

# May 21<sup>st</sup> - Monday

## OURO PRETO AUDITORIUM

08:30 am The CSA steel plant project - Michael Loecken (THYSSENKRUPP CSA)  
 09:00 am Overview on the Development of the Brazilian Steel Industry - Marco Polo de Melo Lopes (IBS)  
 09:30 am Mini mill - Henrique Carlos Pfeifer (MINITEC)

10:00 am **COFFEE-BREAK** 

	TIRADENTES ROOM	OURO PRETO AUDITORIUM	TIRADENTES ROOM
	TECHNICAL SESSION ELECTRIC STEELWORKS	TECHNICAL SESSION SOLIDIFICATION / CASTING	TECHNICAL SESSION OXYGEN STEELMAKING
10:30 am	<b>Introduction of oxygen measurements on the eaf of Vibasa</b> Octávio Alves Júnior, Rodolfo da Fonseca Rezende (HERAEUS ELECTRO-NITE), César da Silva Alves Leandro, Antonio Sergio Hering Kvacek, Hélio Medeiros Júnior (AÇOS VILLARES)	<b>Danieli new technologies in thick slab casting and reference plants</b> - Carlo P. Piemonte (DANIELI - DAVY DISTINGTON)	<b>Application of neural network in optimization of converter's dynamic control model</b> - Ana Cristina Misson, Celso Dias Barão, Marcos Antônio Viana Júnior (CST - ARCELOR BRASIL)
11:00 am	<b>Use of the tool of simulation for optimization of the implantation of the equipments and processes of the Meltshop of the Simara Steel Plant</b> - Fernando Souza Cândido, Milton Carlos de Almeida Lima (SIMARA), Michel d'Audenhove (BELGE)	<b>Continuous casting of thin strips in a laboratory scale single belt machine</b> - Átilla Pinheiro Nunes, Eduardo Magalhães Almeida, Thiago Chaves Camargos, Harley Sânio Oliveira dos Santos, Roberto Parreiras Tavares (UFMG)	<b>Improvement in performance of the tapping system at Port Talbot Steelworks</b> - Michael M. Berger, Christian Rahm (RHI)
11:30 am	<b>The behaviour of the secondary metallurgy slag into the EAF. How to create a good foamy slag with the appropriate basicity using a mix of lime and recycled ladle slag as EAF slag former</b> - Marta Guzzon, Francesco Memoli (TECHINT), Veena Sahajwalla, Michele Pustorino (FHE FREITAS & HEER ENGENHARIA)	<b>Steel refining practice to produce peritectic steel at Usiminas steel shop</b> - Sérgio Luiz de Souza Costa, Eugênio Pacelli Meireles de Araújo, Adilson Yukishigue Suda (USIMINAS)	<b>Optimisation of bof productivity using pig-iron in the metallic charge</b> - Leandro Peixoto Almeida, Fabrício Batista Vieira, Ronaldo Santos Sampaio, Guilherme Borges da Costa (V&M DO BRASIL)
12:00 am	<b>Eaf stainless steel foaming slag*New technique, high efficient technology*</b> - Jan Reichel, Lutz Rose, Jens Kempken (SMS DEMAG), Max Antonio Damazio, Rogério Geraldo Carvalho, Hélio Braz Loss, Edilberto Magos Pinto, Janeir Ribeiro Dutra (ACESITA), Mirosław Karbowniczek (AGH UNIVERSITY OF SCIENCE AND TECHNOLOGY)	<b>Incidencia del (CO3)2Ba sobre las propiedades físicas y la cristalización del polvo colador a temperaturas de operación</b> Elena Brandaleze, Alejandro Martín, Marcelo Valentini (IAS), Gustavo Di Gresia (TERNIUM-SIDERAR)	<b>Evaluation of the decarburization curve of Gerdau Barão de Cocais 30 toneladas LD converter</b> - Breno Totti Maia, Lúcio Bonifácio Pastor (GERDAU BARÃO DE COCAIS), Jairo Átilla Alvarenga (UFMG)

