

Day 1 - May 10

7:00 am to 7:15 am PDT	Opening Ceremony - Session room 1		
7:15 am to 8:00 am PDT	Plenary Lecture 1 (Chair: Naoko Ellis)- Session room 1 Raffaella Ocone Sticking together: is unity strength? <i>Heriot-Watt University, UK</i>		
8:00 am to 8:45 am PDT	Modeling (1) Session room 1	Hydrodynamics (1) Session room 2	Gasification Session room 3
# of papers	6 (Chair: Tingwen Li)	6 (Chair: Allan Issangya)	5 (Chair: Adam Luckos)
	9 - Chunhua Zhang Numerical Investigation of Flow Fields in a Novel Methanol-to-Olefins Reactor <i>China University of Petroleum, China</i>	2 - Christoph Eder Cold Flow Model Study on the Operability of a Multistage-Fluidized-Bed Column with Deep Bubbling Beds <i>University of Natural Resources and Life Sciences, Austria</i>	46 - Antti Pitkääoja Modeling of Sorbent Enhanced Gasification Utilizing Waste-Derived Fuel <i>Lappeenranta-Lahti University of Technology, Finland</i>
	12 - Sam Clark Considerations for Practical Industrial CFD Simulations of Fluidized Systems <i>CPFD Software, USA</i>	5 - Guillermo Martinez Castilla Dynamic Modeling of the Flue Gas Side of Large-Scale Circulating Fluidized Bed Boilers <i>Chalmers University of Technology, Sweden</i>	125 - Selina Hafner Investigation of the Sorption Enhanced Gasification Process in a Dual Fluidized Bed Pilot Plant Using a Waste-Derived Fuel <i>University of Stuttgart, Germany</i>
	27 - Navid Mostoufi CFD-DEM Investigation of Wall Sheeting in Gas-Solid Fluidized Bed considering Electrostatic Effects <i>University of Tehran, Iran</i>	8 - Yanqin Li Characteristics on Sound Propagation in Packed Beds <i>Zhengzhou University, China</i>	137 - Robin Faust Laboratory Study of Interactions Between Biomass Ash and Alkali-Feldspar Bed Material <i>Chalmers University of Technology, Sweden</i>

	301 - Liyan Sun Effect of Wall Boundary Conditions on 3D Hydrodynamic Numerical Simulation of a CLC Unit with Dual Circulating Fluidized-bed Reactors <i>Université de Toulouse, France</i>	43 - Harshal Gamit Fluidization of Bidisperse Mixture <i>Indian Institute of Technology Bombay, India</i>	157 - Saurabh Gupta Hydrodynamic Behaviour of a Dual Fluidized Bed Designed for the High Ash Coal Gasification <i>Indian Institute of Technology Kanpur, India</i>
	13 - Mohammad Abdur Rakib Resid Fluid Catalytic Cracking (Rfccc) Unit Model Development for a Dual-Riser 2-Stage Regenerator Configuration <i>Abu Dhabi National Oil Company (ADNOC) Refining, UAE</i>	219 - Dongfang Li An Experimental Study on Limestone Attrition during Sulfation in a Fluidized Bed Reactor <i>Pusan National University, Korea</i>	186 - Binxuan Zhou The Study of Co-production of Coal Gas and Powdered Activated Coke Based on Fluidized Bed <i>Shandong University, China</i>
	54 - Frederik Zafiryadis Three-Dimensional Full-Loop Simulation of Cold Gas-Solid Flow in a Pilot-Scale Dual-Fluidized Bed System <i>Technical University of Denmark, Denmark</i>	216 - Ray Cocco Attributes of an Eccentrically Positioned Vortex Finder on Primary Cyclones <i>Particulate Solid Research, Inc., USA</i>	
8:45 am to 9:30 am PDT	Modeling (2) Session room 1	Hydrodynamics (2) Session room 2	CO₂ capture Session room 3
# of papers	6 (Chair: Alberto Di Renzo)	6 (Chair: Yongmin Zhang)	6 (Chair: Alissa Park)
	62 - Lennard Lindmüller Flowsheet Simulation of a Chemical Looping Combustion Process for Solid Fuels <i>Hamburg University of Technology, Germany</i>	58 - Sina Tebianian Hydrodynamic Characterization of 1.5 MW Chemical Looping Combustion Cold Flow Model <i>IFP Energies nouvelles, France</i>	55 - Bill Long Cheng Sorbent-Enhanced Biochar- Direct Chemical Looping Process for Hydrogen Production with CO ₂ Capture <i>University of British Columbia, Canada</i>

