

**June 19-21, 2006 (CNIT Paris La Défense – France)**

**PROGRAM**

***Monday June 19, 2006***

|       |   |   |
|-------|---|---|
| 10:00 | Opening session   | Room Goethe                                   |
| 12:15 | Lunch   | Exhibition Hall                               |
| 14:00 | Session 1: Hot Strip Mill – Measurement and Control<br>Session 2: Cold Rolling Mill – Measurement and Control<br>Session 3: Long Product (1) – Process, Quality and Metallurgy  | Room Diderot<br>Room Goethe<br>Room Donatello |
| 16:30 | Break   | Exhibition Hall                               |
| 16:50 | Session 4: Hot Strip Mill – Modelling and Simulation (1)<br>Session 5: Cold Rolling Mill – Automation and Process<br>Session 6: Long Product (2) Process, Measurement & Control | Room Diderot<br>Room Goethe<br>Room Donatello |
| 19:00 | Cocktail party  | Exhibition Hall                               |

***Tuesday June 20, 2006***

|       |   |   |
|-------|---|---|
| 08:15 | Session 7: Hot Strip Mill – Modelling and Simulation (2)<br>Session 8: Cold Rolling Mill – Modelling and Simulation (1)<br>Session 9: Long Product (3) – Modelling and Simulation | Room Diderot<br>Room Goethe<br>Room Donatello |
| 10:20 | Break   | Exhibition Hall                               |
| 10:40 | Session 10: Hot Strip Mill – Process<br>Session 11: Cold Rolling Mill – Modelling and Simulation (2)<br>Session 12: Long Product (4) – Wire Rolling                               | Room Diderot<br>Room Goethe<br>Room Donatello |
| 12:45 | Lunch   | Exhibition Hall                               |
| 14:15 | Session 13: Hot Strip Mill – Rolls<br>Session 14: Cold Rolling Mill – Temper Mill<br>Session 15: Hot and Cold Rolling   | Room Diderot<br>Room Goethe<br>Room Donatello |
| 16:20 | Break   | Exhibition Hall                               |
| 16:35 | Session 16: Hot Strip Mill Modernization and Process Development<br>Session 17: Cold Rolling Mill Modernization, Quality and Process Development<br>Session 18: Furnaces          | Room Diderot<br>Room Goethe<br>Room Donatello |
| 19:00 | Bus Departure   |   |
| 20:00 | Gala Dinner   |   |

***Wednesday June 21, 2006***

|       |   |   |
|-------|---|---|
| 08:15 | Session 19: Heavy Plates (1)<br>Session 20: Flat Product Metallurgy (1)<br>Session 21: Stainless Steel                  | Room Diderot<br>Room Goethe<br>Room Donatello |
| 10:45 | Break   | Exhibition Hall                               |
| 11:00 | Session 22: Heavy Plates (2)<br>Session 23: Flat Product Metallurgy (2)<br>Session 24: Cold Rolling Mill Reversing Mill | Room Diderot<br>Room Goethe<br>Room Donatello |
| 13:05 | Lunch   | Exhibition Hall                               |
| 14:15 | End of congress   |   |

# MONDAY JUNE 19, 2006

## 10:00 - OPENING AND PLENARY SESSION

### Chairmen:

B. de LAMBERTERIE (Arcelor Flat Carbon Steel Downstream, Luxembourg), Luxembourg  
D. BOUQUEGNEAU (Arcelor Flat Carbon Steel Downstream, Luxembourg), Luxembourg

### Introduction

D. BOUQUEGNEAU (Arcelor Flat Carbon Steel Downstream, Luxembourg), Luxembourg

### Inaugural speech

B. de LAMBERTERIE (Arcelor Flat Carbon Steel Downstream, Luxembourg), Luxembourg

### A tribute to Tadeusz Sendzimir my grandfather

T. SENDZIMIR (T. Sendzimir, Sendzimir) USA

### Mittal Steel – Looking to the future

R.C. SUSSMAN (Mittal USA Research & Development), USA

### Chinese steel industry evolution

G. WANG (the State Key Lab. of rolling and automation – Northeastern University, Shenyang), P.R. China

## 14:00 - SESSION 1: Hot Strip Mill – Measurement and Control

### Chairmen:

M. DEGNER (Steel Institute VDEh, Düsseldorf), Germany

U. MULLER (BFI Düsseldorf), Germany

### A new approach for accelerating trouble shooting via correlation computer applications

J.M. NOWOSAD (Ispat Inland, East Chicago), USA, F. LUECKING (Parsytec Computer GmbH, Aachen), Germany

### Hot strip flatness optimisation by means of edge masking in the ROT

S. PEREGRINA\*, J.M. GARCIA REDONDO, P. FERNANDEZ QUIROGA (Aceralia – Arcelor Group, Avilés Asturias), D. GONZALEZ GARCIA, D. GARCIA (Oviedo University, Asturias), Spain

### Advanced process control technology for thin strip rolling

K. OHARA\*, M. NAKAEMA, S.K. CHOON, (Toshiba Mitsubishi-Electric Industrial Systems Corporation), Japan, M.W. ZHOU, H. YANG (Hunan Valin Liangang Steel Sheet Co., Ltd), P.R. China

### The road to hot strip mill flatness control

D. BRITANIK, J. MUELLER (Industrial Automation Services, Inc, Pittsburgh), USA, S. DOMANTI, G. WALLACE (Industrial Automation Services Pty Ltd., Teralba), Australia, W. BLEDDGE (Castrip LLC, Charlotte), USA

### Measuring friction and wear characteristics in the roll bite for hot rolling using a laboratory simulator

W.Y.D. YUEN, I. ASHBY (Bluescope Steel Research, Port Kembla), Australia, Y. TSUJIMOTO (Kubota Corporation, Osaka), Japan

### A new tool for dimensional measurement of hot strip mill: the Laser Tracker

T. ROUX, R. PAWLOWSKI, O. LAPIERRE\* (Symétrie, Nîmes), G. PRIAUD, R. LASSERRE, S. DESCAVES (Arcelor Méditerranée, Fos), France