12:30 pm **LUNCH-BREAK** - **DANIELI**  - OURO MINAS PALACE HOTEL

	TECHNICAL SESSION SECONDARY REFINING	TECHNICAL SESSION SOLIDIFICATION / CASTING	TECHNICAL SESSION OXYGEN STEELMAKING
02:00 pm	<b>Electrochemical oxygen sensors - a review of the literature</b> - Octávio Alves Júnior (HERAEUS ELECTRO-NITE)	<b>Improvement in steel cleanliness in ladle and slab casting processes by electromagnetic force</b> - Hongliang Yang, Anders Thrum (ABB)	<b>Steel Plant operational procedures for hot metal ratio improvements during the blast furnace 3 repairing</b> - Andersom de Almeida Lazaroni, Antônio Carlos Sant'anna da, Otávio Machado Filho (CSN)
02:30 pm	<b>The blue-line purge plug development and the vibro-dense-bottom concept</b> - A. Webster (SIGMAREF SERVICE GROUP), R. Handler (PA-HA-GE), P. Leite (VAMTEC)	<b>How to improve steel cleanliness in CC mould? - Arcelor research past experience and new recent developments</b> - M. Simonnet, Jean-Marie Galpin, M. Anderhuber, P. Gardin, JF. Domgin (ARCELOR)	<b>The use of marble waste and steel scale in the dephosphorization of hot metal</b> - José Roberto de Oliveira (CEFET-ES), Jorge Alberto Soares Tenório, Rafael de Mello Pieslak (EPUSP)
03:00 pm	<b>Influence of different plug positions in the hydrogen removal during degassing</b> - André Masi Celiberto, Frederico da Silva Machado Júnior, Rodrigo Belloc Soares (GERDAU AÇOS ESPECIAIS PIRATINI), Rafael Skrzek Sicornski, Leonardo Barboza Trindade (STE), Antônio César Faria Vilela (UFRGS)	<b>Numerical model of the mould electromagnetic stirring at V&amp;M do Brasil S.A.</b> - Osvaldo Alves Ferreira Neto, Pierre Acknin, Fabrício Batista Vieira, César Nery de Abreu, Rubens de Paula Machado, Diogo Passagli, Luis Carlos de Mendonça (V&M DO BRASIL), José Ernesto de Azevedo Nadalon, Leonardo Barboza Trindade (STE), Ângelo Morrone (FC&I - FAZER CIÊNCIA E INOVAÇÃO)	<b>Improvement of the converter process at Arcelor Mittal FOS sur mer steelmaking plant</b> - Mabelly Pierre, Bertrand Bele, Raoul Comparini, Eric Perrin, Samuel Da Silva (ARCELOR MITTAL)
03:30 pm	<b>Thermodynamics of magnesium in steel and its effects on the formation of non-metallic inclusions</b> - André Luiz Vasconcellos da Costa e Silva (EEMVR-UFF)	<b>Minimization of hybrid production during steel grade intermixing in the tundish</b> - Lawrence Heaslip, James Dorricott, Johan Richard, John Rogler (ADVENT PROCESS ENGINEERING), Wender Andrade Alves (VESUVIUS)	<b>Improvements of the bottom stirring at CST - Arcelor Brasil Plant</b> - David Hagué (CST - ARCELOR BRASIL), Robson Dettogne de Nascimento (MAGNESITA)

