

MONDAY MORNING 13 JUNE 2016

7.50	REGISTRATION
	PLENARY SESSION I Chairs: Eva Sundin and Pär Weiheid Session room: Stora salen
8.50	Opening speech <i>Eva Sundin (Swerea MEFOS)</i>
9.00	The future of steelmaking <i>Göran Carlsson (Swerea)</i>
9.25	Realising the turnaround: to develop raw materials into a major strength for Europe <i>Ernst Lutz (EIT Raw Materials)</i>
9.50	Material innovations in democratic design <i>Åsa Lidén (IKEA)</i>
10.15	Break
	PLENARY SESSION II Chairs: Nils Edberg and Göran Carlsson Session room: Stora salen
10.45	The European steel technology platform's strategic research agenda: A vision for the sustainable steel production 2030's <i>K Peters (ESTEP), E Malfa (Centro Sviluppo Materiali), V Colla (Scuola Superiore Sant'Anna), L Brimacombe (Tata Steel UK)</i>
11.10	Current status and prospects of Chinese steel industry <i>J Zhang, Z Liu, K Li, G Wang, K Jiao, T Yang (University of Science and Technology Beijing)</i>
11.35	Green manufacturing: recycling end-of-life polymers in steel making - an example of successful translation of research into industry <i>V Sahajwalla (UNSW)</i>
12.00	Lunch