	98 - Pascal Fede The Filtered Approach for Numerical Prediction of An Industrial-Scale FCC Regenerator <i>Université de Toulouse, France</i>	63 - Cedric Briens Evolution and Flow of Vapors in a Fluidized Bed <i>Western University, Canada</i>	90 - Farnaz Esmaeili Rad CFD Simulation of Gas Particle Flows in a CFB Carbon Capture Unit Using Solid Sorbents <i>Illinois Institute of Technology, USA</i>
	124 - Timo Dymala The MP-PIC Method for CFD-Simulation of Biomass Gasification in a Lab-Scale Fluidized Bed <i>Hamburg University of Technology, Germany</i>	79 - Mikel Tellabide Spouting Regimes of Fine Particles in Fountain Confined Conical Spouted Beds <i>University of the Basque Country, Spain</i>	107 - Yi Feng Experiments on CO ₂ Adsorption Performance of New Calcium-Based Absorbent Modified with High Aluminous Cement <i>Zhejiang University, China</i>
	126 - Yang Liu Numerical Investigation of Flow and Reaction Processes in a Dual-CFB Coal Gasifier Using the QC-EMMS Drag Model <i>Tsinghua University, China</i>	88 - Benjamin Amblard Evaluation of the CFD Code Openfoam for the Extrapolation of Circulating Fluidized Bed Hydrodynamic with Group a Particles <i>IFP Energies nouvelles, France</i>	123 - Arian Ebneyamini Equilibrium Analysis of the Pressurized Sorbent Regeneration by Combining Methane Reforming, Combustion and Calcination <i>University of British Columbia, Canada</i>
	127-Paul Kieckhefen Predicting Product Properties of Fluidized Bed Spray Granulation Using CFD-DEM Simulations <i>Institute of Solids Process Engineering and Particle Technology, Germany</i>	102 - Hao Kong The Dynamic Characteristics of Gas Solid Flow in CFB Full-Loop <i>Tsinghua University, China</i>	168 - Fabrizio Scala Performance of Different H ₂ O Sorbents for Fluidized Bed Sorption-Enhanced Methanation <i>Università degli Studi di Napoli Federico II, Italy</i>

	128-Xiandong Liu Numerical simulation and industrial application of a novel drying tower technology for treatment of desulfurization wastewater <i>Tsinghua University, China</i>	50 - Jaroslaw Krzywanski A Generalized Fluidization Map for Bubbling and Fast Fluidized Beds by an Artificial Intelligence Approach <i>Jan Dlugosz University in Czestochowa, Poland</i>	192 - Fabio Montagnaro The Attrition Behaviour of a Limestone-Based Sorbent for Sorption-Enhanced Gasification in Dual Fluidised Beds <i>Università degli Studi di Napoli Federico II, Italy</i>
9:30 am to 9:40 am PDT	Sponsor Showcase PSRI Session room 1		
9:40 am -	Virtual booth PSRI Session room 1	Social Networking Vancouver Trivia Session room 2	