04:00 pm **COFFEE-BREAK** 

04:30 pm	<b>SPAAQ - A support tool for the control and the optimization of the secondary refining stage of the steelmaking process</b> - Rafael Skrzek Sicornski, Ismael Lis Alves Daoud, José Ernesto de Azevedo Nadalon, Leonardo Barboza Trindade (STE)	<b>New CC mould systems for long products</b> - Adrian Stilli (CONCAST)	<b>Exchange of the 130 T LD converters at Belgo - Joao Monlevade works with a new VAI-CON® link suspension system</b> - Augusto Espeschit de Almeida, Sergio Mauricio Stehling, Clesio Túlio Vicente Maria (BELGO - ARCELOR BRASIL), Jörg Schwelberger, Geraldo Bicalho, Günther Staudinger, Rudolf Gruber (SIEMENS VAI)
05:00 pm	<b>Development of the synthetic slag Vamflux BP to refining of steel into ladle furnace at Belgo - Arcelor Brasil, Piracicaba Steel Plant</b> - "Pedro José Nolasco Sobrinho, Gérson Ceslau Rusky, Marcos Vinicius Rocco, Osmar Coura de Oliveira, "Humberto Henrique Ferreira de Assis Procópio (VAMTEC), José Márcio Garcia de Campos, Carlos Eduardo D'Elboux Rochelle, Delmar Barros Ribeiro (BELGO - ARCELOR)"	<b>Modificación del sistema de oscilación de la máquina de colada continua aplicado en aceros para alambres para trellería</b> - Harold Ayerve V. (ACEROS AREQUIPA)	<b>End of blow phosphorus estimation model in CST Arcelor Brazil Steelmaking Plant</b> - Breno Rosa, Aparecido Tsutomu Nakamura, Jayme Alves de Souza Júnior, Walter Luiz Corrêa Júnior, Letícia Melo Piccini, Gean Kenis de Oliveira (CST - ARCELOR BRASIL)
05:30 pm	<b>New concept for high-productivity RH plants</b> - Christian Schrade, Markus Huellen, Zulfiadi Zulhan (SIEMENS VAI)	<b>Mathematical and physical modeling of grade transition in continuous casting</b> - Amilton Carlos Pinheiro Cardoso Filho, Flávio Ferreira Policarpo, Harley Sânio Oliveira dos Santos, Roberto Parreiras Tavares (UFMG)	<b>BOF post combustion oxygen lances as a production and maintenance tool</b> - Louis S. Valentas, John A. Barbus, Jeff A. Jones (BERRY METAL COMPANY)
06:00 pm	<b>Advanced RH technology</b> - Rainer Dittich, Rainer Teworte, Dieter Tembergen, Thomas Eichert, Volker Wiegmann (SMS MEVAC)	<b>Mathematical model of intermix zone in continuous casting</b> - Vinicius de Oliveira Cravo, Afrânio Marcio Costa, Dimas Bahiense Moreira (CST - ARCELOR BRASIL), Varadarajan Seshadri (UFMG), Itavahn Alves da Silva, Carlos Antônio da Silva (UFOP)	<b>Reducción de residuales de vanadio en aceros de alto carbono por adición de dolomita al proceso de convertidores</b> - Javier Concha, Osvaldo Gaete, Milenko Grbic (COMPAÑÍA SIDÉRÚRGICA HUACHIPATO), Juan Navarrete, Mario Sánchez (UNIVERSIDAD DE CONCEPCIÓN)