## 14:00 - SESSION 2: Cold Rolling Mill – Measurement and Control

### Chairmen:

C. LACKINGER (ThyssenKrupp Steel AG, Duisburg), Germany

D. BOUQUEGNEAU (Arcelor Flat Carbon Steel Downstream, Luxembourg), Luxembourg

### New developments to obtain high thickness quality in cold rolling mills

R. MIEZE (Arcelor Atlantique et Lorraine, Mardyck), B. PETIT, G. LE PAPILLON, (Arcelor Research, Lorraine), M. ABIKARAM, J. PERRET, S. GOUTTEBROZE\*, (Siemens-VAI, Saint-Chamond), France

### Behaviour of weld seams during cold rolling process

C. BINROTH, A. FEDOSSEEV\* (Hugo Miebach GmbH, Dortmund), Germany

\* speaker

Rolling of transitions in a continuous tandem cold mill  
M. TOMASIC, J. FELKL (Siemens AG, Erlangen), Germany

High speed edge cracks and holes detection at the exit of the Basse-Indre tandem cold mill  
S. GOURDON, F. COSSARD, J.M. TEMPLE, L. VERMOT DES ROCHES\*, L. CADOREL (Arcelor Packaging International, Basse-Indre), France

On line detection of under pickling  
P.J. KRAUTH, F. KOP (Arcelor Research, Lorraine), France, J. SCHELINGS, Y. GREDAY (Arcelor Wallonie Downstream, Flemalle), Belgium, M. KURTH (SR-Instrument, Haukipudas), Finland

Towards a better width control in cold rolling of flat steel strips  
LEGRAND\*, B. BECKER, C. ROUBIN (Arcelor Research, Lorraine), France

## **14:00- SESSION 3: Long Product (1) – Process, Quality and Metallurgy**

### *Chairmen*

P. TARDY (Assoc. of Hungarian Steel Industry, Budapest), Hungaria  
J.C. SLIZ (Trinecke Zelezarny, Trinec), Czech Republic

Leading-edge technology for rail production  
U. SVEJKOVSKY, T. NERZAK (SMS Meer GmbH, Mönchengladbach), Germany

Application of FE-methods in practical groove roll design of structurals  
J.O. PERÁ\* (MEFOS, Metallurgical Research Institute AB, Luléa), Sweden, R. VILLANUEVA (Independent Consultant, Buenos-Aires), Argentina

The impact of composite rolls technology in a rolling mill's general performance  
L.A. DE ARRUDA PENTEADO, P.R. CARDOZO, A.O. BOMBO, A. FURLAN JUNIOR (Belgo Mineira, Piracicaba), Brazil

Improvement of size availability with medium-diameter seamless steel pipe mill  
K. FUJISAWA\*, S. NANBU, K. ITO, R. MIYAKE, A. YORIFUJI (JFE Steel Corporation), Japan

Proposal of optimization of cooling rate of rolled products from bearing steels from viewpoint of carbide network and banding occurrence  
P. GEMBALOVA\*, J. BORUTA (Vitkovice - Research & Development), E. GRYZC (Trinecke Zelezarny, a.s.), I. SCHINDLER (VSB – Technical University of Ostrava), Czech Republic

“EWR” Endless Welding Rolling system and spooler line. Results of two innovative technologies in long product production.  
G. NIGRIS, L. TAMBOSCO, G. SALVADOR (Danieli Moorgardshammar) , Italy

## **16:50 - SESSION 4: Hot Strip Mill – Modelling and Simulation (1)**

### *Chairpersons:*

M.C. REGNIER (Arcelor Research, Lorraine), France  
F. DORNELAS (C.S.T. Arcelor), Brazil

A numerical study of rolled-in scale in the hot strip mill  
P. MONTMITONNET, P. BOUCHARD (Ecole Nat. Sup. des Mines CEMEF, Sophia Antipolis), B. PICQUE (Aubert & Duval, Pamiers), M. PICARD\*, C. ROUBIN (Arcelor Research, Lorraine), France

New evaluation method of lubricity of hot rolling oil  
A. AZUSHIMA, W.D. XUE\* (Yokohama National University), K. AOKI (Shibaura Institute of Technology), Japan

Run-out-table cooling models for high cooling rate products  
P. Mc NUTT, W.J. LAWRENCE, C.A. FRYER (APC Power Conversion Ltd, Rugby), United Kingdom

Hybrid model for improving width performances in hot strip mill  
J.L. RENDUELES, V. LOBATO (Aceralia IO-RC-Avilés, Arcelor Group, Asturias), F. ORTEGA (Oviedo University, Asturias), M.T. RODRIGUEZ (KIN Knowledgege Innovation RC, Arcelor Group, Asturias), Spain

New physically based on-line finishing mill temperature model for the Corus HSM#2 IJmuiden  
R. VERHOEF\*, C.R. NEDERLOF, A.H.M SNIJDERS (Corus Research Development & Technology), J.S. MOSK, P.F. BONTEKOE (Corus Strip Products IJmuiden), The Netherlands

## **16:50 - SESSION 5: Cold Rolling Mill – Automation and Process**

### *Chairmen:*

D. BOUQUEGNEAU (Arcelor Flat Carbon Steel Downstream, Luxembourg), Luxembourg  
C. LACKINGER (ThyssenKrupp Steel AG, Duisburg), Germany

New method for the optimization of the strip geometry in strip processing lines

F. GORGELS\* (BFI, VDEh-Institut für Angewandte Forschung GmbH, Düsseldorf), A. HESSLER (Hoesch Hohenlimburg GmbH, Hagen), G. MÜCKE, J. POLZER, P.D. PÜTZ, A. WOLFF (BFI, VDEh-Institut für Angewandte Forschung GmbH, Düsseldorf), K. BOGUSLAWSKY (Sundwig GmbH, Hemer), Germany

Quaker's lubricant technology and fluid management services: building strong partnerships at Arcelor and California Steel to reduce costs