Preliminary Technical programme

SCANMET V

5th International Conference on Process Development in Iron and Steelmaking

Including: 2nd International Process Integration Forum for the Steel Industry

12-15 June 2016, Luleå, Sweden

Arranged by
swerea | **MEFOS**

MONDAY AFTERNOON 13 JUNE 2016

	REDUCTION AND SEPARATION OF CO₂ Chairs: Hans-Bodo Lungen and Martin Pei Session room: Stora salen	SECONDARY METALLURGY I Chairs: Shin-ya Kitamura and Pär Jönsson Session room: Lilla salen	PROCESS GAS UTILIZATION Chairs: Carl Petersohn and Thomas Buerger Session room: Konsthall 1	FUNDAMENTALS Chairs: Joohyun Park and Timo Fabritius Session room: Konsthall 2
13.00	Keynote: CO₂ ultimate reduction in steelmaking process (COURSE50 project) <i>N Ishiwata (JFE Steel Corp.), N Kikuchi (Kobe Steel), S Tonomura (Nippon Steel & Sumitomo Met.), S Tomisaki (Nippon & Sumikin Eng.), Y Tomita (Nisshin Steel)</i>	Use of OES/PDA technique as an in-process control tool for measuring the cleanness level of critical steel grades <i>M M Pande, I Whiteside (Materials Processing Institute)</i>	Simulation and optimization of hot stoves in a steel plant <i>M Helle, H Saxén (Åbo Akademi University)</i>	Wetting behavior of carbon un-saturated iron on simulant coke substrate <i>C S Nguyen, K Ohno, T Maeda, K Kunitomo (Kuyshu University)</i>
13.25	The use of HIsarna hot metal in steelmaking <i>J W K van Boggelen, H K A Meijer, C Zeilstra, Z Li (Tata Steel)</i>	Predictions of the influence of bubble wake flow on the removal of inclusion <i>Y Xu, M Ersson, P G Jönsson (KTH Royal Institute of Technology)</i>	Optimization of stoves gassing system in Slovakia U.S. Steel Kosice plant <i>J Curilla, M Dulovic (U.S. Steel Kosice), G Guidugli, M Manolov (Primetals Technologies)</i>	Solid dissolution behavior under ultrasound irradiation conditions <i>K Okumura (Nagoya Institute of Technology)</i>
13.50	Polish perspective on process emissions in steel sector in the light of EU ETS <i>W Szulc, M Niesler (Instytut Metalurgii Zelaza)</i>	Fluid flow transport phenomena in argon-stirred steel ladles <i>L Zhang, H Duan (University of Science and Technology Beijing)</i>	Cloud based virtualization for the development of a process gas control system <i>P Lingman, R Ivaska (Optimation), G Lindberg, A Backman (SSAB Europe), J Marklund (Softronic)</i>	Interfacial phenomena between ionic solution and metal in electric field <i>E Takeuchi, H Konishi, H Kawabata, H Ono (Osaka University)</i>
14.15	Energy aspects of decarbonizing integrated steelmaking <i>L Hooy (Swerea MEFOS)</i>	Vibration-based assessment of gas stirring intensity in ladle treatment <i>V-V Visuri, M Pylvänäinen, T Liedes, J Laurila, K Karioja, S Pikkupeura, T Fabritius (University of Oulu), S Ollila (SSAB Europe)</i>	High oxygen enriched blast furnace with top gas recycling strategy <i>W Zhang, Z Xue, J Zhang, W Wang, C Cheng (Wuhan University of Science and Technology)</i>	Determination of the specific surface area of cokes and chars for simulated process conditions of blast furnace and smelting reduction routes <i>A Bhattacharyya, J Schenk (Montanuniversität Leoben), H Stocker (voestalpine Stahl Donawitz), C Thaler (voestalpine Stahl)</i>
14.40	Break	Break	Break	Break
	PROCESS INTEGRATION FORUM I Chairs: Ralph Sievering & Andy Cameron Session room: Stora salen	SECONDARY METALLURGY II Chairs: Adam Schwedler and Arashk Mempoour Session room: Lilla salen	CASTING AND SOLIDIFICATION I Chairs: Alan Scholes and Christer Nilsson Session room: Konsthall 1	AGGLOMERATION I Chairs: Hesham Ahmed and Erik Hjortsberg Session room: Konsthall 2
