

CETAS 2011 - Progress in Analytical Chemistry & Materials Characterisation in the Steel and Metals Industries

Programme

Tuesday May 17, 2011

Registration

Opening and Plenary Lectures

Welcome

Victor TUSSET
(CRM GROUP, Liège, Belgium)

The Future of Steel Industry

Michel WURTH
(GMB MEMBER, ARCELORMITTAL, Luxembourg)

Measurement Modelling and Maintenance: Key Factor in High Production Lines

Jean-Claude HERMAN
(CEO CRM GROUP, Belgium)

What Happens with the Framework Program

Renzo TOMELLINI
(HEAD OF "UNITS "MATERIALS", EUROPEAN COMMISSION, Bruxelles, Belgium)

Public Research and Innovation in Luxembourg

Marc LEMMER
(CEO HENRI TUDOR, Luxembourg, Luxembourg)

Lunch

Session Characterisation of Raw Materials and Final Products

Session Chairs

Patrick KICQ (CARSID, Marcinelle, Belgium)
Jörg FLOCK (THYSSENKRUPP STEEL EUROPE, Duisberg, Germany)

14:15 Optimization of Nitrogen Analysis by Spark Optical Emission Spectrometry at ArcelorMittal Tubarão (8)

Alex MATILHA
(ARCELORMITTAL TUBARÃO, Serra, Brazil)

14:40 Chemical Analysis of High-alloyed Steel by XRF Spectroscopy as Borate fused Bead (75)

Simona ROLLET
(COGNE ACCIAI SPECIALI, Aosta, Italy)

15:05 On-site Direct Microscopy and Composition Analysis in Metal Industry

Olivier LEMAIRE
(CRM, Liège, Belgium)

Session Innovative Analysis Techniques

Session Chairs

Arne BENGTON (SWEREA KIMAB AB, Stockholm, Sweden)
Mohamed CHTAIB (LUXCONTROL, Esch-sur-Alzette, Luxembourg)

14:15 The Use of FIB in Metal Research (55)

Chris XHOFFER
(OCAS, Zelzate, Belgium)

14:40 Elemental Monitoring of Steel Scrap Loading an Electrical Arc Furnace (62)

Volker STURM
(FRAUNHOFER ILT, Aachen, Germany)

CETAS 2011 - Progress in Analytical Chemistry & Materials Characterisation in the Steel and Metals Industries

Programme

15:05 LIBS – a Promising Tool for fast Steel Characterisation (71)

Fabienne BOUE-BIGNE
(TATA STEEL EUROPE R&D, Rotherham, United Kingdom)

Session Cleanliness of Steel and Metal

Session Chairs

Irene CALLIARI (UNIVERSITY OF PADOVA, Padova, Italy)
Patrice REEB (AG DER DILLINGER HÜTTENWERKE, Dillingen, Germany)

14:15 Combined Application of Micro Cleanliness Measurement Devices for Success in Magnesia inclusion Detection in Slabs (2)

Andreas PISSENBARGER
(VOESTALPINE STAHL, Linz, Austria)

14:40 Rapid Inclusion Mapping Technology for Slab Sample (99)

YongTae SHIN
(POSCO, Pohang, Korea, South)

15:05 Advances in the Ultra-fast Inclusion Analysis in Steel by Spark OES - Phenomenology, Improvements and Calculation of Inclusions' Composition and Size (57)

Jean-Marc BÖHLEN
(THERMO FISHER SCIENTIFIC, Ecublens, Switzerland)

Opening Posters Session

Victor TUSSET
(CRM GROUP, Liège, Belgium)

Coffee Break, Exhibition and Posters

16:30 Microwave Assisted High-pressure Digestion Systems – Techniques and Applications (78)

Eckhard PAPPERT
(THYSSENKRUPP STEEL EUROPE AG, Duisburg, Germany)

16:55 Microwave Digestion - Improved Sample Preparation for ICP-OES Analysis of Metal Powder in the Quality Control Lab (10)

Alexander HENRICH
(HÖGANÄS SWEDEN AB, Höganäs, Sweden)

17:20 The Tribological Properties of rolling Oil Emulsions with and without Nanoparticles (53)

Karin PERSSON
(YKI; INSTITUTE FOR SURFACE CHEMISTRY, Stockholm, Sweden)

17:20 tbc

16:30 Matrix Separation with Nonionic Surfactants and Ionic Liquids for the Determination of Trace Elements in High-purity Iron Metal (74)

Masataka HIRAIDE
(NAGOYA UNIVERSITY, Nagoya, Japan)

16:55 Effect of the Duty Ratio of Pulsed Bias Current on the Analytical Performance in Radio-frequency Glow Discharge Plasma Optical Emission Spectrometry Associated with Bias-current Modulation Technique (1)