O. MARTOS, N. BROEKHOF\* (Quaker Chemical Corporation, Uithoorn), The Netherlands,  
J.C. LOPEZ (Arcelor Atlantique et Lorraine, Dunkerque), France, S. STARR (California Steel Industries, Fontana), J.J. GORDON (Quaker Chemical Corporation, Conshohocken), USA

Improved cooling on cold tandem mills

H. DUSSEER, J. LOPEZ LARRODERA, (Arcelor Atlantique Lorraine, Ste Agathe), N. LEGRAND\*,  
P. FRANCOIS (Arcelor Research, Lorraine), France

Cold double reduction rolling for packaging steels: towards a better lubrication control by emulsion

L. AMRANE, I. SANTI, P. MASSON, N. LEGRAND\* (Arcelor Research, Lorraine), M. CHAUVIRE,  
L. VERMOT DES ROCHES (Arcelor Packaging International, Basse-Indre), France

Fuchs synthetic cold rolling oil in Arcelor Sidmar tandem 2

A. MASCARO\*, F. ALONSO (Fuchs Lubricantes SA, Castellbisbal), Spain, A. DEVOLDER (Arcelor Sidmar N.V., Gent), Belgium

## **16:50 - SESSION 6: Long Product (2) Process, Measurement & Control**

### *Chairmen:*

J.C. SLIZ (Trinecke Zelezarny, Trinec), Czech Republic  
W. WANG (Maanshan Iron & Steel Co Ltd., Maanshan), P.R. China

Optical diameter measurement of hot round material

H. MENNICKEN\*, W. WOESTE (BFI, Dept. Measuring Techniques and System Development, Düsseldorf), Germany

Introduction of the performance and advanced application of EBROS<sup>®</sup>, Endless Bar Rolling System

Y. SUH (Dongkuk Steel Mill Co., Ltd., Pohang), Korea S. OKAWA\* (JP Steel Plantech Co., Yokohama), Japan

Innovations in temperature controlled rolling in combination with expert systems

M. KRUSE\* (Danieli Morgardshammar), M. LESTANI (Acciaierie Bertoli Safau SpA), Italy

Experiences and results after three years of operation of a 3-roll Reducing & Sizing Block (RSB)

G. NUSSBAUM, W. KRÄMER, G. BITTNER (Von Moos Stahl AG, Emmenbrücke), Switzerland,  
G. SCHNELL (Friedrich Kocks GmbH & Co KG, Hilden), Germany

Development and rolling of corrugated waist rail

W. ZHANG\* (Yanshan University), P.R. China

# **TUESDAY JUNE 20, 2006**

## **8:15 - SESSION 7: Hot Strip Mill – Modelling and Simulation (2)**

### *Chairpersons:*

J. GROOT (Corus RD&T, IJmuiden), The Netherlands  
L. SIERVOGEL (Corus DSP IJmuiden), The Netherlands

Roll force model for online application in hot strip rolling with varying friction conditions

Y.H. LI, A. RANDALL, W.J. LAWRENCE, C.A. FRYER\* (APC Power Conversion Ltd, Rugby), United Kingdom

Design of two steps die in width sizing process

S.H. LEE (Pusan National University), D.H. KIM (Jinju International University), S.M. BYON,  
H.D. PARK, (Rolling Technology & Process Control Research Group, Posco), B.M. KIM\* (Pusan National University), Korea

Exploring aspects of flatness and profile control

G. BOULTON, S.A. DOMANTI\*, W.J. EDWARDS, P.J. THOMAS, G.A. WALLACE (Industrial Automation Service P/L, Teralba), Australia, M. KRIDNER (Nucor Steel, Decatur), USA

Edge seam behaviour on the strip edge in hot strip rolling

M.S. CHUN\*, H.C. KWON, H.D. PARK, (Posco), Korea

Behaviour of corner surface cracks in V-H rolling process of steel slabs

X. LIU, H. YU\*, C. LI, X. ZHAO (Northeastern University, Shenyang), P.R. China

## **8:15 - SESSION 8: Cold Rolling Mill – Modelling and Simulation (1)**

*Chairmen:*

R. STELZER (B.F.I., Düsseldorf), Germany

D. YUEN (Bluescope Steel Research, Port Kembla), Australia

New methods of modelling and optimization of wide strip cold rolling schedules

E. GARBER\*, I. KOZHEVNIKOVA (Cherepovets State University), V. KUZNETSOV (JSC Severstal), A. TRAINO, V. YUSUPOV (Institute of Metallurgy and Materiology of Russian Academy of Sciences), Russia

Shape control performance of cold rolling mill

J. XU, X. LIN, (Baoshan Iron & Steel Co., Ltd.), A. HE, Q. ZHANG (University of Science and Technology Beijing), JIANG, (Baoshan Iron & Steel Co., Ltd.), P.R. China

Development of high speed cold rolling simulator for clarification of emulsion lubrication mechanism in cold rolling

Y. TAKAHAMA\*, T. SHIRAISHI, S. OGAWA (Nippon Steel Corporation, Futtsu), Japan

The production of tailor rolled strips through strip profile rolling

G. HIRT, F. JACKEL\* (Institute of Metal Forming, RWTH Aachen University), Germany

New roll gap measurements of the friction condition and the normal pressure distribution in cold flat rolling

J. LAGERGREN\* (Jernkontoret), Sweden, M. ARENTOFT, P. HENNINGSEN, T. WANHEIM (IPU/IPL Denmark Technical University), Denmark, N.G. JONSSON (Mefos), Sweden, J. NYLANDER (Ruukki Production), Finland, J. EDERTH (Sandvik MT), Sweden

## **8:15 - SESSION 9: Long Product (3) – Modelling and Simulation**

*Chairmen:*

D. FARRUGIA (Corus RD&T UK, Sweden Technology Centre), United Kingdom

P. TARDY (Assoc. of Hungarian Steel Industry, Budapest), Hungaria

Prediction of the tensile properties of hot rolled tubes

D. SENEGAS-ROUVIERE\*, M. PIETTE (Vallourec), France, G. KUBLA (Vallourec & Mannesmann), Germany

The application of advanced modelling techniques to long product rolling

M. HEESOM\* (Corus Construction & Industrial, Scunthorpe), United Kingdom

Through process characterization of frictional conditions under lubrication for long product hot rolling

