

**The 5th International Congress
on the Science and Technology of Ironmaking**

Shanghai, China

Oct.19~23, 2009

Technical Program



Organized by

The Chinese Society for Metals

Co-organized by

Baosteel Group Corporation

FORWARD

Dear participants,

Warmly welcome you to attend the 5th International Congress on the Science and Technology of Ironmaking.

There will be 270 papers from 20 countries to exchange in the congress in form of oral presentation and poster. The oral presentation will be carried out in four sessions, and poster will be exhibited in the first floor of Baosteel Research Institute from 17:30 to 18:00 on Oct.20~Oct.22, 2009. Authors will answer questions in front of their papers.

Time for invited lecture at plenary session is 30 minutes; for keynote speaker at parallel session is 20 minutes and for normal speaker at parallel session is 15 minutes. All the presentation will follow with 5 minutes' discussion. The speaker should submit the PPT of presentation to the congress secretariat one day before the presentation to test and also a short resume for introduction of the chairman.

Congress will proceed in accordance with the technical program, any adjustments or changes will be noticed at the entrance of the conference room.

Sincerely thanks for the great support from Baosteel Group Corporation, Wuhan Iron and Steel Corporation and BHP Billiton to the congress.

Congress Secretariat of ICSTI'09

TIME TABLE

Oct. 19 10:00—22:00	Registration at Baoshan Hotel and Bao Long Hotel			
Oct.19 17:30—18:30	VIP Meeting for members of international advisory board committee and speakers in plenary sessions at Peace Hall in Baoshan Hotel			
Oct.19 18:30—20:00	Welcome reception at Multifunction Hall in Baoshan Hotel			
Plenary Session				
Oct.20 Morning	Plenary Session P1: <i>H. GUDENAU; ZHONG Zengyong</i> Hall No.4			
Oct.20 Afternoon	Plenary Session P2: <i>Tateo USUI; YANG Tianjun</i> Hall No.4			
Oct. 20 17:30—18:00	Poster Session (Hall of first floor)			
Parallel Session				
	Hall No.4	Hall No.1	Hall No.2	Room 104
Oct.21 Morning	Session A1: Burden and Sintering <i>Chikashi KAMIJO;</i> <i>JIANG Tao</i>	Session C1: Smelting Reduction <i>YU Aibing;</i> <i>LI Wei-guo</i>	Session B1-1: Ironmaking Process <i>H. B.LÜNGEN;</i> <i>LI Zhao-yi</i>	Session B1-2: Energy Saving and Emission Control <i>N. TOWHIDI;</i> <i>ZHAO Min-ge</i>
Oct.21 Afternoon	Session A2: Sintering <i>Guangqing ZUO;</i> <i>KONG Ling-tan</i>	Session C2: Direct Reduction; Reduction Fundamentals <i>Neil GOODMAN;</i> <i>HUANG Wu-di</i>	Session B2-1: Blast Furnace Performance <i>Yakov GORDON;</i> <i>ZHU Jian-wei</i>	Session B2-2: Tuyere Injection <i>Paulo ASSIS;</i> <i>AN Yun-pei</i>
Oct. 21 17:30—18:00	Poster Session (Hall of first floor)			
Oct 21 18:30—20:20	Banquet at the Multifunction hall in Grand Mercure Bao Long Hotel			
Oct.22 Morning	Session A3-1: Pelletizing <i>Jan WIKSTROM;</i> <i>ZHANG Jian-liang</i>	Session A3-2: Cokemaking <i>Liming LU;</i> <i>GUO Zhan-cheng</i>	Session B3-1: Blast Furnace Maintenance and Campaign Life <i>S. PRAKASH;</i> <i>YANG Jia-long</i>	Session B3-2: Instrumentation and Process Control <i>A.T. ADEMA;</i> <i>YU Zhong-jie</i>
Oct.22 Afternoon	Session A4: Raw Materials Preparation; Environmental <i>Jose C. D'ABREU;</i> <i>HUANG Dian-bing</i>	Session B4-3: Experiment and Research <i>Tatsuro ARIYAMA;</i> <i>SHEN Feng-man</i>	Session B4-1: Hot Blast Stove; Design and Equipment <i>Ivan KURUNOV;</i> <i>SHA Yong-zhi</i>	Session B4-2: Modelling and Simulation <i>J.J. POVEROMO;</i> <i>BI Xue-gong</i>
Oct. 22 17:30—18:00	Poster Session (Hall of first floor)			
Oct. 23 8:30—11:00	Plant Tour			

Notes :

- 1, Hall No. 1, No.2, Room 104 are in the first floor; Hall No.4 is in the second floor
- 2, Session A: Raw Materials
Session B: Blast Furnace Ironmaking
Session C: Alternative Ironmaking

20 October 2009, Morning (8:30-12:00)

Plenary Session

Venue: Hall No.4

Chairmen: H. GUDENAU, ZHONG Zeng-yong

1	8:30~8:40	Welcome Address by Chairman of Baosteel Group Corporation		
2	8:40~9:15	The Trends of Ironmaking Industry and Challenges to Chinese Blast Furnace Ironmaking in the 21st Century	<u>ZHANG Shou-rong</u> , YIN Han	Wuhan Iron & Steel Corporation
3	9:15~9:50	Development of Iron- making Technologies in Japan	Takashi MIWA, <u>KIICHIRO KURIHARA</u>	Nippon Steel Corp.,Japan
Tea Break 9:50~10:05				
4	10:05~10:40	Iron Making in Western Europe	PETERS, Michael ¹ , <u>LÜNGEN, Hans Bodo</u> ²	1 ThyssenKrupp Steel AG, Germany 2 Steel Institute VDEh, Germany
5	10:40~11:15	Recent Developments in North American Ironmaking	Arthur Cheng ¹ , <u>Frederick C. Rorick</u> ² , Joseph J. Poveromo ³	1 Severstal N.A., 2 Rorick Inc., 3 Raw Materials & Ironmaking Consulting, U.S.A
6	11:15~11:50	The Modern State of the Blast Furnace Production in Russia	<u>IVAN KURUNOV</u>	Novolipetsk Steel, Russia

20 October 2009, Afternoon (13:30-18:00)

Plenary Session

Venue: Hall No.4

Chairmen: Tateo USUI, YANG Tian-jun

1	13:30~14:05	Measures to Reduce CO ₂ and Other Emissions in the Steel Industry in Germany and Europe	SCHMÖLE, Peter ¹ , <u>LÜNGEN, Hans Bodo</u> ² , ENDEMANN, Gerhard ²	1 ThyssenKrupp Steel AG, 2 Steel Institute VDEh, Germany
2	14:05~14:40	Current Technology and Future Aspect on CO ₂ Mitigation in Japanese Steel Industry	<u>Tatsuro Arivama</u> ¹ , Shigeru Ueda ¹ , Shungo Natsui ¹ , etc.	1 Tohoku University, 2 JFE Steel Corporation, Japan
3	14:40~15:15	Current Status and Future Tasks of the Ironmaking Process Technology	<u>Dong Joon Min</u>	Yonsei University, Korea
Tea Break 15:15~15:30				
4	15:30~16:05	Opportunities for Low CO ₂ Ironmaking in the USA	Lawrence Kavanagh, <u>B.V. Lakshminaravana</u>	American Iron and Steel Institute, U.S.A
5	16:05~16:40	Smelting Reduction and Direct Reduction for Alternative Ironmaking	<u>W-K. Lu</u> , Xin (Jack) Jiang, Jialong Yang*	McMaster University, Canada *Wuhan Iron and Steel Company Ltd, China
6	16:40~17:15	The FINEX Process Emerging at New Steel Era	<u>KANG Chang-Oh</u>	GIFT-POSTECH, Korea