15.10	Keynote: The eco-techno-systemic services that steel plays in the energy system <i>J-P Birat (IF Steelman), H Lavelaine (ArcelorMittal)</i>	Effect of slag chemistry on desulphurization kinetics in secondary refining process <i>J H Park, J G Kang, J H Shin (Hanyang University), Y J Kang (Dong-A University)</i>	A different perspective for the development of continuous casting mold powders for high Al-containing steels <i>S II (Yonsei University)</i>	A new technology for minimizing additional air-suck into sinter machine <i>Y Gao (Qinhuangdao Sinter Tech.), L Zhang, D Cang (University of Science and Technology Beijing)</i>
15.35	Measuring and predicting eco-efficiency in crude steel production process <i>M Miczka, M Borecki (Instytut Metalurgii Zelaza), B Boryczko (Akademia Górniczo-Hutnicza)</i>	Improving RH out carbon by enhancing equipment reliability and process control <i>P Chanda, M Bilal, S Suresh, A K Giri, S Singh, S Sinha, A Khullar, V V Mahashabde (Tata Steel)</i>	Modelling of stress and temperature distribution in ingot casting with Thercast <i>L Hallgren, F Shahbazian, C-Å Däcker (Swerea KIMAB)</i>	Effect of magnetite, hematite and pellet screenings as feed in sinter production <i>M Pettersson, P Sikström (LKAB), V Ritz (SGA)</i>
16.00	Assessment of environmental impact in electric arc furnace steelmaking <i>E Malfa, F Cirilli, P Frittella, A Ventura (Centro Sviluppo Materiali), S Tosato, M Ciddio, F Praolini (TenarisDalmine)</i>	Study of clogging behavior in Ti bearing ultra low carbon steel <i>M Bilal, P Chanda, S Suresh, S K Singh, V Singh, V Jain (Tata Steel)</i>	New micro-mill concepts with belt casting technology (BCT®) <i>P Juchmann, U Grethe, R Schmidt-Jürgensen (Salzgitter Flachstahl), J Wans, C Geerkens, H Cremers, D Austermann, (SMS Group)</i>	Structure control of sintering bed by RF-MEBIOS technology for permeability improvement <i>K Hara, Y Yamaguchi, C Kamijo, M Matsumura, T Kawaguchi, K Higuchi, S Nomura (Nippon Steel and Sumitomo Metal), M Hara (Nippon Steel and Sumikin Koutetsu Wakayama)</i>
16.25	Carbon recycling from metallurgical waste gases into bio-fuel and chemicals <i>A Fleischanderl, T Plattner (Primetals Technologies Austria), P Nair, M Schultz (LanzaTech)</i>	Model-based online optimisation of VOD operating patterns <i>M Schlaumann, B Kleimt (VDEh-BFI), M Harpering, K Hermesen (Celano), L Schöttler, R Feist, C Wittkop (Deutsche Edelstahlwerke)</i>	Exploring opportunities in mould temperature monitoring utilizing Fibre Bragg Gratings <i>G Hedin, K Fröjd, J Pejnefors (Proximion), A Kamperman (Tata Steel), M Sedén (ABB)</i>	Recirculation of sinter off-gas - a selective approach <i>J Reidetschläger, E Fehrer, (Primetals Technologies Austria)</i>
16.50	Experience from PRISMA research center <i>M Larsson (Swerea MEFOS)</i>	New software and method for ladle treatment technology optimization <i>K Grigorovich (Baikov Institute of Metallurgy and Material Science RAS), O Komolova, D Gorkusha (National University of Science and Technology MISIS)</i>	Follow of gradual changes of features on slab surface by taking images of hot slabs during casting <i>J Moilanen, E Puukko (Outokumpu Stainless), P Hooli (Sapotech)</i>	Heat transfer experiments during induration of iron ore pellets in a pot furnace <i>U Sjöström (Swerea MEFOS)</i>
17.15	End of the first conference day	End of the first conference day	End of the first conference day	End of the first conference day
19.00 CONFERENCE DINNER				

