasification Technology – Today's Solution and Developments	Manfred Schingnitz, Frank Hannemann, Gerhard Zimmermann; <i>Siemens Fuel Gasification Technologies GmbH (Germany)</i>
12.00-1.00 pm Lunch Break			

**Session 3 - Chairman: Karsten Radtke**

3.1	1.00-1.20 pm	Conceptual Study of Legnica Lignite Gasification	Marek Sciazko, Tomasz Chmielniak; <i>Institute for Chemical Processing of Coal (Poland)</i>
3.2	1.20-1.40 pm	Hydrogasification Process for Co-Production of Substitute Natural Gas (SNG) and Electric Power from Western Coals with Zero-CO <sub>2</sub> -Emission	Raymond Hobbs; <i>Arizona Public Service (USA)</i>
3.3	1.40-2.00 pm	Exergy Underground Coal Gasification Technology as Applied in the International IGCC and XtL Projects	Michael S. Blinderman; <i>Ergo Exergy Technologies, Inc. (Canada)</i>
3.4	2.00-2.20 pm	Syn crude Oil and Upgraded Syn coal Production from Mild Temperature Pyrolysis of Subbituminous Coals	Dieter Neubauer, Ebbe R. Skov; <i>ConvertCoal, Inc. (Germany/USA)</i>
	2.20-2.40 pm	Coffee Break	

**Session 4 - Chairman: Neville Holt**

4.1	2.40-3.00 pm	Sasol-Lurgi Fixed Bed Gasification for Fuels and Chemicals	Osman Turna; <i>Lurgi AG (Germany)</i>
4.2	3.00-3.20 pm	Operational Status of the BGL Gasification Technology on Low Rank Coal and other Fuels	Matthew Seed; <i>Advantica (UK)</i>
4.3	3.20-3.40 pm	PWR Compact Gasifier Dry Feed System Development	Kenneth M. Sprouse <sup>1</sup> , David R. Matthews <sup>1</sup> , Greg F. Weber <sup>2</sup> ; <sup>1</sup> <i>Pratt &amp; Whitney Rocketdyne Inc.</i> , <sup>2</sup> <i>University of North Dakota (USA)</i>
4.4	3.40-4.00 pm	Conceptual Analysis for a Grass Fired IGCC Plant	Johannes Judex; <i>Paul Scherrer Institut (Switzerland)</i>
	4.00-4.20 pm	Coffee Break	

**Session 5 - Chairman: Leo Salinas**

5.1	4.20-4.40 pm	CFD-Modelling of Oil and Coal Gasification	Andreas Ortwein, Bernd Meyer; <i>TU Bergakademie Freiberg (Germany)</i>
5.2	4.40-5.00 pm	CEA Research Activities in the Field of Entrained Flux Reactors	Jean Marie Seiler, F. Defoort, S. Rougé, S. Ravel, P. Castelli, B. Drevet; <i>CEA Grenoble (France)</i>
5.3	5.00-5.20 pm	Investigation into the Root Cause of Fouling During Processing of Condensate from Fixed Bed Gasifier	Setobane Mangena, R. Henry Matjie; <i>Sasol Technology R&amp;D (South Africa)</i>
5.4	5.20-5.40 pm	Development of Evaluation Technology on Various Phenomenons in Coal Gasifier	Saburo Hara; <i>Central Research Institute of Electric Power Industry (CRIEPI) (Japan)</i>
5.5	5.40-6.00 pm	Thermodynamic Modelling of the BGL-Gasification Process with Consideration of Alkali Metals	Stefan Guhl, Bernd Meyer; <i>TU Bergakademie Freiberg (Germany)</i>
	6.00-6.10 pm	Discussion and Summary	