Day 2 – May 11

7:00 am to 7:30 am PDT	Tribute to fluidization researchers - Session room 1		
7:30 am to 8:15 am PDT	Plenary Lecture 2 (Chair: Stefan Heinrich) - Session room 1 Wei Ge Direct Numerical Simulation of Particle-Fluid Systems <i>Chinese Academy of Sciences, China</i>		
8:15 am to 9:00 am PDT	Modeling (3) Session room 1	Fluidized bed with liquid injection Session room 2	Design & Scale-up Session room 3
	6 (Chair: Pascal Fede)	5 (Chair: Cedric Briens)	6 (Chair: Reddy Karri)
	178-Shahong Zhu Development and Validation of a Steady Flowsheet Model for a Supercritical Circulating Fluidized Bed Boiler <i>Tsinghua University, China</i>	4 - Yuan Li Impact of Local Fluidized Bed Hydrodynamics on the Distribution of Liquid Sprayed into the Bed <i>Western University, Canada</i>	34 - Tadaaki Shimizu Rotating Coil-Shaped Spiral Gas-Solid Reactor <i>Niigata University, Japan</i>
	184-Jiajie Du Stochastic Simulation of Spray Agglomeration Process in a Continuously Operated Horizontal Fluidized Bed by Monte Carlo Method <i>Otto von Guericke University Magdeburg, Germany</i>	76 - Manuel Janocha Analysis of Drying Parameter Effects on Porosity Evolution during Successive Layer Build-up from Dried Deposited Droplets <i>Otto von Guericke Universi ty, Germany</i>	145 - Gerd Strenzke Experimental Investigation of Process Behaviour of Continuous Fluidized Bed Spray Agglomeration with Internal Classification <i>Otto von Guericke Universit y, Germany</i>
	193-Carlos Montilla Algebraic Closure Model Coupling the Particle Charge- Velocity Covariance and Charge Variance in Gas-Solid Flow with Triboelectric Charging <i>Université de Toulouse, France</i>	202 - Cedric Briens Behaviour of Agglomerates formed by Liquid Injection in Fluidized Beds <i>Western University, Canada</i>	173 - Ulrich Muschelknautz Economic Gas Cleaning by Inline-Particle- Collectors <i>MK Engineering - Dust Removal Technology, Germany</i>

	196-Riccardo Uglietti Microkinetic Modeling of Catalytic Reactions in Million Particles Bubbling Beds <i>Politecnico di Milano, Italy</i>	203 - Dominic Pjontek Spraying Slurries: Impact of Slurry Properties on Spray Characteristics and Agglomerate Formation in Fluidized Beds <i>Western University, Canada</i>	211 - J. Ruud van Ommen Product Design of Powder for 3D Printing <i>Delft University of Technology, Netherlands</i>
	206 - Erasmo Salvatore Napolitano Coarse-grain DEM-CFD Modelling of Cyclone Flow <i>Università della Calabria, Italy</i>	133 - Maïke Orth Influence of Process Parameters on the Granule Morphology During Fluidized Bed Spray Granulation <i>Hamburg University of Technology, Germany</i>	230 - Mengxi Liu Novel Coupled Fluidized Bed Reactor for Pyridine Synthesis <i>China University of Petroleum, China</i>
	14 - Mohammad Abdur Rakib & Tommy Firmansyah Root Cause Analysis of Afterburn in Rfcc Regenerator Using Computational Fluid Dynamics <i>Abu Dhabi National Oil Company (ADNOC) Refining, UAE</i>		303 - Tingwen Li Scale-up of Rotating Fluidized Bed Reactor Through Numerical Simulations <i>SABIC, USA</i>
9:00 am to 9:30 am PDT	Hydrodynamics (3) Session room 1	Heat/mass transfer Session room 2	NOx/Sox (1) Session room 3
# of papers	4 (Chair: Poupak Mehrani)	4 (Chair: Andres Mahecha-Botero)	3 (Chair: Franz Winter)
	105 - Xudong Zhong Hydrodynamics of a Cold Model Fluidized Bed with Multiple Inclined Downward Nozzles <i>China University of Petroleum, China</i>	65 - Elija Talebi Maximizing Heat Transfer for Energy Storage Application - Design of a Continuous Fluidized Bed Cold Model <i>Technical University of Munich, Germany</i>	35 - Xiangru Jia NO and SO2 Emission Characteristics of Coal Gangue and Sunflower Stalk Co-combustion in Bubbling Fluidized Bed <i>Inner Mongolia University of Technology, China</i>