21 October 2009, Morning (8:30-12:00)

Session A1: Burden and Sintering

Venue: Hall No.4

Chairmen: Chikashi KAMIJO, JIANG Tao

1*	8:30~8:55	Development of Iron Material in Europe (invited)	HALLIN Mats, ZUO Guangqing	Luossavaara-Kiirunavaara AB, Sweden
2*	8:55~9:20	Technological Progress of Iron Ore Sintering in Recent 30 Years (invited)	TANG Xian-ju , HE Guo-qiang	Zhongye Changtian International Engineering Co., Ltd.
3*	9:20~9:45	Effect of High-Phosphorous Iron Ore Distribution in Quasi-Particle on Melt Fluidity and Sinter Bed Permeability (invited)	Nobuvuki Ovama ¹ , Satoshi Machida ¹ , Takahide Higuchi ¹ , Hideaki Sato ² , etc. ²	1 JFE Steel Corporation, Fukuyama Japan 2 JFE Steel Corporation, Kawasaki Japan
4	9:45~10:05	Burden Composition of Blast Furnace in China	LIU Zheng-jian , KONG Ling-tan	University of Science and Technology Beijing
Tea Break 10:05-10:20				
5	10:20~10:40	Technology Practice on High Limonite Proportion in Baosteel Branch	MA Luowen, YUAN Bing	Baoshan Iron & Steel Co., Ltd.
6	10:40~11:00	Comprehensive Evaluation to Basic Sintering Properties of Iron Ores From Ansteel	SHANG Ce ^{1,2} , ZHOU Ming-shun ² , ZHAI Li-wei ² , REN Wei ² , JIANG Xin ¹ , SHENFeng-man ¹ , WEI Guo	1 Northeastern University 2 Angang Steel Co., Ltd.
7	11:00~11:20	Important Factors Influencing the Sintering Performance of Iron Ore Fines – An Ore Perspective	Liming Lu , James R Manuel, Ralph J Holmes	CSIRO Minerals, Australia
8	11:20~11:40	Hydrogen Reduction Behavior of Composite Iron Ore Sinter	HIDEKI Ono ¹ , YUSUKE Dohi ² , YUKI Arikata ³ , TATEO Usui ¹	1 Osaka University, Japan 2 JFE Steel Corporation, 3 Nisshin Steel Co.,Ltd, Japan

21 October 2009, Morning (8:30-12:00)

Session C1: Smelting Reduction

Venue: Hall No.1

Chairmen: YU Ai-bing, LI Wei-guo

1*	8:30~8:55	Analysis of Improving COREX-3000 Competence (invited)	ZHANG Qing , GUO Li, CHEN Xu-dong	Baoshan Iron & Steel Co., Ltd.
2*	8:55~9:20	Hismelt Plant Ramp-up (invited)	Neil Goodman , Rod Dry	Hismelt Corporation Pty. Limited, Australia
3	9:20~9:40	Smelting Reduction Experiment with Carbon and Bottom Blowing Hydrogen	NI Xiao-ming , ZHENG Shao-bo, etc.	Shanghai University
4	9:40~10:00	COREX [®] Prepared for Present and Future Iron Making Challenges	Christian Böhm, Wolfgang Grill etc.	Siemens VAI, Austria
5	10:00~10:20	Analyses of COREX Equipment Running Status and Items of Equipment Defects Eliminating	SUN Gui-shan , SHI Ke, ZHU Qing-jie	Baoshan Iron & Steel Co., Ltd.
Tea Break 10:20~10:35				
6	10:35~10:55	Methodology and Results of Ironmaking Technology Selection for Specific Site Conditions	GORDON Yakov ¹ , FREISLICH Michiel ² , ELS Jeanne ²	1 Hatch, Mississauga Canada 2 Hatch, New South Wales ,Australia
7	10:55~11:15	Characteristics of Gas Flow Distribution in Reduction Shaft Furnace of COREX [®]	WU Sheng-li, XU Jian , ZHOU Qi, YANG S. D. etc.	University of Science and Technology Beijing

8	11:15~11:35	Thermal Analysis of H ₂ -C Smelting Reduction	<u>LUO Lin</u> , NI Xiao-ming, ZHENG Shao-bo	Shanghai University
9	11:35~11:55	Dynamic Free Lance Furnace for Direct Iron Smelting Reduction	<u>Quanrong Fan</u>	Fansmelt, Australia

21 October 2009, Morning (8:30-12:00)

Session B1-1: Ironmaking Process

Venue: Hall No.2

Chairmen: Hans Bodo LÜNGEN, LI Zhao-yi

1*	8:30~8:55	Advancement and Thought of BF Iron-Making Technology in Baosteel (invited)	ZHU Ren-liang, LI You-qing, <u>ZHANG Yong-xin</u>	Baoshan Iron & Steel Co., Ltd.
2	8:55~9:15	Technological Reconstruction of Ansteel Ironmaking System Since “The Tenth Five-Year”	SHANG Ce, WANG Qian, WANG Bao-hai, <u>ZHU Jian-wei</u> etc.	Angang Steel Co., Ltd.
3	9:15~9:35	Developments in Blast Furnace Ironmaking	Chandan Barman Ray, Narayan Sengupta, <u>Amitava Dasgupta</u>	M.N. Dastur & Company (P) Ltd., India
4	9:35~9:55	Progress in Technology of Vanadium-Bearing Titanomagnetite Smelting in Pangang	<u>FU Wei-guo</u> , XIE Hong-en	Panzhuhua Iron & Steel Co.,Ltd
5	9:55~10:15	Technical Advance of TISCO Ironmaking	<u>WANG Hong-bin</u> , YAN Kui-hong	Shanxi Taigang Stainless Steel Co. Ltd.
Tea Break 10:15~10:30				
6	10:30~10:50	Progress of Iron-Making Technology for Special Ore in Baotou Steel	<u>WU Hu-lin</u> , SONG Guo-long, MA Xiang	Baotou Steel (Group) Corp.
7	10:50~11:10	Some Aspects of the Future of Blast Furnace Ironmaking the Process: Focusing On Low Cost Hot Metal	<u>Maarten GEERDES</u> , Roman VAYNSHTEYN, Reinoud van LAAR	Danieli Corus BV, The Netherlands
8	11:10~11:30	Technique Index Analysis on Different Types of Blast Furnace	<u>DUAN Dong-ping</u> ¹ , LIU Wen-quan ²	1 Chinese Academy of Sciences 2 Metallurgical Industry Plan Research Institute
9	11:30~11:50	The Mini Blast Furnace Flex	<u>CASTRO, Jose Adilson</u>	Federal Fluminense University

21 October 2009, Morning (8:30-12:00)

Session B1-2: Energy Saving and Emission Control

Venue: Room 104

Chairmen: N. TOWHIDI, ZHAO Min-ge

1*	8:30~8:55	Energy-Saving and Emission-Reducing of Blast Furnace Ironmaking Production in China (invited)	<u>YANG Tian-jun</u> , ZHANG Jian-liang, ZUO Hai-bin	University of Science and Technology Beijing
2*	8:55~9:20	Optimization of Biomass Utilization for Reducing CO ₂ in Ironmaking Process (invited)	<u>Shigeru Ueda</u> , Kentaro Watanabe, Kazunari Yanagiya, etc	Tohoku University, Japan

3	9:20~9:40	Application of Dry Dedusting Technology in Ansteel New No.4 BF	Li Dong-sheng ¹ , Fan Chuan-chang ¹ , , Long Cheng-jun ² , etc.	1 Angang Steel Co., Ltd. 2 Anshan Iron and Steel Group Corporation
4	9:40~10:00	Study on Dry Type Bag Filter Cleaning Technology of BF Gas at Large Blast Furnace	ZHANG Fu-ming ^{1,2}	Beijing Shougang International Engineering Technology Co., Ltd.
Tea Break 10:00~10:15				
5	10:15~10:35	Optimization of Blast Furnace Operation Under Top Gas Recycling	HELLE Hannu, SAXÉN Henrik , etc.	Åbo Akademi University, Finland
6	10:35~10:55	Review of Energy Saving and Emission Reduction in Iron Making Process	ZHOU Yu-sheng ¹ , XU Hui ¹ , FENG Hua-tang ² , etc.	1 Baosteel Group Co., Ltd 2 Baosteel Engineering and Technology Co.,Ltd.
7	10:55~11:15	Jigang Develop Circular Economy Strongly to Realize Energy-Saving and Emission-Cutting in Ironmaking	LIU Chong-ting , WANG Liang-zhou, KONG Fan-shuo, etc.	Jinan Iron and Steel Group Corporation
8	11:15~11:35	Research and Application of Energy-Saving and Ejection- Decreasing Technology of 3200m ³ Blast Furnace in Tangshan Steel	ZHAO Jun , YOU Xin-dong, WANG Yi-guang, LI Ming, GUO Xiu-ying	Tangshan Iron and Steel Co.,Ltd