TUESDAY MORNING 14 JUNE 2016

	BLAST FURNACE I Chairs: Jeeyoung Choi and Jarmo Lilja Session room: Stora salen	SECONDARY METALLURGY III Chairs: Ewa Sjöqvist Persson and Gunnar Lindstrand Session room: Lilla salen	RECYCLING I Chairs: Rizwan Janjua and Diana Örrling Session room: Konsthall 1	AGGLOMERATION 2 Chairs: Charlotte Andersson and Volker Ritz Sessions room: Konsthall 2
8.30	Strategic research on alternative reducing agents <i>L Sundqvist Ökvist (Swerea MEFOS), C Samuelsson, B Björkman, H Ahmed (Luleå University of Technology)</i>	<i>To be decided</i>	A solution to dust emissions from AOD and LMF slag handling: atomization <i>S Mostaghel, L C So, S Faucher, J Gour (Hatch), S Lee, S-Y Oh (Ecomaister)</i>	Briquetting - taking advantage of fine-grained residues in a sustainable manner <i>A Wedholm (SSAB Merox)</i>
8.55	Development research of solid fuel resources used for chinese blast furnace injection <i>J Zhang, T Xu, Z Liu, R Xu, T Song, C Zheng, J Guo, D Zhao (University of Science and Technology Beijing)</i>	Mechanical stirring in unbaffled vessels for efficient injection refining <i>Y Liu, , X Li, G Liu, P Shao, T Zhang (Northeastern University), M Sano (Nagoya University)</i>	Innovative solutions for valorization and environmentally friendly handling of iron and steelmaking slags <i>G Wimmer, A Fleischanderl, A Werner, J Schwelberger (Primetals Technologies Austria), I McDonald (Primetals Technologies UK)</i>	Circular pelletizing technology - the world's most compact pelletizing plant <i>M Faller, B Hiebl, R Redl, (Primetals Technologies Austria)</i>
9.20	Effect of particle fragmentation on pulverized coal combustion efficiency in blast furnace conditions <i>J-D Kim, M-Y Cho (POSCO), J-W Kim, B-H Moon, C H Jeon (Pusan National University)</i>	Dehydrogenation model for vacuum tank degasser <i>R Gobinath (JSW Steel), N N Viswanathan, N B Ballal (Indian Institute of Technology)</i>	PSP-BOF – Removal of phosphorus from BOF slag <i>R Pietruck (VDEh-BFI), M Magnusson, M Lindvall (Swerea MEFOS), H Schmid (Voestalpine Stahl), L Muotka (SSAB Merox)</i>	Sintering mechanism of magnetite pellets during induration <i>T K Sandeep Kumar, H Ahmed, B Björkman (Luleå University of Technology), N N Viswanathan (Indian Institute of Technology Bombay), C Andersson (LKAB)</i>
9.45	Optimization of coke quality for efficient BF operations <i>H Upadhyay, A K Bhagat (Jindal Steel and Power)</i>	Optimization of slag-metal reaction model for prediction of inclusion composition <i>J H Shin, J H Park (Hanyang University)</i>	Study on BF low temperature wasted heat recovery and its application <i>S Liu (Ivyquen Energy Saving Technologies Beijing), L Zang, D Cang (University of Science and Technology Beijing)</i>	Testing an organic binder to replace bentonite in iron ore pellets <i>M Iljana, A Kemppainen, T Fabritius (University of Oulu), T Paananen, O Mattila, E Pisiä (SSAB Europe), A Kuznetsov (Severstal), M Penttinen (Kemira)</i>
10.10	Break	Break	Break	Break
	BLAST FURNACE II Chairs: Henrik Saxén and Rutger Gyllenram Session room: Stora salen	PROCESS INTEGRATION FORUM II Chairs: Marcus Öhman and Timo Paananen Session room: Lilla salen	RECYCLING II Chairs: Leif Hunsbedt and Caisa Samuelsson Session room: konsthall 1	REDUCTION METALLURGY Chairs: Bo Sundelin and Mikael Pettersson Session room: Konsthall 2
10.40	Keynote: Numerical simulation of pulverized coal and natural gas co-injection in blast furnaces <i>C Q Zhou (Purdue University)</i>	Keynote: Bioenergy use in iron and steelmaking - opportunities and barriers <i>H Suopajarvi, A Kemppainen, J Haapakangas, T Fabritius (University of Oulu)</i>	Keynote: Possibilities with by-products from a swedish perspective <i>B Haase (Höganäs Sweden)</i>	Recent development in the evaluation of the high temperature properties of iron ore pellets <i>A Kemppainen, M Iljana, E-P Heikkinen, T Fabritius (University of Oulu), T Paananen, O Mattila (SSAB Europe)</i>
11.05	Comparison and evaluation of blast furnace operation parameters under different fuel injection conditions <i>C Wang (Swerea MEFOS), T Paananen, O Mattila, P Lagerwall, J Lövgren (SSAB Europe)</i>	Numerical study of biomass use in a steel plant <i>C-M Wiklund, M Helle, H Saxén (Åbo Akademi University), T Kohl, M Järvinen (Aalto University)</i>	Feasible routes of blast furnace sludge upgrading in light of its properties <i>A Andersson, H Ahmed, C Samuelsson, B Björkman (Luleå University of Technology)</i>	Reduction behavior of titanium and vanadium containing iron ore with methane <i>P Halli, P Taskinen, R H Eric (Aalto University)</i>
11.30	Experiment research on unburned pulverized coal and coke's co-reaction in blast furnace <i>Y Chai, J Zhang (University of Science and Technology Beijing), J Ma, J Zheng, J Wang, Y Wang (Qianan Iron and Steel Company of Shougang)</i>	Usage of biomass in cokemaking <i>M Schwarz, A Babich, D Senk, V Sadiku (RWTH Aachen University), P Gbadebo (Albert Handtmann Metallgusswerk)</i>	Selective hydrometallurgical extraction of Zn/Pb from blast furnace sludge <i>L Piezanowski, S Raynal, J Hugentobler, M Houbart (Paul Wurth)</i>	Clustering effect in iron ore pellets during reduction <i>R Kumar, V Roshan, A Chandra (NMDC)</i>
11.55	Fundamental study on blast furnace operation with coke oven gas injection <i>M Chu, H Wang, Z Liu, J Tang (Northeastern University)</i>	Potential substitution of cement with biomass lignin in the integrated steel plant briquettes <i>E Mousa, J Riesbeck, M Larsson (Swerea MEFOS), M Ahlroth (Innventia), A Wedholm (SSAB Merox)</i>	The DK process – an efficient and sustainable way to recycle iron containing dust and sludge <i>K-J Sassen, C Hillmann (DK Recycling und Roheisen)</i>	Combined chromium reduction and alloying of steel <i>X Hu, L Sundqvist Ökvist, J Eriksson (Swerea MEFOS), Q Yang, B Björkman (Luleå University of Technology)</i>
12.20	Lunch	Lunch	Lunch	Lunch