	302 - Youssef Badran Effect of Van Der Waals Force on Fluidization of Fine Particles <i>Université de Toulouse, France</i>	91 - Rongjiang Zhang Chemical Looping Gasification of Torrefied Biomass: Products Distribution and Kinetic Analysis <i>Xi'an Jiaotong University, China</i>	80 - Yuan Xiao Experimental Study on the Combustion and NO _x Emission Characteristics of Shenmu Semi-Coke in a Circulating Fluidized Bed with Post-Combustion <i>Chinese Academy of Sciences, China</i>
	112 - Boyu Deng Study on the Dynamic Characteristic of the Circulating Fluidized Bed Whole Loop at Variable Load <i>Tsinghua University, China</i>	106 - Zhiqiang Wu Gas-Solid Convection Heat Transfer of Particle from Moving-Bed During Heat Recovery from Centrifugal Granulation of Furnace Slag <i>Xi'an Jiaotong University, China</i>	119 - Xingxing Cheng A System of Gaseous Pollutants Removal for Coal-Fired Facilities <i>Shandong University, China</i>
	129 - Zihan Yan Cluster Characteristics in the Jet Mixing Zone of Fast Fluidized Bed <i>China University of Petroleum, China</i>	182 - Ling Jiang Safety Evaluation of the Immersed Tube in an External Heat Exchanger of a Circulating Fluidized Bed Boiler in Case of Electricity Supply Failure <i>Tsinghua University, China</i>	
9:30 am to 9:40 am PDT	Sponsor Showcase CPFD Session room 1		
9:40 am -	Virtual booth CPFD Session room 1	Social Networking Mini-TED Talk Session room 2	

Day 3 – May 12

7:00 am to 7:45 am PDT	Plenary Lecture 3 (Chair: LS Fan) - Session room 1 Alissa Park Towards Sustainable Energy and Materials: CO2 Capture using Novel Nanoscale Hybrid Particulate Systems <i>Columbia University, USA</i>		
7:45 am to 8:15 am PDT	Modeling (4) Session room 1	Combustion Session room 2	Industrial experience Session room 3
# of papers	4 (Chair: Navid Mostoufi)	3 (Chair: Robin Hughes)	4 (Chair: Leming Cheng)
	134 - Abhinandan Kumar Singh Stochastic Simulation of Spray Fluidized Bed Agglomeration by Modeling the Morphology <i>Otto von Guericke University, Germany</i>	57 - Dennis Lu Investigation of OCAC Process Using Canadian Ilmenite Ore in a Circulating Fluidized Bed Combustor <i>CanmetENERGY, Canada</i>	78 - Xiwei Ke Operation Characteristics of a 90 t/h Indonesian Coal-fired Circulating Fluidized Bed Boiler <i>Tsinghua University, China</i>
	142 - Ziyu Liang Wall Temperature Calculation and Safety Analysis for the Water Wall of 660MW Ultra-Supercritical Circulating Fluidized Bed Boiler <i>Xi'an Jiaotong University, China</i>	114 - Yuge Yao Prediction of the Bed Temperature of a CFB Boiler after a Sudden Power Cut <i>Tsinghua University, China</i>	96 - Kunlin Cong Development and Application of Turbulent Fluidized Bed for Incineration of Multiple Wastes <i>Tsinghua University, China</i>
	143 - Farid Chejne Janna A Novel Population Balance-Based Model for Bubbling Fluidized Bed Reactor <i>Universidad Nacional de Colombia, Colombia</i>	226 - Emil Vainio Formation of NH4Cl and Its Role on Cold-end Corrosion in CFB Combustion <i>Åbo Akademi University, Finland</i>	194 - Håkan Kassman Operational Challenges in a BFB Boiler Firing Demolition Wood with Addition of Ammonium Sulphate to Reduce Superheater Corrosion <i>Vattenfall AB, Sweden</i>