21 October 2009, Afternoon (13:30-18:00)

Session A2: Sintering

Venue: Hall No.4

Chairmen: ZUO Guangqing, KONG Ling-tan

1*	13:30~13:55	Sintering Behavior of Raw Material Bed Placing Large Particles (invited)	Chikashi Kamijo , Masaru Matsumura, Takazo Kawaguchi	Sumitomo Metal Industries, Ltd., Japan
2*	13:55~14:20	Integrated Optimal Guidance System for Sintering Process (invited)	CHEN Xu-ling , FAN Xiao-hui, JIANG Tao	Central South University
3*	14:20~14:45	Effect of Granule Structure on the Combustion Behavior of Coke Breeze (invited)	NAKAGAWA Terushige ¹ , NAKANO Masanori ² , NAGASAKA Tetsuya ¹	1 Tohoku University, Japan 2 Nippon Steel Corporation, Japan
4	14:45~15:05	Optimization of Flux Composition for Sintering with High Limonite Proportion	Wu Sheng-li ¹ , Han Hong-liang ¹ , Ma Luo-wen ² , etc.	1 University of Science and Technology Beijing 2 Baoshan Iron & Steel Co., Ltd.
Tea Break 15:05~15:20				
5	15:20~15:40	Investigations on the Influence of Return Sinter Fines on the Iron Ores Sintering Process and on the Properties of Iron Ore Sinter	MRÓZ Jan ¹ , SKOWRONEK Ryszard ² , FRANCIK Przemysław ²	1 Częstochowa University of Technology, Poland 2 ArcelorMittal Steel Poland, Poland
6	15:40~16:00	Optimization of Coke Breeze Segregation in Sintering Bed Corresponding to Deterioration in Iron Ore Quality	Satoshi Machida ¹ , Koichi Tamura ² , Takahide Higuchi ¹ , Nobuyuki Oyama ¹ , etc.	1 JFE Steel Corporation, Fukuyama Japan 2 JFE Steel Corporation, Kawasaki Japan
7	16:00~16:20	Determination of Moisture Capacity of Iron Ore for Sintering	LV Xue-wei , BAI Chen-guang, etc.	Chongqing University
8	16:20~16:40	Application of Phase Diagrams for the Prognostication of the Ferrite- and Silicate-Binder Compositions of Iron-Ore Sinters	Tatiana MALYSHEVA ¹ , Natalia MANSUROVA ²	1 State Technological University, Russia 2 Novolipetsk Steel, Russia

21 October 2009, Afternoon (13:30-18:00)

Session C2: Direct Reduction; Reduction Fundamentals

Venue: Hall No.1

Chairmen: Neil GOODMAN, HUANG Wu-di

1*	13:30~13:55	An AISI-Utah Project on Novel Green Ironmaking Technology with Greatly Reduced CO ₂ Emission and Energy Consumption (invited)	<u>H. Y. Sohn</u> , Moo Eob Choi	University of Utah, U.S.A
2	13:55~14:15	Development of Gas-Based Shaft Furnace Direct Reduction Technology	<u>HU Jun-ge</u>	Angang Steel Co., Ltd.
3	14:15~14:35	Biotar Ironmaking Using Wooden Biomass and Nano-Porous Iron Ore	<u>Kosuke MATSUI</u> , Yuichi HATA, Sou HOSOKAI, Jun-Ichiro HAYASHI ² , Y. KASHIWAYA ³ , etc.	1 Center for Advanced Research of Energy Conversion Materials, 2 Kyushu University, 3 Kyoto University, Japan
4	14:35~14:55	Low Calorific Value Gas for Rotary Hearth Furnace	<u>GUO Min-wei</u> , ZHU Rong, HUANG Wu-di	University of Science and Technology Beijing
5	14:55~15:15	Dependence of Reducing Gas Consumption and DRI Production Rate by Ghaem DR Process	<u>Nasser Towhidi</u>	University of Teheran, Iran
Tea Break 15:15~15:30				
6	15:30~15:50	The Change of Gas Component in the Shaft Furnace Pelletizing Direct Reduction Process	<u>XU Ying</u>	Hebei Polytechnic University
7	15:50~16:10	Study of Iron Formation During the Carbothermic Reduction of Iron Ore in Carbon Composite Pellets in the Temperature Range 1423 K-1623 K	SANTOS Dener Martins, MOURAO Marcelo Breda, <u>TAKANO Cvro</u>	University of São Paulo, Brazil
8	16:10~16:30	A New Process to Produce Iron Nuggets by Direct Reduction with Basic Synthetic Iron Ore Briquette by Carbon, Wcomet Process	<u>XUE Zheng-Liang</u> , YANG Die, YANG Fu, ZHANG Hai-Feng, etc.	Wuhan University of Science and Technology
9	16:30~16:50	The Kinetics Mechanisms of Hematite and Magnetite Containing Self-Reducing Briquettes	<u>D'ABREU José Carlos</u> ¹ , NOLDIN Jr. José Henrique ² , KOHLEH Hélio Marques ³	1 Catholic University of Rio de Janeiro, 2 Tecno-Logos S/A, 3 Independent Consultant, Brazil
10	16:50~17:10	Effect of Iron Ore and Coal Properties on Reduction and Gasification Behavior of Carbon Composite Iron Ore Briquette	<u>Koki NISHIOKA</u> ¹ , Koji OSUGA ² , Yasuaki UEKI ³ , Ko-ichiro OHNO ¹ , Takayuki MAEDA ¹ , Masakata SHIMIZU ¹	1 Kyushu University, 2 Kyushu University (Now Kobe Steel Ltd.) , 3 Engineering Kyushu University (Now Nagoya University), Japan
11	17:10~17:30	Analysis of Hydrogen Reforming Process with Water Gas Shift Reaction	<u>Ki Hvnun KIM</u> ¹ , Si Hyung LEE ¹ , Sung Man KIM ¹ , Min OH ²	1 POSCO, Korea 2 Hanbat National University, Korea
12	17:30~17:50	High Carbon Ferro-Chromium by Self-Reducing Process	Z. Adolfo Pillihuaman, <u>TAKANO Cvro</u> , etc.	University of Sao Paulo, Brazil
13	17:50~18:10	Combustion of High Ash Pulverized Coal and Biomass in Fluidized Bed Reactor for Thermoelectricity Generation	<u>CASTRO, Jose Adilson</u> and BALTAZAR, Anderson William de Souza	Federal Fluminense University, Brazil

21 October 2009, Afternoon (13:30-18:00)

Session B2-1: Blast Furnace Performance

Venue: Hall No.2

Chairmen: Yakov GORDON, ZHU Jian-wei

1*	13:30~13:55	Low Coke Rate Operation of Blast Furnace by Controlling Size of Coke Mixed into Ore Layer (invited)	<u>Munevoshi SAWAYAMA</u> ¹ , Kazuya MIYAGAWA ¹ , KentaroNOZAWA ¹ etc. ¹	1 KOBE STEEL, Kakogawa, Japan 2 KOBE STEEL, Kobe, Japan
2*	13:55~14:20	Laboratory Study on MAC Lump Properties and in Blast Furnace Performance Review (invited)	Honeyands Tom TA ¹ , <u>LIN Li-quan</u> ²	1 BHP Billiton Newcastle Technology Centre, Australia 2 BHP Billiton China
3	14:20~14:40	Practices of Blast Furnace Intensifying Operation at WISCO	<u>XIONG Ya-fei</u> , YANG Jia-long , etc.	Wuhan Iron and Steel Corporation
4	14:40~15:00	Efficiency of Using Briquettes From Technogenic and Natural Raw Materials in Blast Furnace Process	I.F. KURUNOV, <u>V.N. TITOV</u> , ,, D.N. TIKHONOV, etc.	Novolipetsk Steel, Russia
5	15:00~15:20	Industrial Practice of Low Fuel Rate and High PCI Rate at Shouqin No.1 BF	<u>HAN Qing</u> ¹ , DING Ru-cai ^{1,2} , WU Keng ² , WEI Shao-hua ² , ZHU Li ¹	1 Shouqin Metal Materials Co., Ltd 2 University of Science and Technology Beijing
6	15:20~15:40	Successful Blow-in of Essar Steel Algoma Blast Furnaces 6 and 7	JONES Lornes ¹ , VANMARRUM Diana ¹ , , <u>Yakov Gordon</u> ² etc	1 Essar Steel Algoma Inc., Canada 2 Hatch Ltd., Canada
Tea Break 15:40~15:55				
7	15:55~16:15	Effects of Operation Parameters on Drainage Behavior in a Blast Furnace Hearth	Ping ZHOU ¹ , <u>D.(Frank) HUANG</u> ² , Chenn Q. ZHOU ³	1 Central South University 2 ArcelorMittal, Global R&D – East Chicago 3 Purdue University Calumet
8	16:15~16:35	Operational Research to Optimize the Iron Raw Materials for Blast Furnace Burden	DESTRO Elton, ASSIS ves, <u>OLIVEIRA F. O. M.</u> etc.	Federal University of Ouro Preto, Brazil
9	16:35~16:55	Research on Tuyere Coke Sampling and Instruction for Blast Furnace Operation	<u>ZHU Wei-Chun</u> , ZHANG Xue-Song, MA Li	Shougang Group
10	16:55~17:15	Energy and Exergy Analyses of Low Coke Blast Furnace Ironmaking	<u>ZHANG Guangqing</u> , Ostrovski Oleg	The University of New South Wales, Australia
11	17:15~17:35	The Relining and Blowing-in of Baosteel No.2 Blast Furnace	ZHU Jin-ming ¹ , <u>LI Jun</u> ¹ , etc.	1 Baoshan Iron & Steel Co., Ltd 2 CISDI Engineering Co.
12	17:35~17:55	Discuss on Operation of Large-Scale BF with Low Fuel Rate	<u>MA Jin-fang</u> , WAN Lei , JIA Guo-li, etc.	Shougang Qian'an Iron & Steel Co.,Ltd.
13	17:55~18:15	Independent Innovation and Sustainable Development of Blast Furnace Power Recovery Turbine Train	<u>LIU Li-guang</u> , YE Chang-qing, SUN Hong-sheng	Xi'an Shaangu Power Co., Ltd.