**Thursday, 10<sup>th</sup> May, 2007****Session 6 - Chairman: Steffen Krzack**

	8.30-8.35 am	Opening	Bernd Meyer; <i>TU Bergakademie Freiberg (Germany)</i>
6.1	8.35-8.55 am	Large Scale Synthesis Gas Production for Gas to Liquids	Kim Aasberg-Petersen; <i>Haldor Topsoe A/S (Denmark)</i>
6.2	8.55-9.15 am	GTL in the Tail-End Phase of Gas Fields – Focus on Small Size Units	Pierre Bernoux, W. Kleinitz, C. Ryszfeld, E. Zindani; <i>Gaz de France (France/ Germany)</i>
6.3	9.15-9.35 am	Refinery Integrated XtL: Challenges and Opportunities	Veronique Hervouet; <i>Total (France)</i>
6.4	9.35-9.55 am	Hydrogen Production by MPG Gasification for Upgrading Canadian Oil Sands to Transportation Fuel	U. Wolf <sup>1</sup> , H. Schlichting <sup>1</sup> , Stefan Walter <sup>1</sup> , J. Quinn <sup>2</sup> ; <sup>1</sup> <i>Lurgi AG</i> , <sup>2</sup> <i>North West Upgrading Inc. (Germany/Canada)</i>
	9.55-10.15 am	Coffee Break	

**Session 7 - Chairman: Tom Blades**

7.1	10.15-10.35 am	Large-Scale Fischer-Tropsch Diesel Production	Ir. R. W. Robin Zwart; <i>Energy Research Centre of the Netherlands (Netherlands)</i>
7.2	10.35-10.55 am	World Scale BTL Facilities – Technology and Site Evaluation	Olaf Schulze, Matthias Rudloff, Kathrin Bienert; <i>CHO-REN Industries GmbH (Germany)</i>
7.3	10.55-11.15 am	Novel Technology Platform for Warm Syngas Clean-up: Progress from Field Testing With Coal Derived Syngas	Brian Turk, Jerry Schlather; <i>RTI International Eastman Chemical Company (USA)</i>
7.4	11.15-11.35 am	Metal Sorbents for Mercury, Arsenic and Selenium Capture from Fuel Gas at Elevated Temperatures	Hugh Hamilton <sup>1</sup> , Liz Rowsell <sup>1</sup> , Stephen Poulston <sup>1</sup> , Andrew Smith <sup>1</sup> , Thomas Ilkenhans <sup>1</sup> , Evan J. Granite <sup>2</sup> , Henry W. Pennline <sup>2</sup> , Christina R. Myers <sup>2</sup> , Dennis P. Stanko <sup>2</sup> , Wilson Chu <sup>3</sup> ; <sup>1</sup> <i>Johnson Matthey Technology Centre</i> , <sup>2</sup> <i>National Energy Technology Laboratory</i> , <sup>3</sup> <i>Stationary Source Emissions Control (UK/USA)</i>
7.5	11.35-11.55 am	Linde Rectisol Process – The most Economic and Experienced Wash Process for Removal of Sulphur Compounds and CO <sub>2</sub> from Gasification Gases	Alexander Prelipceanu, H.-P. Kabbalo, U. Kerestecioglu; <i>Linde AG (Germany)</i>

11.55-12.40 pm Lunch Break

**Session 8 - Chairman: Christopher Higman**

8.1	12.40-1.00 pm	The Order of Selectivity in Fischer-Tropsch Synthesis	Hans Schulz; <i>Engler-Bunte-Institute, University of Karlsruhe (Germany)</i>
8.2	1.00-1.20 pm	Options for Upgrading & Refining Fischer-Tropsch Liquids	John. J. Marano; <i>Energy Systems Consultant to the U.S. DOE (USA)</i>
8.3	1.20-1.40 pm	Diesel Selective Hydrocracking of Fischer-Tropsch Wax - Experimental Investigations	Matthias Endisch, Mathias Olschar, Thomas Kuchling, Thomas Dimmig; <i>TU Bergakademie Freiberg (Germany)</i>

1.40-2.00 pm Coffee Break

**Session 9 - Chairman: Frank Hannemann**

9.1	2.00-2.20 pm	CO <sub>2</sub> Capture: The IGCC Retrofit Conundrum	Christopher Higman; <i>Syngas Consultants Ltd. (UK)</i>
9.2	2.20-2.40 pm	IGCC Plant Designs for CO <sub>2</sub> Capture – 90% Capture, Partial Capture and Capture Ready	Neville Holt, Jeffrey Phillips, George Booras, Ronald Schoff; <i>EPRI (USA)</i>
9.3	2.40-3.00 pm	Gas Turbines for Syngas	Klaus Payrhuber; <i>GE Energy Europe (Austria)</i>
9.4	3.00-3.20 pm	Study on CO <sub>2</sub> Capture through Desulfurization in IGCC	Hong-Yue Wang, Hyung-Taek Kim; <i>Division of Energy System, Ajou University (Korea)</i>

