



Conference Program for Impacts of Fuel Quality

September 23rd – 28th, 2018 Lake Louise, AB, Canada

Sunday 23rd September			
06:00 PM	Welcome get together/ Registration/ Dinner		
Monday 24th September (Day One)			
Session 1: Ash Formation Deposit and Characterization I			
Time	Title	Author (s)	Institution
8:00am	On the Adhesion of Ash Particles in Boilers: A Review	Flemming J. Frandsen , Ulrich Kleinhans, Christoph Wieland and Hartmut Spliethoff	TUD Denmark
8:25am	Analysis and characteristics of ash deposits collected from the Callide Oxyfuel Project	Liza Elliott, Terry Wall , Rohan Stanger and Chris Spero	U of N, Australia
8:50am	Ash fractionation and slag formation during entrained flow biomass gasification	Markus Broström , Per Holmgren and Rainer Backman	Umeå Sweden
9:15am	Measurement and prediction of ash deposition rates for air- and oxy-combustion of a wide range of solid fuels	Yueming Wang and Jost O.L. Wendt	U of U USA
9:40am	Ash partitioning during combustion of silicon-rich biomass and its blends with low-rank coals	Jingkun Han , Dunxi Yu, Xin Yu, Fangqi Liu, Hong Yao and Minghou Xu	HUST, China
10:05 AM	Tea Break until 10:30		
Session 2: Waste to Energy I			

10:30am	Fluidized Bed Steam-Oxygen Gasification of Dried Sewage Sludge: Reduction of tar and H ₂ S with limestone as bed additive	Max Schmid , Reinhold Spörl and Günter Scheffknecht	Stuttgart, Germany
10:55am	Difference in phosphate speciation during FBC of sewage sludge and P-rich biomass	Joel Falk , Nils Skoglund, Alejandro Grimm, Dan Boström and Marcus Öhman	Luleå & Umeå
11:20am	Effect on P-mineralization in FBC of chicken litter with wheat straw and bark residues	Gustav Häggström , Katharina Wagner, Matthias Kuba, Nils Skoglund and Marcus Öhman	Luleå & Umeå, Austria
11:45am	Investigation of the behaviour of alkali chlorides during sulfur recirculation in a waste to energy facility	Albin Tärnåsen, Oskar Sundborg, Thomas Allgurén , Sven Andersson, Jost Wendt and Klas Andersson	Chalmers & Utah
12:10 – 01:10 PM Lunch break – 1 hour			
2:00 PM Ad-hoc meeting/Networking			
6:00 – 7:00 PM Dinner			
Session 3: Mix Topics I			
7:00pm	Effects of water cleaning on different deposit types – an experimental study combined with a systematic parameter study	Franziska Graube , Sebastian Grahl and Michael Beckman	TUD Germany
7:25pm	Significance of sampling in heat balancing in a power plant	Subhajit Aich, Barun Kumar Nandi , Anand Anupam and Sumantra Bhattacharya	ISM, India
7:50pm	Influence of relative Humidity on the Measurement of PM Concentration by Light Scattering	Han Jinke , Liu Xiaowei, Chen Dong, Jiang Meng and Xu Minghou	HUST, China
8:15pm	Pre-treatment of forest residue wood chips and its impact on the fuel composition as well as Combustion and emission behaviour.	Thomas Zeng , Daniel Kuptz , Katrin Schreiber, Claudia Schön, Fabian Schulmeier ,Volker Zelinski, Annett Pollex, Hans Hartmann, Volker Lenz and Michael Nelles	Germany
8:40 PM Happy hour			
Tuesday 25th September (Day Two)			
Session 4: SO_x, NO_x and Alkaline			
8:00am	Ash transformation during single-pellet combustion of agricultural biomass fuels – focus on K and P	Ali Hedayati , Robert Lindgren, Christoffer Boman and Marcus Öhman	Luleå & Umeå
8:25am	Vaporization of alkali metals in incineration ash during	Facun Jiao, Norikazu Kinoshita, Masato	Japan &