21 October 2009, Afternoon (13:30-18:00)

Session B2-2: Tuyere Injection

Venue: Room 104

Chairmen: Paulo ASSIS, AN Yun-pei

1*	13:35~13:55	Optimisation of the Design of Pulverised Coal Injection Lances: From Concept to Full Scale Implementation at BlueScope Steel's BF6 (invited)	Daniel MALDONADO ¹ , Paul ZULLI ¹ , Peter AUSTIN ¹ , Mark WALSH ¹ , John MATHIESON ¹ , Baoyu GUO ² , Aibing YU ² , Harold ROGERS ³	1 BlueScope Steel, Australia 2 University of New South Wales, Australia 3 BHP Billiton, Australia
2*	13:55~14:20	An Industrial Investigation of Bi-PCI Process in a Blast Furnace (invited)	SHEN Feng-man ¹ , DING Zhi-min ¹ , YANG Wen-guang ² , JIANG Xin ¹ , MU Lin ¹ , SHEN Yan-song ³	1 Northeastern University 2 Shanghai Meishan Iron & Steel Co., Ltd. 3 University of New South Wales
3*	14:20~14:45	Coal Conversion Reactions and Their Impact on BF PCI Operations (invited)	L. Lu ¹ , V. Sahajwalla ² , A. McLean ³	1 CSIRO Minerals, Australia 2 University of New South Wales, Australia 3 University of Toronto, Canada
4	14:45~15:05	Recycling of Fine Oily Scale by Injection into Blast Furnace	IVAN KURUNOV, D. TIKHONOV , etc.	Novolipetsk Steel
5	15:05~15:25	Blast Furnace Technology with Charcoal Injection: Technological and Ecological Aspects	BABICH Alexander ¹ , SENK Diete ¹ , FERNANDEZ Miguel ²	1 RWTH Aachen University, Germany 2 CENIM, Spain
Tea Break 15:25~15:40				
6	15:40~16:00	Technical Research on Economical Pulverized Coal Injection for Blast Furnace	XU Wan-ren , LI Zhao-yi, GUO Yan-ling	Baoshan Iron & Steel Co., Ltd.
7	16:00~16:20	Pulverized Coal Combustion Catalyzed by CeO ₂ Based on Iron-Making System	GONG Xu-zhong ¹ , GUO Zhan-cheng ^{1,2} , WANG Zhi ¹	1 Chinese Academy of Science 2 University of Science and Technology Beijing
8	16:20~16:40	New Design Methods for Coal Distribution Systems for Blast Furnace Coal Injection	HILGRAF Peter ¹ , NOLDE Hans-Dieter ²	1 Claudius Peters Technologies GmbH, Germany 2 Claudius Peters Projects GmbH, Germany
9	16:40~17:00	Research and Practice on Coal Utilization Under High PCI Rate in Shougang Qiangang BF	MA Ze-jun , ZHU Wei-chun, WANG Dong-qing, QING Ge-le	Shougang Group
10	17:00~17:20	Low Coke Rate Ironmaking in Blast Furnace with Hot Gas Injection	ZHANG You-ping , ZHOU Yu-sheng, LI Zhao-yi	Baosteel Group Corporation
11	17:20~17:40	Study of the Behavior of Biomass, Coal and Mixtures at Their Injection into Blast Furnaces	MACHADO Janaina ¹ , OSÓRIO Eduardo ¹ , VILELA Antônio ¹ , etc.	1 Federal University of Rio Grande do Sul, Brazil 2 IEHK – RWTH, Germany

22 October 2009, Morning (8:30-12:00)

Session A3-1: Pelletizing

Venue: Hall No.4

Chairmen: Jan WIKSTROM, ZHANG Jian-liang

1*	8:30~8:55	Production and Application of Agglomerated Iron Ores at WISCO (invited)	<u>ZHANG Shi-jue</u> , YU Zhong-jie	Wuhan Iron and Steel Corporation
2	8:55~9:15	Lowering Reduction Temperature of Iron Oxide Using the Composite of Coal and Iron Ores Containing High Concentration of Combined Water	<u>Taichi MURAKAMI</u> , Takeshi NISHIMURA, Eiki KASAI	Tohoku University, Japan
3	9:15~9:35	A Study on Brazilian South Part Hematite Concentrate Pelletizing Proportioned With Coal and Boride Iron Ore	<u>QING Ge-le</u> , TIAN Yun-qing, LI Guo-wei	Shougang Group
4	9:35~9:55	Preparation and Reduction Behavior of Semi-Charcoal Composite Iron Oxide Pellets	<u>KONIHISI Hirokazu</u> , ICHIKAWA Kazuhira, USUI Tateo	Osaka University, Japan
5	9:55~10:15	Forming Mechanism of Rings in Rotary-Kiln for Oxidized Pellet	<u>JIANG Tao</u> , HE Guo-qiang, GAN Min etc.,	Central South University
Tea Break 10:15~10:30				
6	10:30~10:50	Investigation of Oxygen Injection into the Pelletizing Furnace in Order to Quality Improve of Iron Ore Pellets	<u>ALIZADEH Mehdi</u> , SHARIFIYAN Fariboorz	Materials and Energy Research Center, Iran
7	10:50~11:10	Energy and Exergy Analysis of Iron Ore Pellets Induration in the Coal-Fired Rotary Kiln	<u>ZHANG Yu</u> , FENG Jun-xiao, XIE Zhi-yin, etc.	University of Science and Technology Beijing
8	11:10~11:30	Design Characteristics and Operating Practice of Grate-Kiln Oxidized Pelletizing Production Line with an Output of 5 Mtpa Pellets in WISCO	<u>SHU Fang-hua</u> , TANG Fang-jia	Wuhan Iron and Steel Corporation
9	11:30~11:50	Oxidation Behavior of Ore/Coal Composite Pellets in the Air After Direct Reduction	<u>GUO Yu-hua</u> , QI Yuan-hong, ZHOU Ji-cheng, etc.	Central Iron & Steel Research Institute

22 October 2009, Morning (8:30-12:00)

Session A3-2: Cokemaking

Venue: Hall No.1

Chairmen: Liming LU, GUO Zhan-cheng

1*	8:30~8:55	Technical Progress in China's Coke-Making Industry (invited)	<u>ZHENG Wen-hua</u> , SUN Si-wei, HAN Hai-tao	ACRE Coking And Refractory Engineering Consulting Corporation MCC
2*	8:55~9:20	Coal Pre-Treating Technologies for Improving Coke Quality (invited)	<u>KATO Kenji</u> , NOMURA Seiji	Nippon Steel Corporation
3*	9:20~9:45	Production Conditions of Carbon Iron Composite (invited)	<u>Hirovuki SUMI</u> ¹ , Tetsuya YAMAMOTO ¹ Hidekazu FUJIMOTO ¹ , Takeshi SATO ¹ Takashi ANYASHIKI ² , etc.	1 JFE Steel Corporation, Fukuyama Japan 2 JFE Steel Corporation, Kawasaki Japan
4	9:45~10:05	Coke Dry Quenching Technical Installation	<u>XU Lie</u> , DONG Xing-hong	ACRE Coking & Refractory Engineering Consulting Corporation