3.20-3.40 pm Coffee Break

**Session 10 - Chairman: Sankar Bhattacharya**

10.1	3.40-4.00 pm	Nuon Magnum Power IGCC Project for 1200 MW <sub>e</sub> Net Power	Rik van der Ploeg <sup>1</sup> , Rien van Haperen <sup>2</sup> ; <sup>1</sup> <i>Shell Global Solutions International BV</i> , <sup>2</sup> <i>NUON (Netherlands)</i>
10.2	4.00-4.20 pm	Progress Update for Commercial Plants of Air Blown IGCC	T. Hashimoto, Katsuhiro Ota, Takashi Fujii; <i>Mitsubishi Heavy Industries, Ltd. (Japan)</i>
10.3	4.20-4.40 pm	The Future of Integral Processing of Fuels by Gasification at the Gasworks of Sokolovská Uhelna, Czech Republic	Petr Mika; <i>Sokolovska uhelna a.s. (Czech Republic)</i>
10.4	4.40-5.00 pm	Puertollano IGCC Power Plant. Operational Experience and Current Developments	Francisco Garcia-Pena, Pedro Casero Cabezon; <i>Elcogas SA (Spain)</i>
10.5	5.00-5.20 pm	Integrated ITM Oxygen-Gas Turbine System for IGCC	Dennis Horazak <sup>1</sup> , VanEric Stein <sup>2</sup> , Gerhard Zimmermann <sup>3</sup> , Mike Rost <sup>3</sup> ; <sup>1</sup> <i>Siemens Power Generation Inc.</i> , <sup>2</sup> <i>Air Products and Chemicals, Inc.</i> , <sup>3</sup> <i>Siemens AG Power Generation (USA/ Germany)</i>
10.6	5.20-5.40 pm	Advanced Modelling of IGCC-Power Plant Concepts - Effects of ASU-Integration on Plant Performance and Gas Turbine Operation	Mathias Rieger, Robert Pardemann, Bernd Meyer; <i>TU Bergakademie Freiberg (Germany)</i>