	thermal treatment with additives	Kawaguchi, Motoyuki Asada, Maki Honda, Keisuke Sueki, Yoshihiko Ninomiya , Dmitry Sergeev, Marc Bläsing and Michael Müller	Germany
8:50am	SO ₂ , SO ₃ and HCL control by injection of dry CaCO ₃ and Ca(OH) ₂ in air and oxy-fuel recycle combustion	Reinhold Spörl, Reyhane Youssefi, Jörg Maier and Günter Scheffknecht	Stuttgart Germany
9:15am	Experimental study of the NO _x reduction through the oxygen staging in the oxy-fuel bubbling fluidized bed combustion	Matej Vodicka , Jan Hrdlicka, Kristyna Nemcova and Pavel Skopec	Czech Republic
9:40am	Dry additive desulphurization in the oxyfuel combustion in a BFBC	Pavel Skopec and Jan Hrdlicka	Czech Republic
10:05 AM Tea Break until 10:30			
Session 5: Waste to Energy II			
10:30am	Potential of Fly Ash from MSW Incineration as Thermochemical Energy Storage Material	Saman Setoodeh , Mudassar Azam and Franz Winter	TUW Austria
10:55am	Combustibility evaluation of challenging bio and waste derived fuels – an industrial approach	Jaakko Tamminen , Hanna Kinnunen, Juha Roppo and Sonja Enestam	Valmet Finland
11:20am	Ash design for production of P-rich bottom ash with low Cd content during co-combustion of Municipal Sewage Sludge in a Grate Fired Boiler	Andreas Nordin , Sana Elbashir, Lars-Erik Åmand and Anita Pettersson	U of B Sweden
11:45am	Particle Size Distribution and Enrichment of Metal Components in Fly Ash from Oxy-fuel Combustion of Waste Sludge	Ha-Na Jang , Jeong-Hun Kim, Jin-Ho Sung, Heung-Min Yoo, Hang Seok Choi and Yong-Chil Seo	Yonsei SKorea
12:10 – 01:10 PM Lunch break – 1 hour			
2:00 PM Ad-hoc meeting/Networking			
6:00 – 7:00 PM Dinner			
Session 6: Mix Topics II			
7:00pm	Bitumen upgrading and demetallization with supercritical carbon dioxide and water	Deepak Pudasainee , Tariq Siddique, Japan Trivedi, Jose Lourenco and Rajender Gupta	U of A Canada
7:25pm	Identification of the K ₂ Ca ₆ Si ₄ O ₁₅ ternary phase in biomass mixtures	Françoise Defoort , Matthieu Campargue, Gilles Ratel, Muriel Marchand and Hélène Miller and Capucine Dupont	Grenoble, France & Delft
7:50pm	Oxidative heteroatom removal as fuel pre-treatment	Arno de Klerk	U of A Canada

8:15pm	What is the greenhouse gas abatement cost for biomass co-firing?	Adetoyese Olajire Oyedun and Amit Kumar	U of A Canada
8:40 PM Happy hour			
Wednesday 26th September (Day Three)			
Session 7: Combustion / Gasification and Pyrolysis			
8:00am	Fuel and Load-Flexible Entrained Flow Gasifier Operation and Applications: Flame Parameters & Flexible Burner	Philipp Johne , Sebastian Fendt and Hartmut Spliethoff	TUM Germany
8:25am	Corrosion in recycled wood combustion – reasons, consequences and solutions	Hanna Kinnunen , Sonja Enestam	Valmet Finland
8:50am	Kinetic Study on co-gasification of lignite and waste material for the closed carbon cycle system	Jörg Kleeberg , Uwe Nase, Juliane Schaefer, Bernd Meyer	Virtuhcon Germany
9:15am	Investigation of mixed metals and support oxides as oxygen carriers for the methane CLC process	Mansour Mohammedramadan Tijani and Nader Mahinpey	U of C Canada
9:40am	Transformation Processes of Mineral Matter Particles in Lignite-fired Boilers	Christopher Thiel , Kathrin Gebauer, Sebastian Grahl and Michael Beckmann	TUD Germany
10:05 AM Tea Break until 10:30			
Session 8: Trace Elements and PM I			
10:30am	Functionalized Biocarbons (FBCs): A Low Cost Renewable Sorbents for Mercury Capture	Ataullah Khan , Deepak Pudasainee and Rajender Gupta	Innotech & U of A
10:55am	Emission characteristic and transformation mechanism of hazardous TEs in a coal-fired power plant	Shilin Zhao , Yufeng Duan, Yanning Li, Meng Liu, Jianhong Lu, Yanjun Ding, Xiaobing Gu and Mingsheng Du	China
11:20am	Sampling of Fly Ash and Fine Particles (PM10) in Two Full-Scale Boilers Firing Pulverized Wood with Coal Fly Ash Addition	Richard Nowak Delgado , Christian Wolf, Philipp Johne, Sebastian Fendt and Hartmut Spliethof	TUM Germany
11:45am	Correlation of submicron ash yield from pulverized fuel combustion with fuel properties	Lyuxiao Jiang and Changdong Sheng	SEUC China
12:10 – 01:10 PM Lunch break – 1 hour			
Session 9: Ash Deposition and Monitoring			
2:00pm	Condition Based Monitoring and Predicting Ash	Steven A. Benson, Shuchita Patwardhan ,	North