Tea Break 10:05~10:20				
5	10:20~10:40	Effect of Mineralogy and Carbon Structure on Coke Properties of Australian and Chinese Coals and Their High Temperature Behaviour	SHEN Fenglei ¹ , GUPTA Sushil ¹ , SAHAJWALLA Veena ¹ , LIU Yang ² , MENG Qingbo ²	1 University of New South Wales, Australia 2 Sinosteel Anshan Research Institute of Thermo-Energy, China
6	10:40~11:00	The Mechanism of Coking Pressure Generation I: Effect of High Volatile Matter Coking Coal, Semi-Anthracite and Coke Breeze on Coking Pressure and Plastic Coal Layer Permeability	Seiji Nomura ¹ , Merrick Mahoney ² , Koichi Fukuda ¹ , Kenji Kato ¹ , Anthony Le Bas ² , Sid McGuire ³	1 Nippon Steel Corporation, Japan 2 BHP Billiton Technology, Australia 3 BHP Billiton Mitsubishi Alliance, Australia
7	11:00~11:20	The Mechanism of Coking Pressure Generation II: Effect of Low Rank Coking Coal, Semi-Anthracite and Coke Breeze on Coking Pressure and Contraction	MAHONEY Merrick ¹ , NOMURA Seiji ² , FUKUDA Koichi ² , KATO Kenji ² , LE BAS Anthony ¹ , JENKINS David ³ and MCGUIRE Sid ⁴	1 BHP Billiton Technology, Australia 2 Nippon Steel Corporation, Japan 3 Macquarie University Campu, Australia 4 BHP Billiton Mitsubishi Alliance, Australia
8	11:20~11:40	Process Model for Heat Recovery Coke Ovens	KIM Ronald, REINKE Martin , WORBERG Rainer	UHDE GmbH, Germany
9	11:40~12:00	Influence of Coking Pressure and Oven Age on Oven Wall Displacement and Pushing Force	T.NAKAGAWA ¹ , Y. KUBOTA ¹ , K.FUKUDA ¹ , T. ARIMA ¹ , Seiji NOMURA ¹ , Kenji MITSUGI ² , etc.	1 Nippon Steel Corporation, Japan 2 Hokkai Iron & Coke Corporation, Japan

22 October 2009, Morning (8:30-12:00)

Session B3-1: Blast Furnace Maintenance and Campaign Life

Venue: Hall No.2

Chairmen: S. PRAKASH, YANG Jia-long

1*	8:30~8:55	Practice and Concept for Extending Blast Furnace Campaign Life at WISCO (invited)	ZHANG Shou-rong , YU Zhong-jie	Wuhan Iron & Steel Corporation
2*	8:55~9:20	3-D CFD Blast Furnace Hearth Model (invited)	D. (Frank) Huang ¹ , C. Q. Zhou ²	1 ArcelorMittal, Global R&D –East Chicago, USA 2 Purdue University Calumet, USA
3	9:20~9:40	Production Practice of Baosteel Large BF's Long Campaign Life	ZHANG Long-lai, JIANG Min-hui etc.	Baoshan Iron & Steel Co., Ltd.
4	9:40~10:00	Modelling of Titanium Compound Formation in Blast Furnace Hearth	GUO Bao-yu ¹ , ZULLI P. ² , MALDONADO Daniel ² , YU Ai-bing ¹ , etc.	1 University of New South Wales, Australia 2 BlueScope Steel, Australia
Tea Break 10:00~10:15				
5	10:15~10:35	Development and Application of BF Hearth Lining Protection by Wire Feeding	WANG Wen-zhong	Northeastern University
6	10:35~10:55	On-Line Erosion Diagnosing, Effective Maintaining and Design Optimizing for Large-Scale Blast Furnace	MA Jin-fang ^{1,2} , ZHAO Hong-bo ² , CHENG Shu-sen ²	1 Shougang Qiangang Ltd. 2 University of Science and Technology Beijing

7	10:55~11:15	Judgment Method for the Gas Gap of BF Hearth Lining	<u>CHEN Liang-vu</u> , LI Yu, Lu Chao-yang	Northeastern University
8	11:15~11:35	Study on Structure Stability of Blast Furnace Hearth Ceramic Lining	<u>XU Ruitu</u> , CAO Yong-guo, HE Ru-sheng, WU Sheng-li	Beijing REAL Nonmetallic Materials Co., Ltd
9	11:35~11:55	Development and Research of New BF Copper Cooling Staves in China	<u>ZONG Yan-bing</u> , CANG Da-qiang, etc.	University of Science and Technology Beijing

22 October 2009, Morning (8:30-12:00)

Session B3-2: Instrumentation and Process Control

Venue: Room 104

Chairmen: A.T. ADEMA, YU Zhong-jie

1*	8:30~8:55	Ironmaking Research Especially Insitu-Measurement (invited)	<u>GUDENAU Heinrich-Wilhelm</u> , SENK Dieter	RWTH Aachen University, Germany
2*	8:55~9:20	Probing the Inner Structure of a Blast Furnace by Cosmic-Ray Muon Radiography (invited)	<u>Akihiko Shinotake</u> ¹ , Shinroku Matsuzaki ¹ , Kazuya Kunitomo ¹ , Masaaki Naito ¹ , Misao Hashimoto ¹ , Asao Hatanaka ² , Toshihiro Nagane ³ , Kanetada Nagamine ⁴ , etc.	1 Nippon Steel Corporation, Futtsu Japan 2 Nippon Steel Corporation, Chiyoda-ku 3 Nippon Steel Corporation, Oita Japan 4 Riken, Japan 5 University of Tokyo, Japan
3*	9:20~9:45	Present Status of Investigation and Application of Ironmaking Blast Furnace Mathematical Models in China (invited)	<u>BI Xue-gong</u> ¹ , FU Lian-chun ^{1,2} , XIONG Wei ¹ , JIN Yan ¹	1 Wuhan University of Science and Technology 2 Wuhan Iron and Steel Corporation
4	9:45~10:05	Innovation and Development of Shougang Blast Furnace Expert System	<u>MA Fu-tao</u> , ZHOU Jian-ping	Shougang Automation and Information Technology Co. Ltd.
Tea Break 10:05~10:20				
5	10:20~10:40	Development of Monitoring & Diagnosis System Based on Multivariate Statistical Analysis Methods in Blast Furnace Process	<u>Tae-hwa Choi</u> , Jung-il Kim	POSCO, Korea
6	10:40~11:00	Development of Specific Measuring Techniques in Ironmaking Process	<u>SHA Yong-zhi</u> , CAO Jun, WANG Feng-qi	Central Iron & Steel Research Institute
7	11:00~11:20	Study of Burden Distribution Control Based on Infrared Image Pattern Recognition and Case-Based Inference	<u>CHEN Ling-kun</u>	Wuhan Iron and Steel Corporation
8	11:20~11:40	Non-Destructive Testing (NDT) and Inspection of the Blast Furnace Refractory Lining by Stress Wave Propagation Technique	<u>SADRI Afshin</u> , GEBSKI Pawel	Hatch Ltd., Canada
9	11:40~12:00	Laser Detect Technology and Burden Distribution Computer Simulation Model on BF	<u>GAO Zheng-kai</u> , DAI Jian-hua	University of Science and Technology Beijing