08:00 pm **DINNER** -  - **IMPERADOR**

# May 22<sup>nd</sup> - Tuesday

## TIRADENTES ROOM

### TECHNICAL SESSION: ELECTRIC STEELWORKS

## OURO PRETO AUDITORIUM

### TECHNICAL SESSION: SECONDARY REFINING

## TIRADENTES ROOM

### TECHNICAL SESSION: SOLIDIFICATION / CASTING

08:30 am	<b>Metallurgy to electric meltshop - Moderns concepts</b> - Fernando Souza Cândido (SIMARA), Lauro José de Sales Chevrant (CHEVRAND TECNOLOGIA SIDERÚRGICA)	<b>Physical simulations of fluid flow and decarburization in a RH degasser</b> - André Afonso do Nascimento, Henrique Loures Vale Pujatti, Roberto Parreiras Távares (UFMG)	<b>Metallurgical performance of single and dual-coil ems with submerged pour casting of high carbon steel billets</b> - Jean Moreault (MITTAL CANADA), Len Beitelman (ABB)
09:00 am	<b>The practice of carbon injection and post combustion in order to achieve a metallic yield recovery in the electric arc furnace: the experience of Amsteel Mills (Malaysia)</b> - Loh Fook Guan, Pong Chung Kuan, Cheong Wai Meng (AMSTEEL MILLS), Francesco Memoli, Ovidiu Negru (TENOVA – TECHINT GROUP)	<b>Effect of temperature and reducing agent in the recovery of chromium from dusts generated during stainless steel production</b> - Marcelo Carboneri Carboni (AÇOS VILLARES), Pedro José Nolasco Sobrinho (VAMTEC), Rafael de Mello Pieslak, Jorge Alberto Soares Tenório (EPUSP), Denise Croce Romano Espinosa (JFOP)	<b>Application of technological packages in slab-caster upgrades</b> - Andreas Jungbauer, Andreas Flick, Oliver Schulz, Lawrence Gould (SIEMENS VAI)
09:30 am	<b>A new era for the continuous scrap charge: the definitive success of Constee<sup>®</sup> technology and its expansion in Europe from a productivity and environmental perspective</b> - Francesco Memoli (TENOVA – TECHINT GROUP), Jorge Villares de Freitas (FHE FREITAS & HEER ENGENHARIA)	<b>Study of modification of alumina inclusions with calcium in laboratorial scale</b> - Wagner Viana Bielefeldt, Leomar Marcon, Antônio Cezar Faria Vilela (UFRGS)	<b>Evaluation of carbon effect on mould flux for continuous casting of steel</b> - Maria Carolina Campello Bezerra, Cláudio Antônio Goulart Valadares (CARBOOX), Jose Deodoro Trani Capocchi (EPUSP)
10:00 am	<b>Danieli steelmaking technologies with operational safety focus</b> - Guilherme Reis (DANIELI DO BRASIL), Carlo Travaglini (DANIELI CENTRO MET), Massimo Iacuzzi (MORE)	<b>Analysis using computational thermodynamics of the effect of slag basicity on the reduction of slags from the MnO-FeO-SiO<sub>2</sub> system</b> - Marcelo Carboneri Carboni (AÇOS VILLARES), José Roberto de Oliveira (CEFET-ES), Denise Croce Romano Espinosa, Jorge Alberto Soares Tenório (EPUSP)	<b>Increase of maximum casting time through optimization of use of a submerged entry nozzle</b> - Ideraldo Luiz Bastos da Cruz, Fernando Antônio M. Moraes, Nilson Rodrigues, Antônio Eustáquio Vidigal (BELGO ARCELOR BRASIL - USINA DE MONLEVADE), Evander Caires Damasceno (INDG), Cleber Perdigão Martins, Lucas Vieira Penna (VESUVIUS)