	167 - Wenming Liu CFD Simulation of Bubbling Fluidized Bed Using Emulsion-based Structural Drag Model <i>Sinopec Research Institute of Petroleum Processing, China</i>		213 - Dajun Wang Study on Uniform Air Distribution System for Large-Size Circulating Fluidized Bed Boilers <i>Sichuan Electric Power Industry Commission and Testing Institute, China</i>
8:15 am to 9:30 am PDT	Workshop 1 Session room 1 (Chairs: Wei Ge, Raffaella Ocone) Applications and Advances of CFD Applied to Fluidized Beds	Workshop 2 Session room 2 (Chairs: Cedric Briens, Ruud van Ommen) Liquid Injection into Gas-Fluidized Beds	Workshop 3 Session room 3 (Chairs: Filip Johnsson, Ye-Mon Chen) Large Diameter Fluidized Beds
9:30 am to 9:40 am PDT	Sponsor Showcase Coanda Session room 1		
9:40 am -	Virtual booth Coanda Session room 1	Social Networking Speed Dating Session room 2	

Day 4 – May 13

7:00 am to 7:45 am PDT	Plenary Lecture 4 (Chair: Joachim Werther) - Session room 1 Filip Johnson Future Applications of the Circulating Fluidized Bed Technology <i>Chalmers University of Technology, Sweden</i>		
7:45 am to 8:30 am PDT	Hydrodynamics (4) Session room 1	Electrostatics Session room 2	FCC & other processes Session room 3
# of papers	5 (Chair: Fabrizio Scala)	5 (Chair: Lifeng Zhang)	5 (Chair: Mengxi Liu)
	141 - Yongmin Zhang Effect of Solids Inlet and Outlet on Hydrodynamics of Bubbling Fluidized Beds with Macro Solids Circulation <i>China University of Petroleum, China</i>	44 - Chen Li Drying of Pharmaceutical Granules in a Pulsed Fluidized Bed <i>University of Saskatchewan, Canada</i>	205 - Alberto Di Renzo Experimental Investigation of Segregation Direction and Layer Inversion in Liquid Fluidized Beds <i>Università della Calabria, Italy</i>
	146 - Tolu Emiola-Sadiq Binary Mixing and Segregation of Biomass and Silica Sand in a Fluidized Bed <i>University of Saskatchewan, Canada</i>	48 - Farzam Fotovat A Perspective on Electrostatics in Gas-Solid Fluidized Beds: Challenges and Future Research Needs <i>Sharif University of Technology, Iran</i>	175 - Rongyi Zhang Novel Technique for Coating of Fine Particles Using Fluidized Bed and Aerosol Atomizer <i>Otto von Guericke University, Germany</i>
	150 - Anna Köhler The Gas-Solid Suspension Drag on Large Particles in the Transport Zone of a Circulating Fluidized Bed <i>Chalmers University of Technology, Sweden</i>	161 - Milad Taghavivand Triboelectric Effects of a Silica Catalyst Support and Continuity Additives on Polyethylene Fluidized Bed Wall Fouling <i>University of Ottawa, Canada</i>	176 - Mahdi Sharifian The Role of Operating Parameters on the Performance of the Catalytic High Temperature Fischer-Tropsch Synthesis in Fluidized Bed Reactor <i>Polytechnique Montreal, Canada</i>