22 October 2009, Afternoon (13:30-18:00)

Session A4: Raw Materials Preparation; Environmental

Venue: Hall No.4

Chairmen: Jose C. D'ABREU, HUANG Dian-bing

1	13:30~13:50	Reaction Behavior of Coal Composite Iron Ore Hot Briquettes in a Laboratory Scale Blast Furnace Simulator	<u>Shoji Havashi</u>	Nagoya Institute of Technology, Japan
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2	13:50~14:10	Research and Development of Baosteel Swirl-Jet Sintering Flue Gas Desulphurization Technology	SHEN Xiao-lin, <u>LIU Dao-qing</u> , ZHOU Jing	Baoshan Iron & Steel Co., Ltd.
3	14:10~14:30	Technical Evaluation of Recycling Powder From EAF	SILVA Leonardo Lopes O. ¹ , ASSIS João Batista Santos de ² , <u>CORDEIRO Fabrício C. de Mendonça</u> ¹ , ASSIS Paulo Santos ¹	1 Escola de Minas-UFOP, Brazil 2 PUC-MG, Brazil
4	14:30~14:50	About the Mechanism of the Pelletizing Processes of the Powdery Materials for Sintering Agglomeration	NICOLAE Avram, PREDESCU Cristian, <u>MATEI Ecaterina</u> , etc.	Politehnica University of Bucharest, Romania
5	14:50~15:10	Behavior of Heavy Metals During Incineration of CCA Treated Wood Waste	<u>Hiroyuki MATSUURA</u> , T. MATSUMOTO, etc.	The University of Tokyo, Japan
Tea Break 15:10~15:25				
6	15:25~15:45	Use of Low-Silicon Alloys for Composition Charge Correction into the BOF	<u>ASSIS Paulo Santos</u> ¹ , MARTINS, Weber de Brito ² , BICALHO, Gilberto Sette ²	1 Federal University of Ouro Preto, Brazil 2 Solvi Insumos Siderúrgicos Ltda, Brazil
7	15:45~16:05	Study of the Micro-Pelletizing Process Parameters of the Powdery Materials for Sintering Agglomeration	NICOLAE Maria, SOHACIU Mirela, <u>PREDESCU Andrei</u> , etc.	Politehnica University of Bucharest, Romania
8	16:05~16:25	Factors Accelerating Dioxin Emission From Iron Ore Sintering Machines	<u>NAKANO Masanori</u> ¹ , KAWACHI Shinji ¹ , MORII Kazuyuki ¹ , etc.	1 Nippon Steel Corporation, Japan 2 Hokkai seitetsu, Japan
9	16:25~16:45	Modern Agglomeration Technologies for a Broader Raw Material Range	Matthias Meier-Hedde, <u>Jan Weckes</u>	Outotec GmbH, Germany
10	16:45~17:05	The Study of Low Concentration of SO ₂ From Sintering Process Adsorbed by Modified Solid Waste with Microwave	<u>HAN Qing-hong</u> ^{1,2} , JIN Yong-long ¹ , CANG Da-qiang ² , LIU Jin-xin ¹	1 University of Science and Technology Liaoning 2 University of Science and Technology Beijing
11	17:05~17:25	Semi-Dry FGD and Pulse Energization of Electrostatic Precipitators Fulfills All Emission Requirements for Sinter Plants	<u>LARSEN Mads Kirk</u> , LUND Carsten R., POULSEN Karsten S.	FLSmidth Airtech, Denmark

22 October 2009, Afternoon (13:30-18:00)

Session B4-1: Hot Blast Stove; Design and Equipment

Venue: Hall No.2

Chairmen: Ivan KURUNOV, SHA Yong-zhi

1*	13:30~13:55	Shaftless Hot Stove – Reliable Construction for Blast Heating up to the High Temperatures (invited)	<u>KALUGIN Iakov</u>	Kalugin JSC, Russia
2	13:55~14:15	Technology Progress on High Blast Temperature of Hot Blast Stove in Shougang Group	<u>Zhao Min-ge</u> , Chen Guan-jun	Shougang Group
3	14:15~14:35	3D- Numerical Simulation Research of the Kalugin Hot Blast Stove	<u>CHEN Yi-sheng</u> ¹ , WANG Wei-li ¹ , HE Zhen ²	1 Inner Mongolia University of Science and Technology 2 Inner Mongolia Finance and Economy College

4	14:35~14:55	Study and Application of Ceramic Burner of Hot Blast Stove for Blast Furnace	<u>DAI Fang-qin</u> , LI Shao-hua , LIU Ke	Wuhan Research Institute of Metallurgical Construction
5	14:55~15:15	Research on the Optimization Application of BF Hot Stove Energy-Saving Coating	<u>WANG Miao</u> ^{1,2} , BAI Hao ¹ , ZHAO Li-hua ¹ , CANG Da-qiang ¹ , CHENG Xiang-li ¹ , ZHOU Hui-min ³	1 University of Science and Technology Beijing 2 Xi'an University of Architecture and Technology 3 Shangdong Huimin Technology Development Company
Tea Break 15:15~15:30				
6	15:30~15:50	A New Design System of Blast Furnace	<u>XIANG Zhong-vong</u> , CHEN Ying-ming, ZOU Zhong-ping	CISDI Engineering Co.
7	15:50~16:10	The Bell-Less Rotary Charging Unit of the New Generation is a Break-Through in the Blast Furnace Charging Technology	<u>B. BORANBAEV</u> ¹ , Y. GLAZER ¹ , V. VAKULIN ¹ A.SIRKAR ²	1 Totem Co. Ltd., Russia 2 Jindal Steel & Power Limited, India
8	16:10~16:30	Design of 5500m ³ Blast Furnace at Shougang Jingtang	<u>ZHANG Fu-ming</u> ^{1,2} , QIAN Shi-chong ¹ , ZHANG Jian ¹ , MAO Qing-wu ¹	1 Beijing Shougang International Engineering Technology Co., Ltd. 2 University of Science and Technology Beijing
9	16:30~16:50	Blast Furnace Hearth Design Evolution	<u>McNALLY Rory</u> ¹ , SERRADEILL Muriel ¹ , ROULET Frederic ²	1 Saint-Gobain Industrial Ceramics, France 2 Saint-Gobain CREE Research Centre, France
10	16:50~17:10	Iron-Making Technology Selection Using a Fuzzy Hierarchical TOPSIS Method	<u>Nasser Towhidi</u> ¹ , Mohammad Peymandar ² etc.	1 University of Teheran, Iran 2 Islamic Azad University, Iran
11	17:10~17:30	Some Aspects of the Future of Blast Furnace Iron-Making and the Equipment: Blast Furnace Design for Low Cost Hot Metal	<u>Reinoud van LAAR</u> , Maarten GEERDES, Roman VAYNSHTEYN	Danieli Corus BV, The Netherlands
12	17:30~17:50	Optimization of Melted Iron Flow Behavior in Torpedo with Gas Blowing at Bottom	<u>HUANG Ao</u> , GU Hua-zhi, WANG Hou-zhi, ZHANG Mei-jie	Wuhan University of Science and Technology

22 October 2009, Afternoon (13:30-18:00)

Session B4-2: Modelling and Simulation

Venue: Room 104

Chairmen: J. J. POVEROMO, BI Xue-gong

1*	13:30~13:55	Effect of Particle Properties on the Solid Flow Profile in a Blast Furnace (invited)	<u>R. Safavi Nick</u> , A. Tilliander, T.L.I. Jonsson, P. Jönsson	Royal Institute of Technology, Sweden
2*	13:55~14:20	Modelling In-Furnace Phenomena of Coal/Coke Combustion in a Blast Furnace: Effects of Coal Properties (invited)	<u>SHEN Yansong</u> ¹ , GUO Baoyu ¹ , YU Aibing ¹ , AUSTIN Peter ² , Zulli Paul ²	1 University of New South Wales, Australia 2 BlueScope Steel, Australia
3	14:20~14:40	Coupled DEM - CFD Modelling of the Iron-Making Blast Furnace	<u>ADEMA Allert</u> ^{1,2} , YANG Yongxiang ² , BOOM Rob ^{1,2,3}	1 Materials Innovation Institute, 2 Delft Univ. of Technology, 3 Corus Research

				Development & Tech., The Netherlands
4	14:40~15:00	Evaluation of Blast Furnace Performance With Carbon Composite Agglomerates Charging for Lower Temperature Operation	CHU Mansheng ¹ , YAGI Jun-ichiro ²	1 Northeastern University 2 Tohoku University
5	15:00~15:20	Development of Advanced Blast Furnace Simulation Model Based on Discrete Element Method	Shungo Natsui ¹ , Shigeru Ueda ¹ , Fan Zhen-yun ¹ , Junya Kano ¹ , Hiroshi Nogami ² , Ryo Inoue ¹ , T. Ariyama ¹	1 Tohoku University, 2 Ichinoseki National College of Technology Ichinoseki, Japan
Tea Break 15:20~15:35				
6	15:35~15:55	Research on Rist Diagram With Fuzzy and Incomplete Parameters	LU Hu-sheng , WANG Huan-bang, NA Shu-ren	Inner Mongolia University of Sci. and Tech.
7	15:55~16:15	Studies on RTD of Metalloids in the Blast Furnace	MUKHERJEE Kakali , PRAKASH Swatantra	National Metallurgical Laboratory, India
8	16:15~16:35	Modelling the Effect of MnO on Slag Properties and Mn, Si and S Distribution in Blast Furnaces	CHEN Chunlin ¹ , ZHANG Ling ¹ , WRIGHT Steven ¹ , SUN Shouyi ¹ , etc.	1 CSIRO Minerals, Australia 2 BHP Billiton, Australia
9	16:35~16:55	Analysis of Particle Size Segregation at Bell-Less Top of Blast Furnace by Discrete Element Method	MIO Hiroshi ^{1,2,(present 3)} , KOMATSUKI Satoshi ¹ , HIDAKA Jusuke ¹ , KADOWAKI Masatomo ³ , MATSUZAKI S. ³ , etc.	1 Doshisha University, 2 Keihanna Interaction Plaza Inc., Japan 3 Nippon Steel Corporation, Japan
10	16:55~17:15	Investigation of Viscous Fingering During Blast Furnace Hearth Drainage Using a Hele-Shaw Viscous Flow Model	HE Qinglin ¹ , EVANS Geoff ¹ , ZULLI Paul ² , TANZIL F. ²	1 University of Newcastle, 2 BlueScope Steel, Australia
11	17:15~17:35	Heat Transfer Study of Blast Furnace 2 at SSAB Oxelösund	SWARTLING Maria ¹ , SUNDELIN Bo ² , TILLIANDER Anders ¹ , etc.	1 Royal Institute of Technology, Sweden 2 SSAB Oxelösund AB, Sweden
12	17:35~17:55	Development of the FCG Mathematical Model for the Bell-Less Blast Furnace in Ansteel	CHE Yu-man , LI Lian-cheng, SUN Bo, SUN Peng, GUO Tian-yong	Angang Steel Co., Ltd.
13	17:55~18:15	Blast Furnace Operation Using Information on Active Burden Weight	Marsuverskiy Boris A.	Mechel Management OOO, Russia
14	18:15~18:35	Discussion and Expansion on Blast Furnace Operating Line	NA Shu-ren	Inner Mongolia University of Science and echnology
15	18:35~18:55	Particle Flow Transition During Blast Furnace Bin Discharge	PINSON David John, CHEW Sheng Jason, YU Aibing , etc.	BlueScope Steel, Australia