10:30 am **COFFEE-BREAK** 

### TECHNICAL SESSION: ELECTRIC STEELWORKS

### TECHNICAL SESSION: OXYGEN STEELMAKING

### TECHNICAL SESSION: SOLIDIFICATION / CASTING

11:00 am	<b>Modernization of the electric arc furnace of cell 1 at Villares Metals</b> - Dr. Wilfried Meyer, Marco Antonio, Almir Murari (VILLARES METALS), Jörg Schwelberger, Joachim Wallisch (SIEMENS VAI), Richard Krump, Christoph Sedivy (VATRON)	<b>The EOF process - efficient and versatile</b> - Sergio W. G. Scherer, Henrique Carlos Pfeifer, Luiz Rogério Colombo Souza (MINITEC)	<b>Utilization of flux modifier in the tundish of the continuous caster from Aços Villares - Pindamonhangaba Plant</b> - Wender Andrade Alves (VESUVIUS), Alexandre Gustavo Mansur, Ricardo Robson da Silva Oliveira, João Moreira da Motta (AÇOS VILLARES)
11:30 am	<b>High-Tech Danieli FastArc™ EAF</b> - Carlo Travaglini, Marco Sattolo (DANIELI CENTRO MET), G. Reis (DANIELI DO BRASIL)	<b>SISCOL - One million tonnes steel expansion through energy optimizing furnaces</b> - Dr. R Marappan (GOVERNMENT COLLEGE OF ENGINEERING), Henrique Carlos Pfeifer (MINITEC), Vijay Sharma (SISCOL)	<b>Development of new design for steel flow control solutions for tundishes of CSN's n° 4 caster</b> - Antônio Carlos Sant'anna da Silva, Elcio Santana, Noraldo Hipólito Guimarães Gomes (CSN), Samuel Bento Rezende Nogueira, Sérgio Tinoco Barbosa, Wender Andrade Alves (VESUVIUS)
12:00 pm	<b>Eaf thermal balance - Easy and smart</b> - Lauro José de Sales Chevrant (CHEVRAND TECNOLOGIA SIDERÚRGICA), Fernando Souza Cândido (SIMARA)	<b>Latest design aspects of the AOD steelmaking converter</b> - G. Staudinger, S. Dimitrov (SIEMENS VAI)	<b>Tundish sequence length increase for AI killed and Ti-SULC grades at ARCELOR MITTAL Fos sur mer steelmaking plant</b> - Perrin Eric, Blumenfeld Philippe, Bonniot Carole, Mabely Pierre, Ohier Sebastien (ARCELOR MITTAL)
12:30 pm	<b>Thermal and mass balance of the water cooled system of upper shells, roofs and ducts: an important operational instrument</b> - Joaquim Luiz Monteiro de Barros Júnior, Wilson Leandro da Silva (KONUS ICESA)	<b>The EOF process at Gerdau Divinópolis: 25 years operation and 10 million t of steel produced</b> - Henrique Carlos Pfeifer, Sérgio W. Garcia Scherer (MINITEC), José Dimas Bechelaine, Claudio Leite (GERDAU)	<b>Continuous temperature measurement of liquid steel in the tundish by using infrared pyrometer</b> - José Raposo Barbosa, Adilson Yukishigue Suda, Marlon Odilon Xavier Silva (USIMINAS)
01:00 pm	<b>Elimination of the projection of refractory mass in electric arc furnaces</b> - Gilson Neves da Silva, Anderson Barbosa, André Souza (METSU)		<b>Reduction of surface discontinuity scrapping index in bars originating from melt shop through DOE (Design of Experiments)</b> - Valdir Anderson Silvério, Eduardo da Silva Pereira Duarte, Marcelo Carboneri Carboni, Carlos Roberto Santos, Geraldo Gomes de Oliveira Jr., Nicolau de Almeida Santos (AÇOS VILLARES)