TUESDAY AFTERNOON 14 JUNE 2016

	NEW TECHNOLOGIES Chairs: Jean-Pierre Birat and Magnus Totti Session room: Stora salen	PROCESS INTEGRATION FORUM III Chairs: Mats Söderström and Ryan Robinson Session room: Lilla salen	RECYCLING III Chairs: Helen Axelsson and Fredrik Engström Session room: Konsthall 1	STAINLESS STEELMAKING Chairs: Olle Sundqvist and Hans Regtuit Session room: Konsthall 2
13.20	Corex® – an answer for hot metal production in a changing environment <i>W Sterrer, S John, J Wurm (Primetals Technologies Austria)</i>	Biomass utilization to mitigate the climate change for metallurgical industry - Research activities at Swerea MEFOS <i>C Wang, E Mousa, M Lundgren, L Sundqvist, M Larsson (Swerea MEFOS)</i>	Field experiments on suppression of hydrogen sulphide in silty sediments using steelmaking slag <i>Y Miyata, K Takahashi, K Watanabe (JFE Steel), T Yamamoto (Hiroshima University), A Hayashi (Hoshi University, N Urabe (Fukuyama City Office)</i>	Project transfer – Metallurgical aspects on transferring steel grades between steel plants <i>J Janis, A Löfgren (Outokumpu Stainless)</i>
13.45	Carbon recycling for converting coke oven gas to methanol for the reduction of carbon dioxide at steel mills <i>G Harp, K-C Tran, O Sigurbjörnsson (Carbon Recycling International), C Bergins, T Buddenberg (Mitsubishi Hitachi Power Systems Europe)</i>	A new charcoal making process <i>J Noldin (Lhoist), L G Sousa, H C Pfeifer (Minitec Minitecnologias)</i>	Vanadium in iron ore, a possibility or a problem, a new method to achieve a solution <i>E Åström (LKAB), E Hryha (Chalmers University of Technology), J Björkvall (Swerea MEFOS)</i>	A physical modelling study of mixing in an AOD vessel <i>V-V Visuri, E Isohookana, A Kärmä, T Fabritius (University of Oulu), T Haas (RWTH Aachen University), R Hürman Eric (Aalto University)</i>
14.10	STEPWISE: a European project on cost effective decarbonisation of blast furnace gas <i>P Cobden (ECN)</i>	Grinding and transport properties of wood char together with blast furnace PCI <i>O Mattila, V Vuorenmaa, T Paananen (SSAB Europe)</i>	Fundamental research on a new steelmaking slag recycling system by iron and phosphorus separation <i>Y Miki, K Nakase, A Matsui, N Kikuchi, Y Uchida (JFE Steel)</i>	Tailored Cr-alloys for the special steel industry <i>K Beskow, C-J Rick, H Kjellstorp, P Vesterberg (Uvån Hagfors Teknologi)</i>
14.35	IronArc – A promising ironmaking concept <i>S Santén, M Imris, M Swartling, B M Heegaard (ScanArc Plasma Technologies)</i>	Use of palm kernel shells as a substitute for charge coal in a 140 t DC electric arc furnace <i>T Echterhof, T Demus, H Pfeifer (RWTH Aachen University), L Schlinge, H Schliephake (Georgsmarienhütte)</i>	Kinetic assessment of manganese recovery from steelmaking slag by sulfurization and oxidation <i>S-J Kim, J Suzuki, X Gao, S Ueda, S Kitamura (Tohoku University)</i>	<i>To be decided</i>
14.05	Break	Break	Break	Break
	CASTING AND SOLIDIFICATION II Chairs: Fatemeh Shabazian and Robert Eriksson Session room: Stora salen	PROCESS INTEGRATION FORUM IV Chairs: Bjoern Debecker and Johan Sandberg Session room: Lilla salen	RECYCLING IV Chairs: Björn Haase and Veena Sahajwalla Session room: Konsthall 1	REDUCTION METALLURGY II Chairs: Leif Kolbeinsen and Anna Dahlstedt Session room: Konsthall 2
15.30	Keynote: Challenges linked to soft reduction on slabs and blooms to improve centre quality <i>B Rogberg, A Lagerstedt (Sandvik Materials Technology)</i>	Varying heat size in a melting shop with ingot casting <i>K Stenholm (Uddeholms)</i>	A novel method to use steel plant wastes and high ash coal for DR iron preparation <i>S Chakraborty, M K Sharma, V Suresh, C Sarkar (Visakhapatnam Steel Plant), M K Mitra, R Dey, B K Sarkar (Jadavpur University)</i>	Reduction mechanism of iron ore – plastic composite at lower temperature <i>T Murakami, Y Takyu, E Kasai (Tohoku University)</i>
15.55	A study to establish correlation between inter-columnar cracks in slabs and Off-centre defects in hot-rolled products <i>D Bhattacharya, T K Roy, V V Mahashabde (Tata Steel)</i>	A techno-economic comparison of CO2 emission reduction concepts for an integrated iron and steel mill <i>A Arasto, E Tsupari, K Onarheim, J Kärki (VTT)</i>	Enhancement of the EAF dust recycling in self-reducing briquettes by controlling their hydration behaviour <i>V Piret (CRM Group), M Lopes (Aperam R&D)</i>	Experimental research of microwave heating reduced steel slag with black carbon <i>Y Chen, F Han, L Jiang, Z Wei (Beifang University for Nationalities), Q Yang (Luleå University of Technology)</i>
16.20	Analysis of thermo-mechanical rigidity of continuously cast steel slabs <i>M O El-Bealy (Chair Companies of Materials Processing)</i>	BioDRI: Forestry meets steel. Evaluation of possible DRI production using gasified biomass <i>C E Grip (Luleå University of Technology), H Salman (HKS Energy Consulting and Sveaskog), L-E Johansson (BillrudKorsnäs), O Ritzen (AGA Gas), M Tottie (LKAB), R Robinson (Höganäs), H Winnika (SP ETC), J Orre (Swerea MEFOS)</i>	Preliminary evaluation of applying OxyCup® process to recycle and reuse Zn-containing residues at SSAB Raahe <i>J Lilja (SSAB Europe), C Wang (Swerea MEFOS), R Jennes (Küttner)</i>	Influence of additives and basicity on iron ore pellet properties in metallurgical tests and in the LKAB Experimental Blast Furnace® <i>J Wikström, E Åström, M Tottie (LKAB)</i>
16.45	End of the second conference day	End of the second conference day	End of the second conference day	End of the second conference day
17.00 VISIT TO SWEREA MEFOS				