C. FEDORCIUC-ONISA, D.C.J. FARRUGIA\* (Corus RD&T UK, Sweden Technology Centre), United Kingdom

Numerical and analytical optimization of the hot rolling split pass

F. LAMBIASE\* (University of Napoli Federico II), Italy

Integrated model for wire rod rolling process - Roll pass schedule and austenite grain size prediction

Y. LEE\* (Department of Mechanical Engineering, Chun-Ang University, Seoul), H.D. PARK (Rolling Technology and Process Control Research Group, Posco Technical Research Laboratories, Pohang), Korea

## **10:40 - SESSION 10: Hot Strip Mill – Process**

*Chairmen:*

A. PUISSANT (Arcelor Flat Carbon Steel-Upstream, Luxembourg), Luxembourg,

F. DORNELAS (C.S.T. Arcelor), Brazil

Steering control at Arcelor EKO Stahl finishing mill

N. NAUMANN\* (EKO Stahl), Germany, C. MORETTO\* (I R&D FCSE), C. IUNG (CRAN), France, U. KOSCHACK (EKO Stahl), Germany,

CST HSM Strip width improvement

J. FAGUNDES JUNIOR\*, R.O. COSTA, L.M. MAZZI, C.A. PRATES, J. DADALTO, F.C. DORNELAS (CST Arcelor), Brazil

Industrial ski-end mastering at Arcelor Dunkirk roughing mill  
S. DAUPHIN\*, Ph. CORDIER, P. BOUTOILLE, C. COLIN, J. COUPU (Arcelor-Atlantique, Dunkerque), B. PETIT (Arcelor-ARSA, Maizières-les-Metz), France

Development of hot strip shape control and application in ASP hot rolling line of Angang P.R. China  
L. ZHAO\*, X. SHA, A. HE (Anshan Iron & Steel Group Corporation Ltd, Anshan), P.R. China

Audits of existing hydro mechanical descaling systems in hot rolling mills as a method to enhance product quality  
J.W. FRICK\* (Lechler GmbH), Germany

## **10:40 - SESSION 11: Cold Rolling Mill – Modelling and Simulation (2)**

*Chairmen:*

D. YUEN (Bluescope Steel Research, Port Kembla), Australia  
X.Y. SHAN (Baoshan Iron and Steel), P.R. China

Cold rolling lubrication - State of the art and probable future  
G. HAURET (Arcelor Méditerranée, Fos), M. LAUGIER\* (Arcelor Research, Lorraine), France

Optimising pickle line performance using process models  
J. VAN'T HUL\*, R. SPEETS (Corus Research and Development), The Netherlands

Roll edge contact asymmetric rolling of thin strip  
Z.Y. JIANG\*, H.T. ZHU, A.K. TIEU (School of Mechanical, Materials and Mechatronic Engineering, University of Wollongong), Australia

Development of a shape model that includes edge spread for cold rolling  
M. COZIJNSEN, A. DIXON, W.Y.D. YUEN\* (Bluescope Steel Research, Port Kembla), Australia

## **10:40 - SESSION 12: Long Product (4) – Wire Rolling**

*Chairmen:*

J.C. SLIZ (Trinecke Zelezarny, Trinec), Czech Republic  
D. FARRUGIA (Corus RD&T UK, Sweden Technology Centre), United Kingdom

Research on production of rods in coils of 26.0 mm series in Baosteel wire rod mill  
X. YANG\*, G. SHI (Baoshan Iron & Steel, Shanghai), P.R. China

Controlled cooling of steel wire rod: microstructural evolution and mechanical property correlations  
A. DIMATTEO\*, G. LOVICU, V. COLLA, M. DE SANCTIS, A. SOLINA, R. VALENTINI (University of Pisa), Italy

Development of the active manufacturing process monitoring by a data logging system  
N. SAUNIER, C. FISCHER, F. MÜLLER (Saarstahl AG, Volklingen), Germany

Study of water cooling mechanism for hot rolled wire rod  
H.D. PARK, S.K. SEE\* (Posco), Korea

Development of ultra fine grain microstructure wire rod for cold heading products  
W.D. WANG\*, X.S. HU (Maanshan Iron & Steel Co Ltd., Maanshan), P.R. China

## **14:15 - SESSION 13: Hot Strip Mill – Rolls**

*Chairmen:*

J.C. HERMAN (CRM, Liège), Belgium  
A. PUISSANT (Arcelor Flat Carbon Steel-Upstream, Luxembourg), Luxembourg

Contribution of laboratory tribological investigations on the performance appraisal of work rolls for hot strip mill  
C. VERGNE\*, D. BATAZZI, C. GASPARD (Akers Belgium), Belgium, T. NYLEN (AKERS A.B.), Sweden,  
C. BOHER (ENSTIMAC), France

Research on wear model in rough mill of 1580mm HSM  
J. WANG\*, L. ZHANG (BaoSteel, Shanghai), P.R. China

High speed steel work roll implementation at the CST hot mill  
J. DADALTO, J.G. CARVALHO, B.B. SILVA MURAD\*, A.F. LEITE COSTA, D. AQUINO SOUZA (CST – Arcelor Brasil),  
R.R. XAVIER, C.H. SILVA, M.A. CARVALHO (Aços Villares S.A.), Brazil, E.J. KERR (Hot Rolling Consultant, M.E.S.),  
Canada

Extension of the finishing mill backup roll campaign at the Dofasco  
R. WEBBER, D. Mc CAW, M. FAILLE, W. HILL (Dofasco Inc., Hamilton), Canada

Laboratory testing aimed at the development of materials for hot rolls  
A. BIGGI, A. TREMEA, G. CORBO (INNSE Cilindri, Brescia), M. PELLIZZARI\*, A. MOLINARI,  
D. CESCATO (University of Trento), Italy