22 October 2009, Afternoon (13:30-18:00)

Session B4-3: Experiment and Research

Venue: Hall No.1

Chairmen: Tatsuro ARIYAMA, SHEN Feng-man

1*	13:30~13:55	Trials with LRI at LKAB's Experimental Blast Furnace (invited)	ZUO Guangqing , HALLIN Mats	LKAB, Sweden
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2*	13:55~14:20	Fundamental Studies in Ironmaking Slags to Lower Operating Temperatures and to Recover Titania From Slag (invited)	ZHAO Baojun , JAK Eugene, HAYES Peter	The University of Queensland, Australia
3*	14:20~14:45	Effect of Magnesium Oxide and Aluminum Oxide Content on the Final Slag Fluidity of Blast Furnace (invited)	Jia-Shyan Shiau , Shih-Hsien Liu	China Steel Corporation
4	14:45~15:05	The Dissection of Laiwu Steel's 125m ³ BF	LUO Deng-wu ¹ , ZHANG Jian-liang ² , GUO Huai-gong ¹ , ZUO Hai-bin ² , ZENG Hui ¹	1 Laiwu Steel Group .Ltd. 2 University of Science & Technology Beijing
5	15:05~15:25	Investigation of the Phenomena in the Blast Furnace Hearth by Means of Dissection Test and Numerical Analysis	Kaoru Nakano , Atsuya Kasai, Takanobu Inada	Sumitomo Metal Industries, Ltd., Japan
Tea Break 15:25-15:40				
6	15:40~16:00	Effect of Carbon Structure on Iron Carburization and Primary Fe-C Liquid Formation Behavior	OHNO Ko-ichiro , MAEDA Takayuki, NISHIOKA Koki , SHIMIZU Masakata	Kyushu University, Japan
7	16:00~16:20	Effective Use of Hydrogen in Gaseous Reduction of Iron Ore Agglomerates with H ₂ -CO	USUI Tateo, NISHIMURA Tsunehisa , ONO Hideki , etc.	Osaka University, Japan
8	16:20~16:40	Investigation of Blast Furnace Primary Slag Property Optimization at High PCI Rates	FU Lian-chun ^{1,2} , BI Xue-gong ¹ , FENG Zhi-hui ¹ , ZHOU Guo-fan ¹ , etc.	1Wuhan University of Science and Technology 2 Wuhan Iron and Steel Corporation
9	16:40~17:00	The Wetting of Liquid Iron Carbon on Aluminate Minerals Formed During Coke Dissolution in Iron	Brian J. Monaghan , Michael W. Chapman and Sharon A. Nightingale	University of Wollongong, Australia
10	17:00~17:20	Experimental Study on Reduction Behavior of Iron Ore Fines at Low Temperature	LI Qiu-ju , YU xiao, WANG Dao-jing, HONG Xin	Shanghai University
11	17:20~17:40	Effects of Tuyere Dimensions and Bosh Angle on Raceway Shape and Particle Movement Based on Cold-Model Experiments	Naovuki TAKEUCHI ¹ , Akinori MURAO ¹ , Taihei NOUCHI ² , Shiro WATAKABE ¹ , etc.	1 JFE Steel Corporation, Hiroshima Japan 2 JFE Steel Corporation, Kawasaki Japan
12	17:40~18:00	Thermodynamics Analyses on the Comprehensive Utilization of Vanadium-Bearing Titanomagnetite	ZHENG Hai-van ¹ , XUE Xun ² , WEI Guo ¹ , SHEN Feng-man ¹	1 Northeastern University 2 Panzhihua Iron & Steel Co.,Ltd
13	18:00~18:20	Heat Transportation System From Steelworks to Chemical Plants	Takahiro Nomura , Noriyuki Okinaka, Tomohiro Akiyama	Hokkaido University, Japan

20~22 October 2009

Poster

Venue: Hall of First Floor

Part A Raw Materials

1	Study and Application of Composite Agglomeration Process of Fluoric Iron Concentrate	LI Guang-hui ¹ , ZENG Jing-hua ¹ , JIANG Tao ¹ , LI Qian ¹ , YANG Yong-bin ¹ , Wang Rui-jun ² , Wu Hu-lin ²	1 Central South University 2. Baotou Iron & Steel Corp.
2	Sintering the Mixture of Hematite and Magnetite and the Optimization of Its Factors	ZHOU Ming-shun , SHANG Ce , ZHAI Li-wei , REN Wei , LIU Jie	Angang Steel Co., Ltd.
3	Production Practice of Two 328m ² Sinters in Angang Western Part Region	GONG Zuo-van , MA Xian-guo, ZHANG Ming-zho	Angang Steel Co., Ltd.

4	A Pilot-Scale Investigation on Microwave Heating Ignition in Iron Ore Sintering	<u>Mao Xiao-ming</u> , Zhang Yuan-bo, Huang Zhu-cheng, Li Guang-hui, Fan Xiao-hui, Jiang Tao	Central South University
5	Influence of K, Na, F on Calcium Ferrite Generation During Solid Phase Reaction of Sintering Process	<u>WANG Yi-ci</u> ¹ , LUO Guo-ping ¹ , HAO Zhi-zhong ² , Wu Hu-lin ² , DUAN Xiang-guang ²	1 Inner Mongolia University of Science and Technology 2 Baotou Iron and Steel Company
6	Study on Influence of K ₂ O and Na ₂ O on Mineral Composition and Microstructure of Sinter of Baotou Iron and Steel (Group) Co.	<u>LUO Guo-ping</u> ¹ , WANG Yi-ci ¹ , BAI Jin-bo ¹ , HAO Zhi-zhong ² , WU Hu-lin ²	1 Inner Mongolia University of Science and Technology 2 Baotou Iron and Steel (Group) Co.
7	Research on the Binding Phase Strength of Low Silicon Sinter of Baotou Iron and Steel (Group) Co.	<u>ZHANG Fang</u> , LUO Guo-ping, WANG Yi-ci, WANG Yong-bin, ZHU Ya-dong, ZHANG Shi-zhong	Inner Mongolia University of Science and Technology
8	Investigation on Air-Injection Feeding for Sintering of Iron Ores	<u>XU Bin</u> , WANG Jie-chao, CHANG Liang-liang, JIANG Tao, LI Qian, HOU Tong	Central South University
9	A New Quality Adjusting Process for Considerably Increasing Sinter Strength and Reducibility	<u>YIN Ming-dong</u> , GU Yun-song	Maanshan Iron and Steel Co., Ltd.
10	Research on Composite Agglomeration Technology of Baotou Steel Iron Ore Concentrates	<u>WU Hu-lin</u> , CHEN Ge, WANG Rui-jun, SHEN Mao-sen	Baotou Iron and Steel Company
11	Study on the Suitable Temperature of Oxidized Pellets Roasting	<u>FAN Xiao-hui</u> , MIN Gan, YUAN Li-shun, CHEN Xu-ling, etc.	Central South University
12	Fundamental Research on Applying Organic Binder SHN to Oxidized Pellets	<u>GAN Min</u> ¹ , FAN Xiao-hui ¹ , ZHANG Zhen-hui ² , ZHOU Xiao-jun ³ , WANG Yong-qing ³ , YU He-jia ³	1 Central south university 2 KeFa New Material Limited Company 3 ChenChao Pellets Plant
13	Influence of Dolomite on Pellets Firing Characteristics	YANG Yong-bin, <u>MENG Fei-vu</u> , JIANG Tao, etc.	Central South University
14	Pretreatment of Pyrite Cinder Before Pelletization by High Pressure Roller Grinding	<u>ZHU De-qing</u> , CHEN Dong, PAN Jian, LI Hou-qi	Central South University
15	Start-Up Practice of Coke Dry Quenching Shop	<u>XU Shun-guo</u>	Shanghai Meishan Iron & Steel Co.,Ltd.
16	Study on Preparation of High Strength Formed Coke	<u>YANG Yong-bin</u> , etc.	Central South University
17	Catalytic Effect Research of Minerals on Coke Reactivity	<u>ZHANG Lei</u> ¹ , WANG Wei-min ¹ , CUI Ping ²	1 Baoshan Iron & Steel Co., Ltd. 2 Anhui University of Technology
18	BD-RP New Dust Recycling Process	<u>WANG Dong-van</u>	Baoshan Iron & Steel Co., Ltd.
19	Study on Agglomeration and Reduction Roasting of Metallurgical Dusts and Sludge	<u>ZHANG Yuan-bo</u> , HU You-ming, HAN Gui-hong, etc.	Central South University