KAZUAKI WAGATSUMA
(IMR, TOHOKU UNIVERSITY, Sendai, Japan)

17:20 Insight into the Roll Gap - Revealing Hidden Processes by Analytical Means (79)

Martin RAULF
(THYSSENKRUPP STEEL EUROPE, Duisburg, Germany)

16:30 Steel Cleanness and Reference Materials (43)

Gunilla RUNNSJÖ
(OUTOKUMPU STAINLESS, Avesta, Sweden)

16:55 Three Dimensional Estimation of Multi-component Inclusion Particle in Steel (28)

Ryo INOUE
(TOHOKU UNIVERSITY, Sendai, Japan)

CETAS 2011 - Progress in Analytical Chemistry & Materials Characterisation in the Steel and Metals Industries

Programme

- 17:20 Use of On-line Evaluation of PDA-data at SSAB at Oxelösund and Outokumpu Stainless AB at Avesta (31)**
Torbjörn ENKVIST (OUTOKUMPU STAINLESS, Avesta, Sweden)
Rolf DIDRIKSSON (SSAB EMEA OXELÖSUND, Oxelösund, Sweden)

Welcome Reception sponsored by Thermo Scientific

CETAS 2011 - Progress in Analytical Chemistry & Materials Characterisation in the Steel and Metals Industries

Programme

Wednesday May 18, 2011

Session Environmental Analysis

Session Chairs

Hubert DUCHACZEK (VOESTALPINE STAHL, Linz, Austria)
Harri LEPPANEN (RUUKKI, Raase, Finland)

09:00 Laser-based Methods for Chemical Composition Analysis of Particulate Emissions from Steelmaking Processes (34)

Cord FRICKE-BEGEMANN
(FRAUNHOFER ILT, Aachen, Germany)

09:25 Naturally Occurring Radioisotopes (Polonium-210 / Lead-210) in Steelmaking Materials and the Iron Ore Sintering Process (73)

Franck DAL-MOLIN
(TATA STEEL UK LTD, Rotherham, United Kingdom)

09:50 Speciation of Fe, Ni and Co for Recycling Purposes (88)

Ana FARINHA
(CRM GROUP, Liège, Belgium)

10:15 Development of a New Method for the Determination of Particle-bound PAHs based on Direct Thermal Extraction - Gas Chromatography - Mass Spectrometry (72)

Diane CIAPARRA
(TATA STEEL RD&T, Rotherham, United Kingdom)

10:40 Resistance Spot Welding Fumes of Coated Steel (49)

Veerle VAN LIERDE
(OCAS, Zelzate, Belgium)

11:05 Coffee Break, Exhibition and Posters

Session Innovative Analysis Techniques

Session Chairs

Andrea FRANCISCONO (COGNE ACCIAI SPECIALI, Aosta, Italy)
Christian MARIQUE (CRM, LIEGE, Belgium)

09:00 The Measurement of Gas Phase Reactions at Steel Surfaces Using a Mass Spectrometer Probe (3)

Heinz FALK
(SCIENTIFIC CONSULTANCY PROF. FALK, Kleve, Germany)

09:25 Determination of Argon by Inert Gas Fusion - Time-of-flight Mass Spectrograph Method (20)

Peng WANG
(BEIJING NCS ANALYTICAL INSTRUMENTS CO., Beijing, China)

09:50 The Correction Method of Mass Spectral Interference between CO⁺⁺ and N₂⁺ and its Application in Simultaneous Analysis of CO and N₂ (19)

Peng WANG
(BEIJING NCS ANALYTICAL INSTRUMENTS CO., Beijing, China)

10:15 Original Statistic Distribution Analysis by Laser Induced - Breakdown Spectrometry (16)

Lei ZHAO
(BEIJING NCS ANALYTICAL INSTRUMENTS CO., Beijing, China)

10:40 ToF-SIMS Analysis of Anticorrosion Additives on Technical Surfaces (60)

David POERSCHKE
(THYSSENKRUPP STEEL EUROPE, Duisburg, Germany)

11:05 Coffee Break, Exhibition and Posters

Session Characterisation of Surfaces and Coatings

Session Chairs

Johann ANGELI (VOESTALPINE STAHL GMBH, Linz, Austria)
Dieter SOMMER (THYSSENKRUPP STEEL EUROPE AG, Duisburg, Germany)

09:00 Expert Systems for Prediction of Corrosion Properties of Zn-based Coatings from the Chemical Analysis (6)

CETAS 2011 - Progress in Analytical Chemistry & Materials Characterisation in the Steel and Metals Industries