	152 - Allan Issangya A Review of Performance Characteristics of Fluidized Bed Stripping Internals <i>Particulate Solid Research, Inc., USA</i>	108 - Yong Yang Separation of Polyvinyl Chloride and Silica Glass in a Pulsed Fluidized Bed with the Aid of an Electric Field <i>Guangdong University of Technology, China</i>	180 - Qi Xu Using Machine Learning to Elucidate the Kinetics of Cracking Reactions in a Down Flow Reactor System <i>Saudi Aramco, Saudi Arabia</i>
	153 - Richard J. Kerekes Fluid-Driven Jamming in Fluidized Beds <i>University of British Columbia, Canada</i>	304 - Mohsen Nimvari Effect of Temperature on Polyethylene Electrostatic Charging in an Atmospheric Gas-Solid Fluidized Bed <i>University of Ottawa, Canada</i>	195 - Maurizio Troiano Fluidized Bed Machining of Metal Objects Produced by Additive Manufacturing <i>Università degli Studi di Napoli Federico II, Italy</i>
8:30 am to 9:15 am PDT	Measurement & instrumentation Session room 1	Pyrolysis Session room 2	NO_x/Sox (2) Session room 3
# of papers	6 (Chair: Farzam Fotovat)	5 (Chair: Dennis Lu)	3 (Chair: Xingxing Cheng)
	45 - Chen Li Synchrotron-Based X-ray In-Situ Imaging Techniques for Advancing the Understanding of Pharmaceutical Granulation <i>University of Saskatchewan, Canada</i>	3 - Zhennan Han Fluidized Bed Calcination of Magnesite and Its Chemical and Morphological Changes <i>Shenyang University of Chemical Technology, China</i>	120 - Miao Miao Study on Emission Characteristics of NO _x and N ₂ O From CFB Boilers <i>Tsinghua University, China</i>
	68 - Tomas Leffler Combined Measurement Techniques for Fast Detection of Alkali Release in Fluidized Bed Combustion <i>Chalmers University of Technology, Sweden</i>	185 - Xianhua Wang Biomass Catalytic Pyrolysis for BTX Production: A Study of ZSM-5 Modification <i>Huazhong University of Science and Technology, China</i>	191 - Franz Winter NO and Ultrafine Particles Formation during the Combustion of Single Biomass Particles under FBC Conditions <i>Technical University of Sofia, Bulgaria</i>

	109 - Leming Cheng Measurement of Supercritical Fluid Flow Uniformity in Parallel Tubes by a Fluid-to-Fluid Modelling Method <i>Zhejiang University, China</i>	174 - Ruixu Wang Measurement of Residence Time Distribution of Sawdust in a Horizontal Fluidized Bed with Gas Pulsation <i>University of British Columbia, Canada</i>	228 - Adam Luckos NOx and N2O Emissions During Oxy-Fuel Combustion of Bituminous Coal and Lignite in A Circulating Fluidized Bed Combustor <i>Czestochowa University of Technology, Poland</i>
	231 - Guilherme Lindner A New Method for Calibration of Radioactive Particle Tracking Systems Using Computational Fluid Dynamics and Monte Carlo Simulation Data <i>University of British Columbia, Canada</i>	64 - Francisco Sanchez Careaga Effect of Mixing Quality on Agglomerate Formation in a Fluid Coking Reactor <i>Western University, Canada</i>	
	18 - Kai Huang Effect of Noise in Electrical Capacitance Tomography Measurements of Fluidized Bed Hydrodynamics <i>Chinese Academy of Sciences, China</i>	60 -Yohann Cochet Mitigation of Fouling in a Fluid Coker: Influence of Column Geometry, Internals and Operating Conditions on Gas and Particle Behaviors in a Cold Fluidized Bed with Downward Solids Circulation <i>Western University, Canada</i>	
	305 - Carlos Montilla Building a Training Database from Numerical Simulations for Artificial Neural Network to Reconstruct ECVT Images <i>Université de Toulouse, France</i>		

9:15 am to 9:25 am PDT	Sponsor Showcase BCRI Session room 1		
9:25 am -	Virtual booth BCRI Session room 1	Social Networking Slide Show Session room 2	

Day 5 – May 14

7:00 am to 7:45 am PDT	Plenary Lecture 5 (Chair: Ted Knowlton) - Session room 1 Michael Wormsbecker Advancements in Fluidized Bed Coking Technology at Syncrude <i>Syncrude Research Centre, Canada</i>
7:45 am to 8:30 am PDT	Plenary Lecture 6 (Chair: Ray Cocco) - Session room 1 Behzad Jazayeri Fluid Bed Systems for Chemical synthesis An Engineer's Perspective on Design and Scale-up <i>USA</i>
8:30 am to 8:45 am PDT	Fluidization achievement award (Chair: John Grace, Xiaotao Bi) - Session room 1
8:45 am to 8:55 am PDT	Best paper prize (Chair: Cedric Briens, Naoko Ellis) - Session room 1
8:55 am to 9:25 am PDT	CFB conference series celebration (Chair: Joachem Werther) - Session room 1
9:25 am to 9:40 am PDT	Closing ceremony - Session room 1