

Conference Technical Program

(Registration begins on Monday, 16th September, from 2.30pm onwards)

Wednesday Forenoon, 18 September 2013

Masuda Lecture

0830-0930

Back corona and non-thermal plasma: Historical review of the important tool to cope with present demands of improving public health

Prof. Akira Mizuno

Session S1

ESP Design and Upgrade – I

Time: 0950-1110

Chair: Dr. S Sekar

- **Some observations regarding the Matts Ohnfeldt equation**
Andreas Bäck, *Alstom Power, Sweden*
- **An Overview of the Design, Performance and Monitoring Aspects of Thermal Power Station ESP's - Indian Scenario**
M. Shekhar Kumar, T.R. Venkatesh and S. Seetharamu, *Central Power Research Institute, India*
- **Renovation and Modernization of Pollution Control Equipments to meet the challenges of high resistivity fly ash and demanding particulate norms in Indian Thermal Power plants**
G. Gunasekar, D. Visuvasam, M. Ravichandran, *Bharat Heavy Electricals Ltd., India*
- **Results from ESP-upgrades, including control systems**
Per Ranstad¹, Anders Karlsson¹, Colin Tonks², Keith Bradburn², *Alstom Power, ¹Sweden and ²USA*

Tea/Coffee

Time: 1110-1130

Session S2

ESP Design and Upgrade – II

Time: 1130-1250

Chair: Dr. Alain Bill

- **Review on the Development of Electrical Precipitation Industry in China**
Ying-gang Shu, Jian-guo Li, Yong-shui Zhao, Han Zhang, Wei-ping Liu, *Zhejiang Feida Environmental Science & Technology co. Ltd., China*
- **Poor Electrostatic Precipitator performance on old boilers in India**
V. Hariharan, K.Sivaraman, *Pvt. Consultants, India*
- **Emission reduction and Availability improvement in old Electrostatic Precipitators at Gold Roaster – A Case Study**
Debasish Chakrabarti¹, Inga-Lill Samuelsson², *Alstom Thermal Service, ¹Australia and ²Sweden*
- **Top Electromagnetic Hammer Rapping ESP Applied in 660MW Units of Tiroda Power Plant in India**
Tong changxin, Lai jjiande, Zheng Yanfeng, *Fujiyan Longking Co., Ltd., China*

Lunch

Time: 1250-1400

Wednesday Afternoon, 18 September 2013

Session S3

ESP Performance Enhancement

Time: 1400-1520

Chair: Dr. Veronique Arrondell

- **Enhancing Quality of Gas Distribution Tests in Electrostatic Precipitators**
Nanda K Dash, Bharat Jatwani, Basheer Kuttecheri, *Alstom India Ltd., India*
- **Influence of Electrode Geometric Arrangement on the Operation of Narrow Circular Electrostatic Precipitator**
A. Niewulis, J. Podliński, A. Berendt, J. Mizeraczyk, *Polish Academy of Sciences, Poland*
- **Monitoring of Electrostatic Fire and Explosion Hazards at the Inlet to Electrostatic Precipitators**
Juliusz B. Gajewski, *Wroclaw University of Technology, Poland*
- **Gaining control of ESP fly ash hoppers using 3D acoustics**
Ofir Perl, *APM Automation solutions Ltd., Israel*

Tea/Coffee

Time: 1520-1540

Session S4

Numerical Simulation

Time: 1540-1720

Chair: Prof. Jerzy Mizeraczyk

- **Simulation and Experimental Studies on an Existing Industrial Electrostatic Precipitator**
A. D. Srinivasan, N Jagadisha, Akshath Kumar, Mohammed Ubaid and Supreeth S, *Sri Jayachamarajendra College of Engineering, India*
- **Strategy and Criterion of Gas Distribution about EFIP**
Wang Young, *Zhejiang Feida Environmental Science & Technology co. Ltd., China*
- **The Airflow Distribution Design of ESP-FF Hybrid Dust Collector and the Application at Balco Power Plant in India**
Yao Yuping, Zhao Yongshui, Wang Yong, *Zhejiang Feida Environment Science & Technology co. Ltd., China*
- **The Numerical Simulation of Different Spacing Coordinate Double Cylindrical Vortex**
Liu Hanxiao, Li Jianguo, Yao Yuping, *Zhejiang Feida Environment Science & Technology co. Ltd., China*
- **Numerical Analysis of the Gas Characteristics in ESP Inlet Nozzle**
Haiyan Cui, *S4M, China*

Board Meeting

Time: 1730-1930

Dinner

Time: 1930-2130

Thursday Forenoon, 19 September 2013

Session S5 **HV Power Supplies and Electrical Operation – I** **Time: 0810-0930**
Chair: Mr. Kjell Porle