Programme

- Arne BENGTON
(SWEREA KIMAB AB, Stockholm, Sweden)
- 09:25 Exploration and Validation on the Characterisation of Thin Coating on Steel Surface in Industry Application (21)**
Li LEI
(SHANGHAI BAOSTEEL INDUSTRY INSPECTION CORP., Shanghai, China)
- 09:50 Anti-corrosion Properties of Organosilicon Plasma Polymer Coatings filled with Cerium Nanoparticles deposited for Protection of galvanized Steel (107)**
Julien BARDON
(CENTRE DE RECHERCHE PUBLIC HENRI TUDOR, Esch sur Alzette, Luxembourg)
- 10:15 XRF versus GDOES in Steel Industry Applications (97)**
Myriam MADANI
(ARCELOR MITTAL, Zelzate, Belgium)
- 10:40 In situ XPS for Surface Speciation During Annealing of Steels (89)**
Xavier VANDEN EYNDE
(CRM GROUP, Liège, Belgium)
- 11:05 Coffee Break, Exhibition and Posters**

Session Characterisation of Raw Materials and Final Products

Session Chairs

Paul RUGG (TATA STEEL UK LIMITED, Rotherham, United Kingdom)
Victor TUSSET (CRM GROUP, Liège, Belgium)

- 11:35 Hydrogen Determination in Steel at Voestalpine (90)**
Hubert DUCHACZEK
(VOESTALPINE STAHL, Linz, Austria)
- 12:00 Determination of Hydrogen in Steel by Thermal Desorption Mass Spectrometry(80)**
Karin BERGERS
(THYSSENKRUPP STEEL EUROPE, Duisburg, Germany)
- 12:25 Destructive and Non-destructive Determination of Hydrogen in Metals with Special Emphasis on Steels (52)**
Reiner KIRCHHEIM
(UNIVERSITY OF GOETTINGEN, Göttingen, Germany)
- 12:50 Application and Innovations for CS and ONH Analyzers ~ Surface Carbon Separation with High Frequency Hot Extraction and Carrier Gas Analysis (42)**
Alain SALAVILLE
(HORIBA SCIENTIFIC, Longjumeau, France)
- 13:15 Lunch and Poster session**

Session Automation in Laboratories

Session Chairs

Martin ENGELSMA (CORUS IJMUIDEN, IJmuiden, The Netherlands)
Jean-Claude LOPEZ (ARCELOR DUNKERQUE, Dunkerque cedex 1, France)

- 11:35 Tata Steel IJmuiden Lab Made Fit for the Future (11)**
Robert HEEMSKERK
(TATA STEEL, IJmuiden, The Netherlands)
- 12:00 Integration of the Robotized Borate Fusion Technique for the XRF Analysis in the Ferroalloy Industry (26)**
Luc BÉRUBÉ
(CORPORATION SCIENTIFIQUE CLAISSE, Sainte-Foy, Canada)
- 12:25 The Importance of Sample Preparation as Part of Laboratory Workflow Automation Solutions (66)**
Marc BASSIN
(THERMO FISHER SCIENTIFIC, Ecublens, Switzerland)
- 12:50 New Ways in Spark Emission Spectrometry (93)**
Joerg NIEDERSTRASSER
(OBLF, Witten, Germany)
- 13:15 Lunch and Posters session**

CETAS 2011 - Progress in Analytical Chemistry & Materials Characterisation in the Steel and Metals Industries

Programme

Session Sampling and Samples Preparation

Session Chairs

Bo LARSSON (SANDVIK MATERIALS TECHNOLOGY, Sandviken, Sweden)
Haizhou WANG (BEIJING NCS ANALYTICAL INSTRUMENTS CO. LTD, Beijing, China)
Xiaojia LI (BEIJING NCS ANALYTICAL INSTRUMENTS CO. LTD, Beijing, China)

11:35 Sampling Methods and Sample Preparation (76)

Maria PELE
(CTIF, Sèvres, France)

12:00 Improvement of the Sampling for Cleanness Measurement at Liquid Steel Stage (29)

Fabienne RUBY-MEYER
(ASCOMETAL CREAS, Hagondange, France)

12:25 Investigation of the Possibilities to Change Sample Preparation from Grinding to Milling for Fe- and Ni-base Alloys (82)

Peter HENNINGSSON
(AB SANDVIK MATERIALS TECHNOLOGY, Sandviken, Sweden)

12:50 Effect of Sampling Conditions on Inclusion Characteristics in Samples from Liquid Steel (96)

Ola ERICSSON
(SUZUKI GARPHYTTAN, Garphyttan, Sweden)

13:15 Lunch and Posters session

Session Characterisation of Raw Materials and Final products

Session Chairs

KAZUAKI WAGATSUMA (IMR, TOHOKU UNIVERSITY, Sendai, Japan)
Xavier VANDEN EYNDE (CRM GROUP, Liège, Belgium)

14:30 Determination of Boric Anhydride in the Ascharite Ores by Inductively Coupled Plasma Atomic Emission Spectrometry (83)

wen XIANGDONG
(WISCO, wuhan, China)