	Behaviour in Coal Fired Boilers	David Stadem, Kris Keller and Travis Desell	Dakota, USA
2:25pm	Characterization of deposits from various fuels using online deposition measurement sensor	Manoj Paneru , Selahatin Babat, Jörg Maier, Günter Scheffknecht, Won Yang, Ho Lim, Tae Young Chae and Yong Woon Lee	Germany SKorea
2:50pm	An In-situ Sensor System for characterizing Deposits on Water Walls and its field trial in a large Steam Generator	Matthias Reiche , Sebastian Grahl and Michael Beckmann	Dresden, Germany
3:15pm	Online laser monitoring of metal chloride and oxygen concentration using Photo-fragmentation and AAS	Jan Viljanen and Juha Toivone	TUT Finland
3:40 – 4:00 PM	Tea Break		
4:00 PM	Executive/Scientific Committee Meeting		
6:00 PM	Conference Dinner		
Thursday 27th September (Day Four)			
Session 10: Trace elements and PM II			
8:00am	Heavy minerals and the distributions of trace elements in some typical lignite from China	Chong Tian , Yong Kang, Mingyue Ding, Yongchun Zhao and Junying Zhang	U of W China
8:25am	Migration and transformation of V and Ni in high S petroleum coke during gasification process	Wei Li, Ben Wang , Jun Nie and Lushi Sun	HUST China
8:50am	Effect of CO ₂ -water leaching on the combustion and PM release from Zhundong coal	Yaxin Gao, Lizhi Ding, Xian Li, Xin Yu, Xianqing Zhu, Hongyun Hu, Guangqian Luo , Dunxi Yu, Hong Yao	HUST China
9:15am	Ash and Trace Elements Chemistry	Flemming J. Frandsen	DTU Denmark
9:40am	Fate of radiocaesium during woody biomass gasification in reductive atmosphere	Kenji Koido and Takahiro Iwasaki	Fukushima Japan
10:05 AM	Tea Break until 10:30		
Session 11: Combustion and Pyrolysis			
10:30am	Combustion characteristics of co-fired high ash Indian coal and biomass	Subhajit Aich, Barun Kumar Nandi and Sumantra Bhattacharya	ISM India
10:55am	Combustion characteristics of a low volatile thermal coal	Dibyajyoti Behera , Barun Kumar Nandi, Anand Anupama and Sumantra Bhattacharya	ISM India
11:20am	Pyrolysis behavior of lignite and waste material blends	Kevin Günther , Steffen Krzack, Jörg Kleeberg	Freiberg

	in a DTF at enhanced pressures	and Bernd Meyer	Germany
11:45am	Impact of Sulfur Oxides on Mercury Speciation and Capture by Fly Ash during Oxy-fuel PC Combustion	Lawrence P. Belo , Liza K. Elliott , Rohan J. Stanger and Terry F. Wall	U of N Australia
12:10 – 01:10 PM Lunch break – 1 hour			
2:00 PM Ad-hoc meeting/Networking			
6:00 – 7:00 PM Dinner			
Session 12: Mix Topics III			
7:00pm	SNCR Ammonia Slip and Economizer Corrosion	Daniel Lennmark-Appelbom, Erik Torshage and Markus Broström	Umea, Sweden
7:25pm	Radiative Properties of Ash Deposits	John Parra, Alvarez, Benjamin Issac, Sean Smith, Terry Ring and PJ Smith	Utah USA
7:50pm	Reactive additives for alkali capture in biomass combustion.	Hao Wu , Peter Arendt Jensen, Flemming Frandsen and Peter Glarborg	DTU Denmark
8:15pm			
8:40 PM Happy hour			
Friday 28th September (Day Five)			
Session 13: Modelling			
8:00am	Large eddy simulation of dynamic ash deposit growth in the pulverized coal boiler	Min-min Zhou, Benjamin Isaac, Sean T. Smith, Jeremy N. Thornock and PJ Smith	Utah USA
8:25am	ReaxFF Molecular Dynamic Simulation of Pyrolysis and Combustion processes of Biomass and Coal under Oxidative and Humidity Environments	Chao Chen , Xuan Wu and Lingling Zhao	SEUC China
8:50am	Modelling the formation of residual fly ash from pulverized biomass combustion	Mingzi Xu and Changdong Sheng	SEUC China
9:15am	The influence of fine fuel particles on ash deposition in industrial- biomass combustion: Experiments and CFD modelling	T. Plankenbühler , D. Müller, J. Karl and Friedrich-Alexander	U of E-N Germany
9:40am	Numerical Study on Coal and Biomass Co-firing in BFB under O ₂ /CO ₂ Atmospheres	Xuan Wu, Chao Chen and Lingling Zhao	SEUC China
10:05 AM Tea Break until 10:30			

Session 14: Ash Formation Deposit and Characterization II

10:30am	Fluorides in Waste Deposits	Karin Sandström , Eva Weidemann, Christoffer Boman and Markus Broström	Sweden-41
10:55am	Temp- gradient-driven aging mechanisms in alkali bromide and sulfate containing ash deposits	Jonne Niemi, Roland Balint, Markus Engblom , Juho Lehmusto and Daniel Lindberg	AA Finland
11:20am	Characterization of Vinasse Ash and Ash-forming Elements	Meheretu J Dirbeba , Anders Brink, Maria Zevehhoven, Nikolai DeMartini, Daniel Lindberg, Leena Hupa and Mikko Hupa	AA Finland
11:45am			
12:10 – 12:30 PM Prize Distribution			
12:30 – 2:00 PM Lunch			
2:00 PM Closure			