- **Development of IGBT based High Voltage Power Supply for ESP Application**
G. Balawanth Reddy, Alla Koteswara Rao, G.S.Naik, Shoubhik Mukherjee, G.Avinash, Bishnu P.Muni, *Bharat Heavy Electricals Ltd., India*
- **High Frequency Power Supply Technology Progress and Development Trend**
Chenyang; Xie xiaojie, Mao chunhua, Lugang, *Fujiyan Longking Co. Ltd., China*
- **Reliability considerations: Using 50/60Hz Precipitator Transformer Rectifiers at elevated frequencies**
Hank DelGatto, Paul Ford, *Redkoh Industries, USA*
- **ESP Controls for Plastic Tube Wet ESP**
Pradip V Gurnani, Sudhir Giridhar, Ganesh Ghatte, *Ador Powertron, India*

Tea/Coffee **Time: 0930-0950**

Session S6 **HV Power Supplies and Electrical Operation – II** **Time: 0950-1110**
Chair: Mr. Pradip V Gurnani

- **Use of three-phase rectifiers in ESP's for low resistivity applications**
Victor Reyes, Karsten Poulsen, FLSmidth A/S, Denmark
- **The Three-Phase Power Supply for Low Ripple High Voltage in Conventional Technology**
Josef von Stackelberg, Toenisvorst, *Rico-Werk Eiserlo & Emmrich GmbH, Germany*
- **Three phase PF HV system for ESP in a glass factory**
Sudhir S Giridhar, Pradip V Gurnani, Ganesh Ghatte, Ador Powertron, India
- **Electrical parameters of an industrial operating electrostatic precipitator under intermittent energization: simulation and continuous measurement analysis**
Véronique ARRONDEL¹, Gianluca BACCHIEGA¹, Michel HAMLIL², ¹EDF R&D, France, ²IRSSRL, Italy

Tea/Coffee **Time: 1110-1130**

Session S7 **HV Power Supplies and Electrical Operation – III** **Time: 1130-1250**
Chair: Prof. Juliusz B. Gajewski

- **Energy Optimization in Electrostatic Precipitators**
Josef von Stackelberg, Holger Kleinwechter, *Rico-Werk, Germany*
- **Emission reduction by optimization of electrical parameters to enhance performance in existing ESP installations**
Sudhir Giridhar, Pradip V Gurnani, Ganesh Ghatte, *Ador Powertron, India*
- **Methods to ensure Availability and Operational Flexibility of Performance Monitoring and Control System of ESP**
Divya S. Pai, A. Marimuthu, Smith Babu K.K, K.P.Manimala, *Bharat Heavy Electricals Ltd., India*
- **Soft Core Processor for Electrostatic Precipitator Controller**
R. Venkata Siva Reddy, Bharathi S. H, *Reva Institute of Technology and Management, India*

Lunch **Time: 1250-1400**

Thursday Afternoon, 19 September 2013

Session S8

Industrial Application
Chair: Carsten Lund

Time: 1400-1540

- **Wet type Electrostatic Precipitator Technology for Industrial and Power Applications**
Chikayuki Nagata, Shiro Suzuki, Kazuaki Miyake, Kazutaka Tomitatsu, *Mitsubishi Heavy Industries, Japan*
- **Comparison of wet and dry electrostatic precipitator (ESP) technologies**
Aaron Benedict, James "Buzz" Reynolds, Sankar Seetharama, *Siemens Energy Inc.*
- **Dust resistivity measurements for industrial process**
Robert Mastropietro, *KC-Cottrell, South Korea*
- **Wet ESP For The Collection of Submicron Particles, Mist and Air Toxics**
Michael R. Beltran, *Beltran Technologies, USA*
- **Industrial particulate de-dusting plants, optimization in operating cost**
Theo Schrooten, Tim Neuhaus, Markus Schröder, Diego Di Bartolo, Probir Maiti, *Intensiv-Filter, Germany*

Tea/Coffee Time: 1540-1600

Cultural and Time: 1800-2130
Awards Night

Friday Forenoon, 20 September 2013

Board Meeting Time: 0700-0800

Session S9 Hybrid ESP and Fabric Filter Precipitation – I Time: 0810-0930
Chair: Dr. M Shekhar Kumar

- **Development of Advanced Electrostatic Fabric Filter**
Kazutaka Tomitatsu, Masaya Kato, Yasutoshi Ueda, Chikayuki Nagata, Mitsubishi Heavy Industries, Japan
- **High Ratio Fabric Filters With 12 m Long Bags for Large Coal Fired Power Plants**
Peter Wieslander¹, Stephen L. Francis², Ajay Vajpeyi³, *Alstom Power*, ¹Sweden, ²USA, ³India
- **Bag filter Retrofit Option for Indian Utilities – Challenges and Solutions**
G. Gunasekar, S.S. Mani, M. Satyamoorthy, *Bharat Heavy Electricals Ltd., India*
- **Evaluation of FF Pulse Cleaning Valves**
Anders Hjelmberg, Mikael Fredriksson, Peter Wieslander, *Alstom Power*, Sweden

Tea/Coffee Time: 0930-0950

Session S10 Hybrid ESP and Fabric Filter Precipitation – II Time: 0950-1130
Chair: Prof. Keping Yan