14:00 pm **BARBECUE** -  **SGL GROUP** - THE CARBON COMPANY - **CLUBE DO IPÊ**

# May 23<sup>rd</sup> - Wednesday

## TIRADENTES ROOM

### TECHNICAL SESSION ELECTRIC STEELWORKS

## OURO PRETO AUDITORIUM

### TECHNICAL SESSION SOLIDIFICATION / CASTING

## TIRADENTES ROOM

### TECHNICAL SESSION OXYGEN STEELMAKING

08:00 am	<b>Auto-binding properties of different types of steelmaking slags</b> - Vsevolod Myrmine, Haroldo A. Ponte (UNIVERSIDADE FEDERAL DO PARANÁ)	<b>Reduction of emergency cut-off from the torch cutting machine at Belgo Monlevade</b> - José Eustáquio de Oliveira, George Frank Lucardie, Ildeu Caetano de Mattos, Luiz Carlos Guimarães, Eduardo Grigório, Evaldo Alves da Silva, José de Oliveira Mendes, Jose Geraldo Torres (BELGO ARCELOR BRASIL - USINA DE MONLEVADE), Cláudio José de Oliveira (CONTEPE)	<b>The metallic antioxidants effects of the Al2O3-SiC-C bricks properties</b> - Geraldo Majela de Sá, Marco Antônio Quintela, Alairton José Valadares (USIMINAS), Antônio Valadaão Cardoso (CETEC-MG)
08:30 am	<b>Clean production and life cycle analysis: tools for environmentally sustainable steelmaking process</b> - Carlos Alberto Mendes Moraes, Ana Cristina Garcia, Lisiane Kleinkauf Rocha, Rodrigo Gaspar, Feliciane Andrade Brehm (UNISINOS)	<b>Study of the mecanism of vortex formation during ladle drainage to the continuous casting tundish at CST</b> - Sandro de Souza Santos, Henrique Silva Furtado, Dimas Bahiense Moreira (CST - ARCELOR BRASIL), Carlos Antônio da Silva, Itavahn Alves da Silva (UFOP), Varadarajan Seshadri (UFMG)	<b>Refractory life evolution of Acesita's AOD-L converter</b> - José Cordeiro Neves, Humberto Marin, Décio Sartori, Maurício Ferreira Coelho, José Antônio de Farias, Manoel A de Morais, Váiter Wagner de Oliveira, Humberto Souza Barcelos, Cleber Tinti dos Santos, Argeu Arcaño de Brito, Dalton Heringer de Souza, James Edward Podraza, Elias Eleutério Tibúrcio, Celso Antônio Babilon (LWB REFRATORIES)
09:00 am	<b>Characterization and recycling of steelmaking slag</b> - Carlos Alberto Mendes Moraes, Feliciane Andrade Brehm (UNISINOS)	<b>Development of a new tundish inner design</b> - Afrânio Márcio Costa, Henrique Silva Furtado (CST - ARCELOR BRASIL), Carlos Antônio Silva (UFOP), Marcelo Macedo Fialho, Rodrigo Nazareth Borges, Zelber Dettogne do Nascimento (MAGNESITA)	<b>Characterization of MgO-C bricks for bof</b> - Marco Antônio Quintela, Celso Anízio Pessoa, Margarida Maria Kokke (USIMINAS)

### 10:30 am COFFEE-BREAK

10:00 am	<b>State of art of electric arc furnace dust recycling</b> - Carlos Alberto Mendes Moraes, Feliciane Andrade Brehm (UNISINOS)	<b>Reduction of clogging by alumina and increase of continuous casting sequence</b> - Marcus Barcellos (MITTAL ARCELOR - PLAN-TA CST), Maurizio Gallo, Zelber Dettogne do Nascimento (MAGNESITA)	<b>New technology for cutting materials used in the steelmaking plant without constant use of fuel gas</b> - Daniel Avelar Lucena, Paulo Santos Assis (UFOP)
10:30 am	<b>Steelmaking slags activation to increase binding properties for natural soils strengthening for road base construction</b> - V.A. Myrmin, H. A. Ponte (UNIVERSIDADE FEDERAL DO PARANÁ)	<b>Steel infiltration in the interface between copper plates in the continuous casting machine #2 of CST - Arcelor Brazil</b> - Carlos Alberto Perim, Jose Carlos de Oliveira Passos, Antonio Luiz Gomes Reis Júnior, Alexandre de Aparecida Moraes (CST - ARCELOR BRASIL)	<b>Control and use of co-products and by-products of CST's Steelmaking Plant</b> - Edgar Adrian de Oliveira, Fernando Gonçalves das Candeias, José Rosário Brumana, Marcelo Fernandes de Lana, Ricardo Filipe T. Moreira, Arion Bastos da Rosa (CST - ARCELOR BRASIL)
11:00 am	<b>Correlation among ideal voltage, power and electrode diameter of the submerged arc furnaces - J Factor</b> - Luis Ricardo Jaccard	<b>Correlación entre las características estructurales de los materiales carbonosos y de óxidos con el comportamiento de los polvos coladores</b> - Elena Brandaleze, Carina Gorosurreta, Alejandro Martín (IAS), Leandro Santini, Edgardo Benavidez (UNIVERSIDAD TECNOLÓGICA NACIONAL – FACULTAT REGIONAL SAN NICOLÁS)	