WEDNESDAY MORNING 15 JUNE 2016

	BLAST FURNACE III Chairs: Jan Van der Stehl and Peter Sikström Session room: Stora salen	BOF STEELMAKING I Chairs: Seppo Ollila and Bo Björkman Session room: Lilla salen	CASTING AND SOLIDIFICATION III Chairs: Pavel Ramires Lopez and Paavo Hooli Session room: Konsthall 1	EAF Chairs: Enrico Malfa and Hongliang Yang Session room: Konsthall 2
8.30	Investigation of microstructure of coals for injection and its influence on the conversion behaviour <i>H T Ho, A Babich, D Senk (RWTH Aachen University)</i>	An operational view on foaming and slopping control in the LD process <i>M Brämning (Swerea MEFOS)</i>	Development of enhanced mold flow control in slab casting <i>M Sedén, J-E Eriksson (ABB), A Kamperman, E Dekker (Tata Steel Europe), J Pejnefors, K Fröjd (Proximion)</i>	Keynote: R&D on EAF after 15 years of RFCS supported projects <i>I Heintz, E Sandberg, J Björkvall (Swerea MEFOS), B Kleimt, H Köchner (VDEH-BFI), A Di Donato, M De Santis, P Frittella (CSM), C Fricke-Begemann (Fraunhofer), T Echterhof, K Gandt (RWTH Aachen), J-C Pierret (CRM)</i>
8.55	Optimum nut coke for the iron making blast furnaces <i>D J Gavel, Q Song, J Sietsma, R Boom, Y Yang (Delft University of Technology), L Bleijendaal, B Gols, J van der Stel, (Tata Steel Europe)</i>	Design considerations of supersonic oxygen lances for a basic oxygen furnace (BOF) <i>T Bhattacharya, B Chukwulebe (ArcelorMittal Global R&D), L Zhan (Avatar Works)</i>	Recent developments on contactless inductive flow tomography for continuous casting <i>T Wondrak, M Ratajczak, F Stefani, K Timmel, S Eckert (Helmholtz-Zentrum Dresden-Rossendorf)</i>	Performance test results of ArcSave® technology in electric arc furnace steelmaking <i>L Teng, H Hackl, J-E Eriksson (ABB), P Ljungqvist, J Andersson (Outokumpu Stainless), M Meador (Steel Dynamics)</i>
9.20	Coke analogue reactivity and effect of Ca in coke analogue reactivity <i>B J Monaghan, A S Jayasekara, R J Longbottom (University of Wollongong)</i>	Exchange of converters at SSAB Europe Oy, Finland <i>G Wimmer, D Jakob, C Bruckner, (Primetals Technologies Austria), S Ollila, H Pärkkä (SSAB Europe)</i>	Liquid metal modelling of the continuous casting process <i>K Timmel, B Willers, N Shevchenko, M Röder, T Wondrak, S Eckert (Helmholtz-Zentrum Dresden-Rossendorf)</i>	Electromagnetic slag detection system stabilizes furnace slag carryover and improves effective secondary metallurgy at Höganäs atomizing plant in Halmstad <i>F Persson, F Cederholm (Höganäs), P Bloemer, J-P Nilsson, A Lyons (Agellis Group), M Görnerup (Metsol)</i>
9.45	Innovative tools for process optimization - burden surface scanning via beam forming radar and measurement of the top gas temperature distribution <i>C Feilmayr, S Schuster, V Ganglberger, B Lackner, L Stegellner (voestalpine Stahl), D Zankl (Johannes Kepler University)</i>	Computational modeling of multiphase flow in oxygen steelmaking converter <i>Q Li, M Li, Z Zou (Northeastern University)</i>	Flow dynamics analysis of continuous casting process through modelling <i>P Jalali (Swerea MEFOS)</i>	The optimization of AC EAF process charging pig iron for special steel in Hyundai Steel <i>C H Wee, J O Jo, D H Shin, J D Kim, T M Kim, J J Kim, J H Ahn (Hyundai Steel)</i>