## **14:15 - SESSION 14: Cold Rolling Mill – Temper Mill**

*Chairmen:*

H. EICHELKRAUT (ThyssenKrupp Steel AG, Bochum), Germany  
S. CRITCHLEY (SCSupport Services Inc.), Canada

On-line long-bow measurement in real time  
O. MADELAINE-DUPUICH\*, P. WALLENDORFF, D. MULLER, F. TONDO (Arcelor Research SA, Lorraine),  
J.M. BOURGEOIS, R. PARISIS (Sollac Méditerranée Groupe Arcelor, Fos), France

Cold rolling of metal strip using technical gases  
G. PLICHT\*, H. SCHILLAK (Air Products GmbH, Hattingen), H. HÖFINGHOFF, T. DEMSKI (C.D.Wälzholz,  
Hagen), Germany

Development and application of a roll gap model including the effects of asperities for temper rolling  
A. DIXON, W.Y.D. YUEN\* (Bluescope Steel Research, Port Kembla), Australia

Two systems for on-line oilfilm and surface roughness measurement for strip steel production  
W. BILSTEIN\*, W. ENDERLE (Amepla, Aachen), Germany, G. MOREAS (CRM, Liège), Belgium,  
D. OPPERMANN, T. ROUTSCHEK (Salzgitter AG), Germany, F. VAN DE VELDE (Arcelor Flat Carbon Steel, Gent),  
Belgium

Innovations in skin pass mills  
H.P. RICHTER, H. PAWELSKI, W. DENKER, R. HOLZ, K. HOEN\*, (SMS Demag AG), Germany

## **14:15 - SESSION 15: Hot and Cold Rolling**

*Chairmen:*

J. LAGERGREN (Jernkontoret, Stockholm), Sweden  
N.G. JONSSON (Mefos Lulea), The Netherlands

Learn how to hot roll steel on the internet at [steeluniversity.org](http://steeluniversity.org)  
D.J. NAYLOR, R. HAMBLETON\*, (International Iron and Steel Institute - IISI, Brussels), Belgium

Advanced open control system applied to the rolling mill plant  
A. NOJIMA\*, K. SIAU, H. GOUDO, A. KASHIWAMURA (Toshiba Mitsubishi-Electric Industrial Systems Corporation),  
Japan, W. ZHOU, K. XIE (Hunan Valin Liangang Steel Sheet Co., Ltd.),  
P.R. China

New methods of improving flatness and crown prediction in hot and cold rolling of strip  
E. NIKITENKO\* (Research and Technology Centre, United States Steel Corporation, Monroeville), USA

Computer aided productivity management system in rolling mills  
E. CAYIR\*, M. YANMAZ, M. HAKKIOGLU (ERDEMIR – Ereğli Iron & Steel Works Inc., Karadeniz Ereğli), Turkey

SCS<sup>®</sup> – Product competition for conventional pickle & oil, and hot roll black plate  
K. VOGES\* (The Material Works) USA

## **16:35 - SESSION 16: Hot Strip Mill Modernization and Process Development**

*Chairmen:*

M. STEEPER (Siemens-VAI UK, Sheffield), United Kingdom  
J. PERRET (Siemens VAI Montbrison), France

Tandem Steckel hot strip rolling technology - State of the art  
I. CHMELIK\*, L. ZELA (Mittal Steel Ostrava a.s.), Czech Republic

Siemens Experience and New Trends in Compact Hot Strip Mills  
W. GIERING, G. WINTER (Siemens AG), Germany

SiemensVAI 4-Wrapper PowerCoiler project for heavy thickness high strength steel pipe strip application on Arcelor Fos/Mer hot-strip mill

S. MIALOT, G. MONARI, F. TISSOT (Arcelor Fos-sur-Mer), S. MAILLARD\*, S. MARTIN, J.P. CHAZAL, V. PHILIPPAUX (Siemens-VAI, Saint-Chamond), France

Extension of productivity by installation of a walking beam furnace in ThyssenKrupp's hot strip mill N°2  
C. QUEENS\* (ThyssenKrupp Steel AG Duisburg), Germany

Intensification and control of roll cooling

M. RAUDENSKY\*, J. HORSKY, P. KOTRBACEK (Brno University of Technology, Brno), Czech Republic

Relocation and start-up of a complete high capacity HSM for Shagang Steel

J. LIU, S.L. ZHOU, W.G. HUANG, W.D. XU (Jiangsu Shagang Group), P.R. China,  
C. BONAUD\* (Siemens VAI), France, O. SILBERMANN, R. SCHEICH, A. ANGERBAUER (Siemens VAI), Austria

## **16:35 - SESSION 17: Cold Rolling Mill Modernization, Quality and Process Development**

*Chairmen:*

S. CRITCHLEY (SCSupport Services Inc), Canada

P. GABOARDI (Techint), Italy

Development of CM21 at IJmuiden: a world class performance

M.J. RIJKHOFF\*, M.J. VAN GENDEREN (Corus Strip Products IJmuiden, Cold Mill 2), J. GROOT (Corus Research Development & Technology, Rolling Department), The Netherlands

Roll Grinding Developments and Relationships with Production of Tinplate and Automotive Sheet

L. ARNOLD (Dofasco Inc.), S. CRITCHLEY (SCSupport Services), Canada, P. GABOARDI\*,  
G. BAVESTRELLI\*, C. TREVISAN (Techint S.p.A. Roll Grinders Division), Italy

Design and performance of tandem cold-rolling mills with 6-high and 4-high technology

A. SEILINGER\*, G. NOPP, G. FINSTERMANN, G. DJUMLIJA (Siemens-VAI, Linz), Austria

Modernization of the coupled pickling and tandem cold rolling mill at ThyssenKrupp Steel AG Dortmund

H. BRAUN, K. JANHOFER\*, A. ZAUM (ThyssenKrupp Steel AG, Dortmund), Germany

Oil film bearings mounting locking and sealing developments

G. CARELESS, J. WATSON\* (DanOil Bearings, Sheffield) United Kingdom, M. MOREL\* (Danieli France), France

## **16:35 - SESSION 18: Furnaces**

*Chairmen:*

G. GRIFFAY (Arcelor Research Lorraine), France

J. LAGERGREN (Jernkontoret, Stockholm), Sweden

Numerical simulation of a batch metallurgy furnace equipped with flameless oxidation regenerative burners

