



## 2019 International Symposium on **Clean Energy and Advanced Materials**

The **CEAM 2019** is hosted by the International Collaborative Center for Carbon Future, jointly by Pusan National University and the University of Newcastle during September 25-28, 2019.

This symposium provides a platform for researchers, engineers, academicians as well as industrial professionals from university and industry. This symposium provides the opportunities for the attendees to exchange ideas, share information and establish research and development network to promote technology transfer and work together to provide solutions to practical problems.

We are looking forward to seeing you in Busan at CEAM 2019.

**Wednesday, 25 September 2019**

15:00 ~

**Registration**

18:00 ~

**Welcome Reception**

**Thursday, 26 September 2019**

<b>Symposium Opening</b> 8:30 ~ 8:45 (15 mins)	Welcome speech by professor Chung-Hwan Jeon	Chug-Hwan Jeon	Pusan National University
	Welcome speech by professor Jianglong Yu	Jiangling Yu	University of Newcastle
<b>Plenary Lecture 1</b> Chair : Jianglong Yu 8:45 ~ 10:15 (90 mins)	Taeon 300 MWe IGCC coal gasifier: Operation improvement supported by dynamic reduced order model and CFD	Changkook Ryu	Sungkyunkwan University
	The formation of different active hydrogen species and their roles in directionally hydroconverting organic matter in coals	Xianyong Wei	China University of Mining Technology
10:15 ~ 10:30 (15 mins)	<b>Morning Tea</b>		
<b>Session 1</b> Chair : Wei-Hsin Chen 10:30 ~ 12:00 (90 mins)	Catalytic effect of ZSM-5 zeolite on the thermodegradation of biomass using analyzed by Py-GCMS and TG-FTIR	Ching-Lin Cheng	National Cheng Kung University
	A study on combustion experiment for the development of ultra low NOx combustion burner for coal thermal power plant	TaeYoung Chae	Korea Institute of Industrial Technology
	The experimental study on correlation of low temperature oxidation with petrographic analysis of coals	DaeGyun Lee	Pusan National University
	Numerical simulation on the performance of ethanol steam reforming using catalytic tube reactor	Chen-Yu Lu	National Cheng Kung University
	Optimization of separated overfire air to reduce NOx emission for the retrofit of a commercial coal boiler using CFD modeling	Hyunbin Jo	Sungkyunkwan University
	Simultaneous removal of NO2 and SO2 in coal-fired flue gas by activated brown coal char	Joshua Oliveira	University of Newcastle
12:00 ~ 13:00 (60 mins)	<b>Lunch</b>		
<b>Plenary Lecture 2</b> Chair : Chung-Hwan Jeon 13:00 ~ 14:30 (90 mins)	A green route for sustainable solid fuel production from biomass	Wei-Hsin Chen	National Cheng Kung University
	Development of a carbon capture-dedicated power generation system based on pressurized oxy-combustion	Won Yang	Korea Institute of Industrial Technology
14:30 ~ 14:45 (15 mins)	<b>Break</b>		
<b>Session 2</b> Chair : Changkook Ryu 14:45 ~ 15:45 (60 mins)	Microstructure characteristics effect on torrefied biomass combustion	Yanuar Yudhi Isworo	Pusan National University
	Enhanced production of polycyclic aromatic hydrocarbons and hydrogen gas during pressurized-entrained-flow pyrolysis of palm kernel shell	Matamba Tawanda	University of Science and Technology Liaoning
	Effect of coal interaction on the properties of cokes under the simulated blast furnace conditions	Xing Xing	University of New South Wales
	Evaluation on the influence of additive during ash deposition formation in co-firing of coal with straw pellet	Ho Lim	Korea Institute of Industrial Technology
15:45 ~ 16:00 (15 mins)	<b>Break</b>		
<b>Session 3</b> Chair : Won Yang 16:00 ~ 17:00 (60 mins)	A study on the development of computational analytical combustion model for torrefied biomass	Hyunsuk Oh	Pusan National University
	Derivation of lignocellulosic composition from thermogravimetric analysis based on modified pyrolysis kinetics	Heeyoon Kim	Sungkyunkwan University
	Characterizations and catalytic performance of Ru/ Sm <sub>2</sub> Ce <sub>2</sub> O <sub>7</sub> catalysts for NH <sub>3</sub> decomposition	Haodong Tang	Zhejiang University of Technology
	Production of graphitic material from catalytically graphitized activated carbon by microwave	Khoshk Rish Salman	University of Science and Technology Liaoning
17:00 ~ 17:15 (15 mins)	<b>Break</b>		
<b>Session 4</b> Chair : Donggeun Lee 17:15 ~ 18:00 (45 mins)	Numerical simulation of liquid carbon dioxide flow at high pressure condition	Boosang Kim	Pusan National University
	Nb <sub>2</sub> O <sub>5</sub> /coal-based carbon composite as anode materials for lithium-ion battery	Chuanxiang Zhang	Henan Polytechnic University
	Multi-objective genetic algorithm design for the optimization of segmented thermoelectric generator	Yi-Bin Chiou	National Cheng Kung University
18:00 ~	<b>Dinner</b>		