10.10	Break	Break	Break	Break
	BLAST FURNACE IV Chairs: Pinakin Chaudhary and Ira Kaplashrami Session room: Stora salen	BOF STEELMAKING II Chairs: Anna Carlsson Dahlberg and Johan Eriksson Session room: Lilla salen	CASTING AND SOLIDIFICATION IV Chairs: Anders Lagerstedt and Ulf Sjöström Session room: Konsthall 1	INCLUSION I Chairs: Andrey Karasev and Guozhu Ye Session room: Konsthall 2
10.40	Characterization of the cohesive zone status of ironmaking blast furnaces through DEM-CFD simulation <i>Y Yang, Y Enqvist, R Boom (Delft University of Technology), A Adema, J van der Stel (Tata Steel R&D)</i>	Dynacon-Lomas system enables sustainable process optimization at SSAB Luleå, Sweden <i>R Hubmer, K Wohlfart (Primetals Technologies Austria), G Lindberg (SSAB Europe)</i>	Revisiting key lubrication concepts to understand the role of flow, heat transfer and solidification on defect formation during continuous casting <i>P Ramirez Lopez (Swerea MEFOS)</i>	Ladle age effects on stirring and inclusions <i>J Alexis (Swerea MEFOS)</i>
11.05	The impact of H₂ and H₂O on coke gasification in the blast furnace shaft <i>J Haapakangas, H Suopajarvi, T Fabritius, (University of Oulu), O Mattila (SSAB Europe)</i>	The effect of MgO-C refractory quality and operating parameters on the lining life of LD-converter <i>K Dolui, R Sivakumar, B Shetia (Visakhapatnam Steel Plant), A Ghosh, M K Haldar, H S Tripathi (CSIR-Central Glass & Ceramic Research Institute)</i>	Thermodynamics of formation of spinel layer at the interface between alumina refractory and calcium aluminosilicate slags containing manganese oxide <i>J H Park, J H Heo (Hanyang University), J S Park (Kitech)</i>	In-situ observation of inclusions in bearing steel <i>Z P Chen, Y-T Xu, G-W Yang (Baoshan Iron & Steel)</i>
11.30	Drain rate and liquid level simulation in blast furnace hearth <i>H Upadhyay (Jindal Steel & Power), T K Kundu (Indian Institute of Technology)</i>	Successful revamp of submerge manipulators for the LD converters at voestalpine Stahl GmbH: operational experience gained in the first year <i>M W Egger, J Lehner, H Nograthig (voestalpine Stahl), A Priesner, H Lechner, G Wimmer (Primetals Technologies Austria)</i>	The influence of SEN and upnozzle design on the flow character for the slab quality <i>Y Yu, Z Zhong (Baoshan Iron and Steel)</i>	Differences in inclusion morphology between ESR remelted and ingot casted common martensitic stainless steel <i>E Sjöqvist Persson (Uddeholms), H Fredriksson (KTH Royal Institute of Technology), A Mitchell (UBC)</i>
11.55	Experimental study on blast furnace liquid flow <i>A Morcel, L Sundqvist Ökvist (Swerea MEFOS), M Henriksson (LKAB)</i>	Evaluation method for cost-optimal BOF lining lifetime <i>L Määttä, H Pärkkä (SSAB Europe)</i>	A new design of submerged entry nozzle with swirling flow by using turboswirl in continuous casting <i>H Bai, M Ersson, P G Jönsson (KTH Royal Institute of Technology)</i>	Investigation of dynamic change of non-metallic inclusions during gentle rinse <i>B Chukwulebe, H Hwang, K Bury, J Macino, T Zahurak (ArcelorMittal)</i>
12.20	Lunch	Lunch	Lunch	Lunch