P. BOINEAU\* (Gaz de France Research Division), P. REYNES (Stein-Heurtey, Evry), G. GRIFFAY (Arcelor Research, Lorraine), France

Technology of steel heating in open gas furnaces used in rolling production

V.I. TIMOSHPOLSKY (The National Academy of Sciences of Belarus, Minsk), I.A. TRUSOVA\*,  
M.L. GERMAN, S.M. KABISHOV, R.B. WEIS (Byelorussian Steel Works, Zhlobin), Republic of Belarus

Scale formation and surface quality of carbon steel at oxyfuel heating

J.B. ADOLFI, T. EKMAN, J. VON SCHEELE (Linde AG, Gas Division, Lidingö), W. BLASIAK\* (Royal Institute of Technology - KTH, Stockholm), Sweden

Application of oxyfuel combustion in reheating at Ovako, Hofors Works, Sweden - Background, solutions and results

P. FREDRIKSSON\*, E. CLAESSION (OVAKO, Hofors Works), P. VESTERBERG, A. LUGNET (Linde Gas),  
O. RITZEN (AGA Gas AB), Sweden

“Hot repair” of refractory blocks on walking beams for slabs reheating furnace by means of ceramic welding (“R.P.R.”) technology

G. DEWINTER\*, O. DI LORETO (F.I.B. Services), L. LIBERSENS (Arcelor Industeel Belgium, Charleroi), Belgium

# WEDNESDAY JUNE 21, 2006

## 8:15 - SESSION 19: Heavy Plates (1)

### *Chairmen:*

H.J. NEHRENBURG (AG der Dillinger Hüttenwerke, Dillingen), Germany  
L. MOURGUES (DHS AG GTS Industries), France

Development, state of the art and future trends in design and production of heavy plates in X80 steel-grades  
S. MEIMETH\*, F. GRIMPE, H. MEUSER, H. SIEGEL (Mannesmannröhren Mülheim GmbH, Mülheim),  
C. STALLYBRASS, C.J. HECKMANN (Salzgitter Mannesmann Forschung GmbH, Duisburg), Germany

Modernising or substituting the finishing stand at Dillingen

A. STREISSELBERGER, M. PHILIPP\* (AG der Dillinger Hüttenwerke, Dillingen), Germany

Controller design based on analytical models for heavy plate mills

T. KIEFER\*, R. HEEG, A. KUGI, (Saarland University, Saarbrücken), O. FICHET, B. BÖDEFELD (AG der Dillinger Hüttenwerke, Dillingen), Germany, L. IRASTORZA (GTS Industries Group Dillinger Hütte, Dunkerque), France

Improving plate thickness in hot rolling by applying a feedforward strategy

R. HEEG\*, T. KIEFER, A. KUGI (Saarland University, Saarbrücken), O. FICHET, B. BÖDEFELD (AG der Dillinger Hüttenwerke, Dillingen), Germany, L. IRASTORZA (GTS Industries Group Dillinger Hütte, Dunkerque), France

Integrated on-line model for the prediction of roll force and temperature in thick plate rolling

H. PARK (Pohang Iron & Steel Co. Technical Research Lab.), C. MOON\* (Pohang Iron & Steel Co., Pohang), Korea

Investigating the use of roll speed difference for the control of ski-ends in plate rolling

A. BOGDANOFF\*, S. NIEMI, (Rautaruukki Oyj, Raahе Steel Works), Finland, A. NILSSON (MEFOS, Luléа), Sweden

## 8:15 - SESSION 20: Flat Product Metallurgy (1)

### *Chairmen:*

T. ISHIKAWA (University of Nagoya), Japan  
H. DOO PARK (Pohang Iron and Steel Co., Pohang), Korea

Development of super short interval multi-pass rolling technology for ultra-fine-grained hot strip

M. ETO\*, T. SASAKI, S. FUKUSHIMA, T. SHIBAHARA, K. MIYATA, M. WAKITA, (Sumitomo Metal Industries Ltd., Kashima), Japan

Effect of molybdenum content and thermomechanical processing parameters on the properties of Mo-Nb microalloyed trip steel

H. PALKOWSKI, (TU-Clausthal, Clausthal), Germany, I. MOUSTAFA (CMRDI Central Metallurgical R & D), Egypt,  
M. SOLIMAN\* (TU-Clausthal, Clausthal), Germany,

Mechanical properties prediction for hot rolled products

A. HERRERA\*, J. BARCO, A. CARRILLO (Fundacion Labein, Derio), J. MINAMBRES, M. CAGIGAS (ACB Aceria Comp. Bizkaia, Sestao), Spain

Novel processes for producing ultra-fine grained steel sheets

T. HIRUTA\*, Y. MATSUBARA, N. NAKATA, M. MIYAKE, T. KUROKI, Y. SODANI (Steel Research Laboratory, JFE Steel Corporation), Japan

Influence of niobium and coiling temperature on the mechanical properties of a cold rolled dual phase steel

Y. GRANBOM\* (SSAB Tunnplat AB / Dalarna University), Sweden

The study on the monitoring position of energy spectrum detector during on-line monitoring of deep drawing steel sheet

Y. CHEN\*, X. YIN, N. YU, (Angang New Steel Co., LTD, Anshan), P.R. China

## 8:15 - SESSION 21: Stainless Steel

### *Chairmen:*

F. DIET (Arcelor Ugine&Alz, Saint Denis), France  
G. KACZOROWSKI (Arcelor Gueugnon), France

The recognition of the regular and irregular strip profiles and shapes

E. PUUKKO\* (Outokumpu Stainless Oy, Tornio), Finland

Development of high-precise shape control technology in 20-high Sendzimir mills  
T. KUBO\*, A. AIZAWA, K. HARA, O. UCHIHATA (Nisshin Steel Co., Ltd.), Japan

Developments in high production stainless cold rolling  
D. MITCHELL\*, A. Mc RAE (Siemens-VAI (UK) Ltd., Bournemouth), United Kingdom