## Friday, 27 September 2019

<b>Plenary Lecture 3</b> Chair : Xianyong Wei 8:30 ~ 10:45 (135 mins)	Preparation of ZSM-5 and SSZ-13 zeolites by hydrothermal activation of fly ash	Jiancheng Wang	Taiyuan University of Technology
	Technical challenges in a direct coal fuel cell and their potential solutions in design of fuel electrode, cell fabrication, and fuel supply	Donggeun Lee	Pusan National University
	The behavior of iron in coal ash slag and its influence on slag viscosity at high temperature	Jin Bai	Chinese Academy of Sciences
10:45 ~ 11:00 (15 mins)	<b>Morning Tea</b>		
<b>Session 5</b> Chair : Xing Xing 11:00 ~ 12:00 (60 mins)	Mechanism of catalytic graphitization of amorphous carbon via in-situ X-ray diffraction (XRD)	Arash Tahmasebi	University of Newcastle
	Effects of coal ranks on physical and chemical structure of plastic layer during the coking process	Tian Lu	University of Science and Technology Liaoning
	Foundation and application of Coke solution-loss degradation model	Junchen Huang	University of Science and Technology Liaoning
	A study on NO <sub>x</sub> reduction by CH <sub>4</sub> reburning in two-stage drop tube furnace	Minwoo Kim	Pusan National University
12:00 ~ 13:00 (60 mins)	<b>Lunch</b>		
<b>Plenary Lecture 4</b> Chair : Wenfeng Han 13:00 ~ 14:30 (90 mins)	Catalysis for the pyrolysis and resource utilization of synthetic greenhouse gases-fluorocarbons (HFCs and HCFCs)	Wenfeng Han	Zhejiang University of Technology
	Particulate matter issues of coal-fired power plant and introduction of electro spray driven wet electrostatic precipitator	Jongwon Choi	Korea Institute of Energy Research
14:30 ~ 14:45 (15 mins)	<b>Break</b>		
<b>Session 6</b> Chair : Juhun Song 14:45 ~ 15:45 (60 mins)	An experimental study on limestone attrition during fluidized bed calcination and sulfation	Dongfang Li	Pusan National University
	Experimental study on removal of NO <sub>2</sub> and SO <sub>2</sub> from flue gas by ethylene glycol-different length carbon chain ammonium bromide type deep eutectic solvents	Jinxiao Dou	University of Science and Technology Liaoning
	Simultaneous measurement of O <sub>2</sub> and CO concentration of LPG/air flame using tunable diode laser absorption spectroscopy	Sunghyun So	Yonsei University
	Methane storage capacity on chemically treated activated carbon	Gibbum Lee	Institute for Advanced Engineering
15:45 ~ 16:00 (15 mins)	<b>Break</b>		
<b>Session 7</b> Chair : Jiancheng Wang 16:00 ~ 17:00 (60 mins)	Study on the characteristics of the plastic layer formed during carbonization of coking coals	Qi Wang	University of Science and Technology Liaoning
	Analysis of combustion characteristics of biomass fuel and coal composition for PCI	Jongwon Jeong	Pusan National University
	Upgrading the fuel quality of wood pellet by torrefaction	Seunghan Yu	Sungkyunkwan University
	A study on the chemical and physical transition inside the plastic layers during coking of Australian coking coals using a lab-scale coke oven	Soonho Lee	University of Newcastle
17:00 ~ 17:15 (15 mins)	<b>Break</b>		
<b>Session 8</b> Chair : Qi Wang 17:15 ~ 18:00 (45 mins)	Transformation of the physiochemical structure of plastic layer during coking of coals blends in a lab-scale coke oven	Yunze Hui	University of Newcastle
	An experimental study on co-firing of coal with torrefied biomass and ash deposition in horizontal combustion reactor	Jihwan Lee	Pusan National University
	A review on computational fluid dynamics modelling to evaluate the coal combustion performance under high-efficiency low-emission (HELE) conditions power generation	Jongho Kim	University of Newcastle
18:00 ~	<b>Banquet</b>		

**Friday, 27 September 2019**

<b>Poster Session</b> Chair : Chung-Hwan Jeon, Jianglong Yu 14:45 ~	1	Relationship between specific surface area and oxygen functional groups on the ozone-treated activated carbon	Ji-Hyun Kim	Institute for Advanced Engineering
	2	Co-combustion behaviors of low-volatile residual carbon of coal gasification with three low rank coals	Zongqing Bai	Chinese Academy of Sciences
	3	Evaluation of slagging model for ash deposition in entrained flow reactor (EFR)	Kieseop Kang	Sungkyunkwan University
	4	3D porous structure of graphitic carbon foams derived from blending coal	Rou Wang	University of Newcastle
	5	Chemical Structural Transformation of Coal during Plastic Layer and Semi-Coke Formation in a 4kg Coke Oven	Yixin Chen	University of Newcastle
	6	Nitrogen-doped porous $\text{Co}_3\text{O}_4$ /graphene nanocomposite for high performance lithium ion batteries	Baolin Xing	Henan Polytechnic University
	7	N-O-S co-doped hierarchical porous carbons derived from calcium lignosulfonate for high-performance supercapacitors	Guangxu Huang	Henan Polytechnic University
	8	Transformation and distribution of sulfur during coking of Australian coking coal and high-sulfur coal blends	Yanfeng Shen	University of Newcastle
	9	$\text{Na}_2\text{Ti}_3\text{O}_7$ nanosheets coated on nickel foam as anode material for sodium ion batteries	Zehua Chen	Henan Polytechnic University
	10	Preparation of carbon-based mercury removal adsorbent from coal liquefaction residue raffinate	Weiren Bao	Taiyuan University of Technology
	11	Numerical simulation of biomass gasification in a bubbling fluidized bed: effect of fuel size distribution and fuel injection position	Hyesoo Kim	Yonsei University
	12	Facile synthesis of uniformly loaded $\text{Fe}_3\text{O}_4$ - $\text{TiO}_2$ /GO ternary hybrids for enhanced photocatalytic activities	Haiyang Fan	Henan Polytechnic University

**Saturday, 28 September 2019**

9:00 ~ 17:00	<h2 style="margin: 0;">Technical Tour to Busan (To Be Determined)</h2>
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