WEDNESDAY AFTERNOON 15 JUNE 2016

	COKE MAKING Chairs: Tobias Hilding and Olli Mattila Session room: Stora salen	BOF STEELMAKING III Chairs: Magnus Heintz and Niklas Kojola Session room: Lilla salen	CASTING AND SOLIDIFICATION V Chairs: Sven-Olof Eriksson and John Bustnes Session room: Konsthall 1	INCLUSION II Chairs: Jimmy Gran and Jonas Alexis Session room: Konsthall 2
13.20	Keynote: Current status and future perspective of Japanese cokemaking technology <i>S Nomura (Nippon Steel & Sumitomo Metal)</i>	Studies of effects of calcium ferrite pellets on dephosphorization of hot metal during pretreatment in the BOF converter <i>W Wu, J Zeng (Central Iron and Steel Research Institute), Q Yang (Luleå University of Technology)</i>	Modification of skin panel production route for debottlenecking and yield improvement <i>P K Tripathy, Y Javed, V V Mahashabde, S Pathak (Tata Steel)</i>	Agglomeration of non-metallic inclusions in pure iron/steel melts: a theoretical study of capillary force calculation <i>W Mu, N Dogan, K S Coley (McMaster University)</i>
13.45	The study of effective operation for burning-off deposited carbon in coke oven <i>D-H Wang (China Steel), Y-W Chuang, S-Y Hsu (Sun Yat-Sen University), C-H Tsai (National Pingtung University of Science and Technology)</i>	Analysis on factors affecting hot metal dephosphorization in converter in “Full-Tri-De” process of Shougang Jingtang Steel Corporation <i>Y Liu, Lei Luo, B Zhang (Shougang Jingtang United Iron and Steel Company)</i>	Physical and numerical fluid flow and mass transfer modeling in continuous casting mold <i>L D de O. Campos (ArcelorMittal Global R&D), P Gardin, J P Caltagirone (University of Bordeaux I), S Vincent (University of East Paris)</i>	Effect of substrate phase on the dynamic wetting of CaO-Al₂O₃-SiO₂-MgO slags <i>B J Monaghan, H Abdeyazdan, R J Longbottom (University of Wollongong), N Dogan (McMaster University), M A Rhamdhani (Swinburne University of Technology), M W Chapman (BlueScope)</i>
14.10	Effects of non-coking coal and hypercoal addition on the properties of metallurgical coke <i>M Hamaguchi, N Kikuchi (Kobe Steel), M Lundgren, L Sundqvist Ökvist (Swerea MEFOS)</i>	<i>To be decided</i>	Elimination of tiny crack in ultra low carbon steel for automotive application <i>S Suresh, T K Roy, V Balakrishnan, S M Reddy, V V Mahashabde (Tata Steel)</i>	Prevention of alumina clogging of submerged entry nozzle by electric current pulses <i>W Dai, X Yang, G Tang, D Jia, J Yu (Northeastern University), X Zhou (Meishan Steel Plant)</i>
14.35	Relationships of cracks and pores in metallurgical coke <i>S Gornostayev, J Heino, T Fabritius (University of Oulu)</i>	The optimization for BOF process in Hyundai Steel <i>J O Jo, C H Wee, C O Lee, J D Kim, J G Won, J H Ahn (Hyundai Steel)</i>	A new tundish design to produce a swirling flow in the SEN during continuous casting of steel <i>P Ni, L Jonsson, M Ersson, P Jönsson (KTH Royal Institute of Technology)</i>	Assessment of non-metallic inclusions in different industrial steel grades by using the electrolytic extraction method <i>A Karasev, Pär Jönsson (KTH Royal Institute of Technology)</i>
15.00	Closing remarks Session room: Stora salen			
15.15 END OF THE CONFERENCE				