The Jiayuguan Iron & Steel Company (Jisco) Steckel mill project - A year in the Gobi Desert by Dave Bambury  
on behalf of the Jisco Project Team  
D.K. BAMBURY\*, A. MARPLES, S. MARTIN, (Siemens-VAI (UK) Ltd., Sheffield), United Kingdom, X. WAN (Jiayuguan  
Iron & Steel Company of Gansu), P.R. China

New concept of a pure-stretch-levelflex® line with integrated skin pass mill  
S. SONNTAG\* (BWG, Bergwerk und Walzwerk Maschinenbau GmbH, Duisburg), Germany,  
N. GUEDON (Arcelor Ugine&Alz, Gueugnon), France

## **11:00 - SESSION 22: Heavy Plates (2)**

Chairmen :

B. PLUMIER (Arcelor Industeel, Le Creusot), France  
P. NAWRACALA (DHS GTS Industries), France

Numerical and physical modelling of the plate shearing process  
P. PAISLEY, M.J. STEEPER\* (Siemens-VAI (UK) Ltd., Sheffield), J. EGAN (Corus Construction & Industrial,  
Scunthorpe), I.C. HOWARD (University of Sheffield), United Kingdom

Modelling of processing and final properties of reversing mill plate  
R.C. BEAVERSTOCK\*, H.C. CAREY, S.V. PARKER, A.D. RICHARDSON, I.W. MARTIN, (Corus RD&T, Sweden  
Technology Centre), United Kingdom

Product and hot rolling process development of NV40 steel plates  
A.A. GORNI, C.N. PAULA SILVA, F. VIANA DE FREITAS\*, J.H. DOLABELA DA SILVEIRA,  
M.M. PEREIRA, R. PARDO ALVES, (COSIPA Companhia Siderurgica Paulista, Cubatão), Brazil

Study and development be made on high strength structural steel applied to ship EH50 by TMCP technology  
X.K. ZHANG\* (Baoshan Iron & Steel, Shanghai), Q.W. CAI (USTB - University of Science & Technology Beijing), S.L.  
YANG (Baoshan Iron & Steel, Shanghai), P.R. China

Development of the high heat input welding steel  
S. LI\*, A. GUO (Technology Center, WISCO), P.R. China

## **11:00 - SESSION 23: Flat Product Metallurgy (2)**

*Chairmen:*

H. DOO PARK (Pohang Iron and Steel Co., Pohang), Korea  
X.H. LIU (Northeastern University, Shenyang) P.R. China

A novel phase transformation model based on Gibbs' free enthalpy and the Stefan equation improves material  
properties of hot rolled products  
K. WEINZIERL\*, K. FRANZ, S. SCHMORS, (Siemens, Erlangen), Germany

The effect of alloys on the magnetic properties of high grade non-oriented electrical steels  
W.Y. HUANG\*, (Baosteel Co., Ltd., Shanghai), P.R. China, S.K. CHANG (GSIST-POSTECH, Pohang), Korea,  
S.C. ZHOU (Baosteel Co., Ltd., Shanghai), P.R. China

Characterisation of cristallographic texture of hot rolled low carbon microalloyed steels by Electron BackScatter  
Diffraction (EBSD)  
C. MAPELLI\*, R. VENTURINI, R. RIVA, (Politecnico di Milano), Italy

The development of new steel grades and products - Casting and rolling of API X 70 grades for arctic applications in a  
thin slab rolling plant  
A. CARBONI, A. PIGANI\* (Danieli Wean United, Buttrio), Italy, G. MEGAHED, S.K. PAUL (Ezz Flat Steel, Ezz), Egypt

## 11:00 - SESSION 24: Cold Rolling Mill Reversing Mill

### Chairmen:

F. DELMOTTE (Duferco Coating, Beautor), France  
C.S. YILMAZ (Borcelik Company, Gemlik-Bursa), Turkey

New Smart Crown reversing mill with Corum® model and AFC – Tangshan China  
O. DESCHAMPS\*, R. VINCENOT, O. GERMAIN, S. MAUURY, C. BONAUD (Siemens-VAI Clecim, Saint-Chamond), France, H. ZHANG (Tangshan Iron and Steel, Tangshan), P.R. China

Modernization of silicon steel cold strip rolling mill No. 2  
G.M. FERREIRA, C.M. BAPTISTA, T.M. DE ASSIS, R.F. PIRES, C. LOVATO NETO\* (Acesita, Timoteo), Brazil

Application of synthetic equal load function method to rolling schedule optimization of the single stand reversing cold rolling mill  
J. HU\*, B. HUANG (CISDI Engineering Co., Ltd., Chongqing), P.R. China

Development of a cold rolling mill simulator and its use for production optimization  
G. GUZMAN\*, G. SALINAS, M. ELIZONDO (Ternium Hylsa, Monterrey), Mexico

## POSTERS

Comparison of the rolling process of hot strip and heavy plate for large diameter line pipe  
C. STALLYBRASS, (Salzgitter Mannesmann Forschung GmbH, Duisburg), H. MEUSER, (Mannesmannröhren Mülheim GmbH, Mülheim/Ruhr), S. BREMER (Salzgitter Mannesmann Forschung GmbH, Salzgitter), Germany

On-line roll force model for cold rolling of thin strip in the NCA rolling regime  
Y.H. LI, W.J. LAWRENCE, C.A. FRYER (Alstom Power Conversion Rugby), United Kingdom, S.J. EGAN

Application of a non-circular arc temper rolling model for both off-line simulations and on-line control  
K. ZEMAN, K. KRIMPELSTÄTTER (Johannes Kepler University, Linz), G. FINSTERMANN, G. KEINTZEL (Siemens-VAI, Linz), Austria

The effect of the second annealing process on one-step cold rolled steel strip for shadow mask  
J. LI (Panzhuhua Iron and Steel Research Institute, Panzhuhua), P.R. China, D. LI (University of Leoben), Austria, Y. PENG, H. GUAN

On the improvement of rolling stability and product quality of hot strip rolling mill  
X. SHAN (Baoshan Iron & Steel, Shanghai), P.R. China