20	Recycling of Sludge Generated From Stainless Steel Pickling Process	LI Xiao-ming ¹ , MOUSA Elsayed ² , ZHAO Jun-xue ¹ , CUI Ya-ru ¹	1 Xi'an University of Architecture & Technology 2 RWTH Aachen University
21	The Reduction of PCDD/F Emission in Sinter-Making Process	ZHANG Chuan-xiu	Shanghai Baosteel Engineering & Technology Co.,Ltd.
22	The Mechanism of De-SO ₂ and De-NO _x with Solid Waste by Microwave Effect	JIN Yong-long , LIU Jin-xin, HAN Qing-hong, etc.	University of Science and Technology Liaoning
23	Cleaner Production Level and Potential in Baosteel Sintering Process	ZHOU Mao-jun , WANG Yue-fei	Baoshan Iron & Steel Co., Ltd.
24	Emission of SO ₂ From Iron Ore and Fuel Used in Sintering Process	ZONG Yan-bing , E Lin-lin, ZHANG Long, CANG Da-qiang, CHENG Xiang-li	University of Science and Technology Beijing
25	The Structural Optimization of Fcarse Swiveling Distributing Device of Annular Shaft Kiln	LU Jiang-hai , LI Sun-dong, WANG Rui	Baoshan Iron & Steel Co., Ltd.
26	Option of the Sintering Flue Gas Desulfurization Technology	ZHANG Hai-yan, SUN Jin-hua, LIU-Xuhua, LI-Yong	Shanghai Baosteel Engineering & Technology Co.,Ltd.

PartB Blast Furnace Ironmaking

1	Application of Micro-Pore Insulating Brick in Torpedo and Energy Conservation Analysis	LI Hai-feng ¹ , ZHOU Jun ¹ , ZHANG Mei-jie ² , HUANG-Ao ² , LIN Xiao-long ²	1 China University of Geosciences 2 Wuhan University of Science and Technology
2	The Law Discussion and Analysis of Burden Distribution Test of 5500m ³ BF	YAN Shu-wu , ZHANG Jian, SU Wei	Beijing Shougang International Engineering Technology Co.,Ltd.
3	Blow-in of Blast Furnace No.2 in Gerdau Acominas S A, Brazil	ZOU Zhong-ping ¹ , XI Bin ¹ , WANG Liang ¹ , Marcelo Alves de Carvalho ²	1 CISDI Engineering Co., Ltd. 2 Gerdau Acominas S.A.
4	Influence of the Change in Raw Material on Blast Furnace and the Countermeasures	LIN Cheng-cheng , WANG Shi-bin	Baoshan Iron & Steel Co., Ltd.
5	Discussing the Influence Factors of Flow Gas Distribution of QIAN GANG BF Throat	ZHANG Xue-song ¹ , ZHU Wei-chun ¹ , WAN Lei ² , WANG Wei-ping ²	1 Shougang Group 2 Qian'an Iron & Steel Co., Ltd.
6	Long Campaign Life and Running Smoothly by Adjusting Burden Distribution Regulation	SHANG Ce , ZHANG Yan-hui, JIN Guo-yi	Angang Steel Co., Ltd.
7	MAC Lump Properties Study and Plant Performance at Baosteel Stainless Steel (invited)	ZHANG Zheng-wei ¹ , HU Xiao-ming ¹ , DU Hong-jin ¹ , Honeyands Tom TA ² , LIN Li-quan ³	1 Baosteel Stainless Steel Company 2 BHP Billiton Newcastle Technology Centre 3 BHP Billiton China
8	Application and Research on Coal Blending Model for Pulverized Coal Injection of Blast Furnace	MA Ze-jun ^{1,2} , ZHU Wei- chun ² , MA Li ² , PAN Wen ² , WANG Dong-qing ²	1University of Science and Technology Beijing 2 Shougang Group
9	The Practice of Copper Cooling Stave Application for ShouGang No.2 BF	ZHANG He-shun, MA Hong-bin , CHEN Jun, ZHOU Ji-liang	Shougang Group
10	Manufacture and Application of the New Kind Cast Copper Cooling Stave for Blast Furnace	XU Liang-you , CHEN Xian-liang, RUAN Jun-da, CHEN Xue-bing	Shaoxing Shuguang Machinery Corporation, Ltd.
11	Longlife Technologies of Hearth Area for Blast Furnace at BenGang	LIU Qing-ve	Benxi Iron & Steel (Group) Co.,Ltd.

12	Study on Mechanics of “Elephant Foot Shaped” Erosion of BF Hearth	ZHAO Hong-bo ¹ , CHENG Shu-sen ¹ , ZHU Jin-feng ¹ , PAN Hong-wei ¹ , Wang Zi-jin ² , etc.	1 University of Science and Technology Beijing 2 Laiwu Steel Group
13	Application of TiO ₂ Nanoparticle Suspensions in BF Cooling Stave and Reducing Energy Consumptions	JIN Yi , ZONG Yan-bing, BAI Hao, CANG Da-qiang	University of Science and Technology Beijing
14	Optimization of Molten Iron Flow Behavior in Ladle With Blowing Gas	ZHANG Mei-jie ¹ , XIANG Wu-guo ² , HUANG-Ao ¹ , LIN Xiao-long ¹	1Wuhan University of Science and Technology 2 Wuhan Iron and Steel Corporation
15	Research and Application of 3D Simulation of Dynamic Imaging for the BF Burden Surface	LI Yi-wei ¹ , CHEN Xian-zhon WU Yun ² , LIU Feng-mei ²	1 Baoshan Iron & Steel Co., Ltd. 2 University of Science and Technology Beijing
16	Technology of High Blast Air Temperature for BF in Shougang Qian'an Iron and Steel Co.,Ltd	WANG Jian-min , MA Jin-fang, WANG Wei-ping, LU Fei	Shougang Qian'an Iron & Steel Co.,Ltd
17	Numerical Simulating the Effects of High Radiative Coating on Heat Transfer Process in Regenerator of BF Hot Stove	ZHOU Hui-min ¹ , ZHANG Hao ² , CANG Da-qiang ³ , BAI Hao ³ , WANGYuan- cheng ² , FANG Zhao-hong ² , ZHANG Hai-tao ⁴ , LIU Xin-hua ¹ , WANG Miao ³ , etc.	1 Shandong Huimin Science & Technology Co., Ltd. 2 Shandong Jianzhu University 3 University of Science and Technology Beijing 4 Shandong Shiheng Special Steel Group Co., Ltd.
18	The Development of China-Made Type SS (Mr. Seng) Blast Furnace Bell-Less Top Technology	SENG Quan-song	Beijing SS (Mr. Seng) Metallurgy Equipment Technology Co. Ltd.

PartC Alternative Ironmaking

1	Primary Study on Rational Use of COREX Export Gas	ZHOU Ji-liang , LI Guo-wei, ZHANG Dian-wei, LIU Wen-yun, SUN Jian	Shougang Group
2	Progress of Rotary Hearth Furnace Direct Reduction Technology	ZHANG Fu-ming ^{1,2}	1 Beijing Shougang InternationalEngineering Technology Co., Ltd. 2 University of Science and Technology Beijing
3	Solid State Reduction and Electric Furnace Smelting of V-Ti Magnetite Concentrate	GUO Yu-feng, Lü Ya-nan , JIANG Tao, QIU Guan-zhou, Dong Hai-gang	Central South University