5.40-5.50 pm Discussion and Summary

## Poster Presentations

<b>P1</b>	Used nickel catalyst for biomass gas cleaning	Marek Balas; <i>University of Technology Brn (Czech Republic)</i>
<b>P2</b>	Fly Ash as a chemical Scrubber for Toxic Trace Elements	Gesine Heber <sup>1,2</sup> , Eli Lederman <sup>1</sup> , Ithamar Pelly <sup>1</sup> , Haim Cohen <sup>1,3</sup> ; <sup>1</sup> <i>Ben-Gurion University of the Negev</i> , <sup>2</sup> <i>TU Bergakademie Freiberg</i> , <sup>3</sup> <i>The College of Judea and Samaria (Israel/Germany)</i>
<b>P3</b>	Mechanism of C-C Bond Formation via the Reaction of Carbon-Centered Organic Radicals at the surface of Nanoparticle Catalysts	Andreas Hänel <sup>1,2</sup> , Tomer Zidki <sup>1</sup> , Dan Meyerstein <sup>1,3</sup> , Haim Cohen <sup>1,3</sup> ; <sup>1</sup> <i>Ben-Gurion University of the Negev</i> , <sup>2</sup> <i>TU Bergakademie Freiberg</i> , <sup>3</sup> <i>The College of Judea and Samaria (Israel/Germany)</i>
<b>P4</b>	CAC - your Partner in Designing Partial and Complete Plants	Mario Kuschel; <i>CAC Chemieanlagenbau Chemnitz (Germany)</i>
<b>P5</b>	Effects of Bed Materials on Gas Quality at Gasification of Biomass and Plastic Waste in the Atmospheric Fluidized-Bed Reactor	M. Vosecky <sup>1,2</sup> , M. Pohorely <sup>1,2</sup> , P. Kamenikova <sup>1,2</sup> , S. Skoblja <sup>1,2</sup> , M. Puncochar <sup>1</sup> , B. Koutsky <sup>2</sup> ; <sup>1</sup> <i>Academy of Science of the Czech Republic</i> , <sup>2</sup> <i>Institute of Chemical Technology Prague, (Czech Republic)</i>
<b>P6</b>	Application of New Methods for Fast Tar Determination	P. Kamenikova <sup>1,2</sup> , M. Vosecky <sup>1,2</sup> , M. Pohorely <sup>1,2</sup> , S. Skoblja <sup>1,2</sup> , M. Puncochar <sup>1</sup> , B. Koutsky <sup>2</sup> ; <sup>1</sup> <i>Academy of Science of the Czech Republic</i> , <sup>2</sup> <i>Institute of Chemical Technology Prague, (Czech Republic)</i>
<b>P7</b>	Institute for Energy and Environment, Non-profit Limited Liability Company	Alexander Vogel; <i>Institut für Energetik und Umwelt, gemeinnützige GmbH, Leipzig (Germany)</i>
<b>P8</b>	A New Method for Producing Hydrogen and Emits Less CO <sub>2</sub> than Conventional Gasification	Su-Yong Jung, Hyung-Taek Kim <sup>†</sup> ; <i>Ajou University Korea. (Korea)</i>
<b>P9</b>	High Temperature Particulate Removal	Ian Stirling; <i>Porvair Filtration</i>
<b>P10</b>	Global gasification Project Update and Review	Tim Cornitius; <i>Syngas Refiner – Zeus Development Corporation (USA)</i>
<b>P11</b>	Modelling IGCC Plants Using the Simulation Tool Epsilon Professional	Reiner Pawellek; <i>Steag Ketekit GmbH (Germany)</i>
<b>P12</b>	Adapting to the Future	Frans van Dijen; <i>LABORELEC (Belgium)</i>
<b>P13</b>	Gasification-Based Gasoline Synthesis	Finn Joensen, Thomas Rostrup-Nielsen, Bodil Voss; <i>Haldor Topsoe A/S (Denmark)</i>
<b>P14</b>	Coal-Based Oxy-Fuel System Evaluation and Combustor Development	S. MacAdam, R. Anderson, K. Pronske, C. Biebuyck; <i>Clean Energy Systems, Inc. (Belgium)</i>
<b>P15</b>	BtL – Project of Freiberg University – Current State	Wolfram Radig, Kristin Boblenz, Bernd Meyer; <i>TU Bergakademie Freiberg (Germany)</i>
<b>P16</b>	COORIVA – The Germany's Leading Project in IGCC	Martin Gräbner, Hardy Rauchfuß, Michael Trompelt, Mathias Rieger, Sirko Ogriseck, Isabel Ulbricht, Bernd Meyer; <i>TU Bergakademie Freiberg (Germany)</i>
<b>P17</b>	Synthesis Gas Generation by High Pressure Partial Oxidation – HP POX	Peter Seifert, Claudia Schön, Andreas Ortwein, Philipp Brüggemann, Markus Rehm, Bernd Meyer; <i>TU Bergakademie Freiberg (Germany)</i>
<b>P18</b>	Modelling of Dynamic Operational Behavior of IGCC-Plants	Julia Fahlke, Sindy Heil, Bernd Meyer; <i>TU Bergakademie Freiberg (Germany)</i>
<b>P19</b>	CFD-Modelling of Gasification Processes	Markus Rehm, Claudia Schön, Andreas Ortwein, Martin Gräbner, Peter Seifert, Bernd Meyer; <i>TU Bergakademie Freiberg (Germany)</i>
<b>P20</b>	Siemens Fuel Gasification Technology: Fuel gasification technology for Integrated Gasification Combined Cycle projects and industrial applications	Bernd Holle; <i>Siemens Fuel Gasification Technologies GmbH (Germany)</i>

## Friday, 11th, 2007 (see schedule technical tours for more information)

8.00 am - 4.00 pm	Technical Tour to Sustec Schwarze Pumpe GmbH (SVZ) (BGL Gasifier)
8.00 am - 4.00 pm	Technical Tour to Siemens Fuel Gasification Technologies GmbH (SFGT Gasifier), to CHOREN Industries GmbH (Carbo-V Gasifier) and to Institute of Energy Process Engineering and Chemical Engineering (HP POX Gasifier and labs) in Freiberg

## Saturday, 12th, 2007 (see schedule technical tours for more information)

7.00 am - 5.00 pm	Technical Tour to Sokolovská uhelná a.s., Vresova, Czech Republic (Lurgi Dry Ash Gasifier and SFGT Gasifier)
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