Roll contour optimization for cold temper mill  
Z. JIANG, X. LIN (Baoshan Iron & Steel, Shanghai), T.Z. CHANG, Q. ZHANG (University of Science and Technology Beijing), P.R. China

The width control strategy and model realization of hot rolled strips  
H. DING (Baoshan Iron & Steel, Shanghai), P.R. China

The research of model adaptation in MaSteel CSP plant  
Z. WANG, P.R. China

Practice of preventing surface scale defect of hot rolled strip  
G. LI (Wuhan Iron & Steel, Wuhan), P.R. China

1450 mm hot strip tandem rolling train technology reformation in Panzhuhua Iron and Steel Company  
J. JIAO (Panzhuhua Iron and Steel Research Institute, Panzhuhua), X. XUE, P.R. China

Experimental study and manufacture of HSLA steel for CSP plant  
T. ZHU, X.W. HU, P.R. China

Mechanism of friction marks appearance  
A. SWIATONIOWSKI, J. MISCHKE (University of Science & Technology, Krakov), Poland

Effects of special elements and pre-annealing on magnetic properties and texture in non-oriented electrical steels  
W.Y. Huang (Baosteel), (S.K. CHANG (Pohang University of Science and Technology), Korea

A comparison of two set-up generation systems for cold mills  
Henrique C. Ferreira (University of São Paulo, Department of Telecommunication and Control Engineering), Carlos T. A. Pires (COSIPA Cubatao), Daniel Uehara, Roberto M. Sales (University of São Paulo, Department of Telecommunication and Control Engineering), Brazil

Development of dual phase steels at Companhia Siderurgica de Tubarao for wheel applications  
C. MARTINS (C.S.T. Tubarao), Brazil

Heating slab evaluation based on hot work of deformation spent on rougher mill  
A. A. Barbosa, G. M. Faria, W. Shuwaren Jr., L. L. Miranda, J. S. Ferreira (Acesita, Timoteo), Brazil

Developments in hot rolling flatness measurement and control system  
T. WEILER, D. CHASE (Nucor Steel, Crawfordsville), USA, J. FAURE (Siemens-VAI, Saint-Chamond), France

Effect of ambient air condition on heat transfer of hot steel plate cooled by an impinging water jet  
H. PARK (Pohang Iron & Steel Co., Technical Research Lab.), P. LEE, J. LEE (Pohang Iron & Steel Co., Pohang), Korea

The use of vibration analysis tools to solve chatter problems on rolling mills and roll grinding machines  
Y. BENHAFSI (AMTRI, Macclesfield), United Kingdom

Multi-objective inverse determination of friction distribution in cold strip rolling  
C. LU, L. HE, A. KIET TIEU, H. REN, H. ZHU (University of Wollongong), Australia

A mathematic analysis of temper cold rolling with high tension stress  
C. CARTER (Packaging Products, Port Kembla), H. ZHU, A. KIET TIEU, R.J. DIPPENAAR (University of Wollongong), Australia

FEM simulation of effects of thermal profile on the rolling deformation of heavy plate  
S. JIAO, X.L. YIN (Baosteel Research Institute, Shanghai), P.R. China

Experimental investigation of phase transformation in niobium microalloyed plate steels  
S. JIAO, X. LIANG, C. WANG (Baosteel Research Institute, Shanghai), P.R. China

High speed O/W emulsion lubricated strip rolling  
A. KIET TIEU, P. BUYUNG KOSASIH (University of Wollongong), Australia

The investigation for influence of TWIP steel microstructure on mechanical properties  
D. TANG, Z.L. MI, J. GUO, L. YAN (USTB - University of Science & Technology, Beijing), P.R. China

Vibration of mill rolls during the cold rolling of a steel sheet strip by the "chaotic approach"  
A. BAR (Cracov University of Technology, Institute of Applied Mechanics, Krakow), O. BAR (Pedagogical Academy of Cracov, Dep. of Computer Science, Krakow), A. SWIATONIOWSKI (Univ. of Science and Technology, Dep. Of Machines for Technological and Environmental Protection, Krakow), Poland

Implementation of Betaplanner for the weekly planning and detailed scheduling of the HSM of Aceralia Avilés  
R. LOPEZ, J. LINERA (Aceralia, Avilés Asturias), Spain, E. DE SMEDT (Sidmar N.V., Gent), L. VAN NEROM (A.I. SYSTEMS, Brussels), Belgium

Integrated maintenance, a main factor of the BSW/BSE mini mill philosophy  
L. HACQUARD (Badische Stahl Engineering, Kehl), Germany

Fracture topography of forged and direct quenched Ti/Nb/V HSLA steels  
K. TAIBI, Y. SIKADDOUR (Université des Sciences et de la Technologie), M. HADJI (Université Saâd Dahlab de Blida), Algeria

Morphology and chemistry of patches formed on non-metallic inclusions in forged and direct quenched Ti/Nb/V HSLA  
Y. SIKADDOUR, K. TAIBI, A. TABJI (Université des Sciences et de la Technologie), M. HADJI (Université Saâd Dahlab de Blida), Algeria

Determination of the wear coefficient of roll for alloyed steel  
D.H. KIM (Jinju International University), S.M. Byon, H.D. Park, B.M. Kim (Pohang Iron & Steel Co., Technical Research Lab.), B.M. KIM (Pusan National University), Korea

Microstructures and mechanical properties of fine grained metal processed by ARB, ECAP and AFB methods  
T. SAKAI, R. TAKAHASHI (Takamatsu National College of Technology, Takamatsu), T. FURUSHIMA, K. MANABE (Tokyo Metropolitan University, Tokyo), H. MORIMOTO (Furukawa Electric Co., Ltd., Yokohama), E. NAKAMACHI (Osaka Institute of Technology, Osaka), Japan

Flatness & rolling mill defect measurement using deflectometry  
G. BASEOTTO, R. HSAKOU (Techlab SA / Visoul Technologies, Metz), France

Relationship of surface pollution of full hard coils and final cleanliness after batch annealing  
C. GUALCO, R. SALVAREZZA, L. VILLANI (Marcegaglia S.p.A., F. Granata (Lubritalia), Italy