### 11:30 am LUNCH-BREAK

### TECHNICAL SESSION ELECTRIC STEELWORKS

### TECHNICAL SESSION SECONDARY REFINING

### TECHNICAL SESSION OXYGEN STEELMAKING

01:00 pm	<b>Study of the production of a high carbon Fe-Cr alloy from ashes of the leather shaving incineration</b> - Nestor Cezar Heck, Ivo André Homrich Schneider, Claudia Rosane Ribeiro Alves (UFRGS)	<b>Study of ferronickel desulphurization through injection of desulphurizing agent with Tecnosulfur technology at refining</b> - José Antônio Miguel Rodrigues Júnior (CODEMIN), Ronaldo Carius da Cunha, Marcos Santos, Geraldo Paixão (TECNOSULFUR)	<b>Recycling of the metallical iron contents fine sludge bof converter</b> - Walter Luiz da Costa Reis, André Tarcizo de Oliveira Vieira, João Henrique Echternacht, José Ricardo de Oliveira (CSN), Elias Fonseca de Castro (K&K)
01:30 pm	<b>Simulation of solidification process for ternary alloys Fe-C-P by phase field method</b> - Alexandre Furtado Ferreira, Carlos Roberto Xavier (EEMVR-UFF)	<b>Computational thermodynamics slag analysys on secondary refining in the production of special steels</b> - Marcelo Carboneri Carboni, João Batista José de Souza, Expedito Briet da Silva, Ivan Luiz de Matos Scripnic (AÇOS VILLARES), Denise Croce Romano Espinosa, Jorge Alberto Soares Tenório (EPUSP), José Roberto Bolota (AÇOS VILLARES)	<b>Recycling of fine sludge to the bof converter by metallical pellets</b> - Walter Luiz da Costa Reis, André Tarcizo de Oliveira Vieira, João Henrique Echternacht, José Ricardo de Oliveira (CSN), Elson Longo (CMDMC/UNESP)
02:00 pm	<b>Heat balance of ferro-manganese production through smelting reduction</b> - José Roberto de Oliveira, Estéfano Aparecido Vieira (CEFET-ES), Jorge Alberto Soares Tenório (EPUSP)	<b>Evaluating the steel cleanliness in a rh degasser through mathematical modeling</b> - Paulo Sérgio Bringhenti Lascosqui, Geraldo Alves Vargas Filho, Dimas Bahiense Moreira (CST - ARCELOR BRASIL), Carlos Antônio da Silva, Itavahn Alves da Silva (UFOP), Varadarajan Seshadri (UFMG)	<b>Efficiency in the management water resources in CST Arcelor Brazil - implementation of new technology "water station reuse"</b> - Carlos Alberto de Assis, Leonardo Dias de Abreu, Carlos Eurico Conte, Valdecy João Bobbio (CST - ARCELOR BRASIL)

### 02:30 pm COFFEE-BREAK

## MEETING BOARD: ENVIRONMENT

03:00 pm	<b>Environmental Sustainability</b> - Luiz Antonio Rossi (CST)
03:20 pm	<b>Uses of BOF wastes</b> - André Tarcizo Oliveira Vieira (CSN)
03:40 pm	<b>Environmental Legislation</b> - Joaquim Martins da Silva Filho (FEAM)
04:00 pm	<b>The technological and scientific research contribution to environmental management of steel industry</b> - Carlos Alberto Mendes Moraes (UNISINOS)
04:20 pm	<b>Innovations on processing of steelmaking wastes</b> - Luiz Cláudio Pinto Oliveira (HECKETT MULTISERV)
04:40 pm	<b>Debate</b>
05:00 pm	<b>Closing Session</b>
05:45 pm	<b>Drawing of gifts provided by sponsors</b>