- **The Application of ESP-FF Hybrid Dust Collector In India Coal-fired Power Plant 600MW Unit**
Zhu Jianbo, Du Yujiang, Luo Shikai, *Zhejiang Feida Environment Science & Technology co. Ltd., China*
- **Fractional bypass of raw gas to improve performance of ESP-FF hybrids after coal-fired boilers**
Andreas Bäck¹, Alain Bill², *Alstom*, ¹Sweden, ²Switzerland
- **Application of EFIP Technology to Coal-Fired Power Plant in India**
Xiu Haiming, *Fujiyan Longking Co. Ltd., China*
- **Hybrid System to Enhance Particulate Collection Efficiency in Coal Based Thermal Power Plants**
Avinash Chandra, *Indian Institute of Technology Delhi, India*
- **Experimental Research on EFIP Technology**
Huang Wei, Xiu Haiming, Lin Hong, Zheng Kuizhao, Chen Kuixu, Zhu Zhaoping, Deng Xiaodong, Han Zhigang, *Fujiyan Longking Co. Ltd., China*

Tea/Coffee Time: 1130-1150

Session S11 Flue Gas Conditioning Time: 1150-1310
Chair: Dr. S Seetharamu

- **Experimental studies on WFGD sewage injection upstream of electrostatic precipitator**
Maria Jedrusik¹, Michał Glomba¹, Arkadiusz Swierczok¹, Jerzy Mazurek², Piotr Halfar², ¹Wroclaw University of Technology, ²RAFAKO S.A, Poland
- **Experimental Study on Impact of Ammonia Dosing on the Resistivity of Fly Ash**
V.S. Suresh Kumar, E. Arulselvi, Vivek Philip John, *Bharat Heavy Electricals Ltd., India*
- **The development & application of LSC heat recovery ESP**
Liao Zenan, Zhong Zhiliang, Liao Dingrong, Xie Qingliang, Huang Jufu, *Fujiyan Longking Co. Ltd., China*
- **Application of the lower temperature Electrostatic Precipitator**
Wu Huifeng, Shanghai Metallurgical and mining machine manufacturing, China

Lunch Time: 1310-1420

Friday Afternoon, 20 September 2013

Session S12 Submicron Particle Collection and Mercury Separation Time: 1420-1520 Chair: Dr. Mark Berry

- **Computational Modeling of Electrohydrodynamically-Influenced Mercury Adsorption within ESPs**
Herek L. Clack, *University of Michigan, USA*
- **Development of single-stage, small-size Electrostatic Precipitation for high gas-velocity with slit-type collection-Electrode**
Yongmin Kim, Taeyong Koo, Sanghyun Jung, *KC Cottrell, South Korea*
- **Electrostatic precipitator installed with ceramic foam on a collection plate**
D. Okuma, H. Hayashi, K. Takashima and A. Mizuno, *Toyohashi University of Technology, Japan*

Tea/Coffee Time: 1520-1540

Session S13 Gaseous Discharges & NonThermal Plasma Applications Time: 1540-1700 Chair: Dr. H Fujishima

- **Total emission control for Multi-fuel boiler system with plasma-chemical aftertreatment**
H. Fujishima, K. Fukumoto, T. Kuroki, A. Tanaka, K. Otsuka, M. Okubo, *Osaka Prefecture University, Japan*
- **Study of particulate matter removal mechanism by using non-thermal plasma technology**
M. Babaie¹, P. Davari¹, Z. Ristovski¹, R.J. Brown¹, P. Talebizadeh², H. Rahimzadeh², ¹*Queensland University of Technology, Australia*, ²*Amirkabir University of Technology, Iran*
- **Optimisation of gas EHD pump with nozzle downstream**
Rakesh prasad¹, T.M.Muruganadam², ¹*Naval Institute of Aeronautical Technology*, ²*Indian Institute of Technology Madras, India*
- **Research on the Airflow Distribution in the Fabric Area of Electrostatic Fabric Precipitator**
Chaofan Sun, Xinglu Yu, Xinfeng Long, Bo Lou, *Electric Power Research Institute, China*

Conference Closure Time: 1700-1720

Special thanks to those who have submitted the following manuscripts but could not make it to final submission

- **Standardisation of Rapping System Maintenance Through Rapping Intensity Analysis**
Jiping Zhou, Alistair Donald Henderson
- **Particle Charging and Air Flow Control by Ion Wind to Increase the Collection Efficiency of a Cyclone Filter**
Farid Miloua¹, Amar Tilmatine¹, Baghdadi Akila¹, Malika Bengrit¹, Lucian Dascalescu², ¹*University of Sidi Bel Abbes, Algeria*, ²*University of Poitiers, France*
- **Analysis of Magnetic Leakage Field of High-voltage Silicon Rectifying Transformer for Electrical Precipitator Based on ANSYS**
Wei Wang, Han Zhang, Feng Tang, Bi-hai Zhao, Jian-jun Du, Bin Yu, Li-gang He, *Zhejiang Feida Environment Science & Technology co. Ltd., China*

Saturday Forenoon, 21 September 2013

(Optional) 0800-1400 Half-a-day city tour including snacks and lunch