14:55 Progress on Analytical Methods for Composition of Nickel-base Alloys in China (35)

Xiaodong SHAO
(CNPC TUBULAR GOODS RESEARCH INSTITUTE, Xi'an, China)

15:20 Metallurgical and Mechanical Characterization of Cu Electrolytic Coating on Aluminium Alloys (91)

Irene CALLIARI
(UNIVERSITY OF PADOVA, Padova, Italy)

15:45 Micro-structural and Chemical Characterization of Electric Arc Furnace slag (81)

Davide MOMBELLI
(POLITECNICO DI MILANO, Milano, Italy)

16:10 Coffee Break

16:40 Comprehensive Analysis of Precipitates in Rich Cr Steels by Electron Energy Loss Spectrometry Spectrum Imaging (64)

Mihaela ALBU
(ZENTRUM FÜR ELEKTRONENMIKROSKOPIE GRAZ, Graz, Austria)

17:05 Magnetic and Metallographic Investigation of Phase Transformations in Duplex Stainless Steels (92)

Irene CALLIARI
(UNIVERSITY OF PADOVA, Padova, Italy)

17:30 Improved Analysis of Carbon in Cast Iron (104)

Heinz-Gerd JOOSTEN
(SPECTRO ANALYTICAL INSTRUMENTS, Kleve, Germany)

Session Traceability of measurements (Standardisation, Reference Material, Proficiency Testing)

Session Chairs

CETAS 2011 - Progress in Analytical Chemistry & Materials Characterisation in the Steel and Metals Industries

Programme

Emmanuel BIDAINE (CRP HENRI TUDOR, Esch, Luxembourg)
Johann ANGELI (VOESTALPINE STAHL GMBH, Linz, Austria)
Christian MARIQUE (CRM, LIEGE, Belgium)

14:30 Traceable Analysis of Impurities in Metallic Reference Materials Using GD-MS (4)

Sebastian RECKNAGEL
(BAM, Berlin, Germany)

14:55 The Evolution of Minimum Sample Mass of RMs by Homogeneity Study (15)

JIANPING XU
(WUHAN UNIVERSITY OF SCIENCE AND TECHNOLOGY, Wuhan, China)

15:20 Standardisation of ICP-OES Routine Method(s) for low Alloy Steel Analysis (77)

Maria PELE
(CTIF, Sèvres, France)

15:45 Charpy Impact Proficiency Testing in Mechanical Testing Laboratories (12)

Yifei GAO YIFEI
(BEIJING NCS ANALYTICAL INSTRUMENTS CO. LTD, Beijing, China)

16:10 Coffee Break

16:40 Analytical Treatment of Uncertainties for a Macroscopic Tribology Instrumentation (33)

Valentina MAZZANTI
(UNIVERSITY OF FERRERA, Argenta (Fe), Italy)

17:05 Expressing Measurement Uncertainty in Spark-OES Analysis with Application for the Material Conformity Probability Calculation (58)

Edmund HALASZ
(THERMO FISHER SCIENTIFIC, Ecublens, Switzerland)

17:30 Original Position Statistic Distribution Analysis of Trace Element Segregation in Nickel-base Super Alloy by LA-ICP-MS (103)

Lei ZHAO
(BEIJING NCS ANALYTICAL INSTRUMENTS CO., Beijing, China)

Session On-line sensors

Session Chairs

Hubert DUCHACZEK (VOESTALPINE STAHL, Linz, Austria)
Jozsef PALLOSI (ISD DUNAFERR ZRT, Dunaujvaros, Hungary)
Bernd-Josef SCHLOTHMANN (STAHLINSTITUT VDEH, Düsseldorf, Germany)

14:30 SuPerMagnag : a New Magnetic Sensor for an On-line Monitoring of the Sintering Process (9)

Cécile MATHY
(CRM, Liège, Belgium)

14:55 Development of an On-line LIBS-based Sensor for Monitoring the Hot Metal Composition in the Blast Furnace Runners (85)

Guy MONFORT
(CRM GROUP, Liège, Belgium)

15:20 Element Analysis of Oxide Materials in Steel Industry by Laser-induced Breakdown Spectroscopy (32)

Johannes D. PEDARNIG
(JOHANNES KEPLER UNIVERSITY LINZ, Linz, Austria)

15:45 SRM: An Industrial On-line Topography Measurement (30)

Wolfgang BILSTEIN
(AMEPA, Würselen, Germany)

16:10 Coffee Break

16:40 Wavimeter: On line Measurement of Waviness (87)

Genevieve MOREAS
(CRM GROUP, Liège, Belgium)

17:05 On-line Determination of Mg Coating Thickness on Electrolytically Galvanized Steel in Motion Using a LIBS Demonstrator (7)

Javier LASERNA
(UNIVERSITY OF MALAGA, Malaga, Spain)

17:30 tbc

CETAS 2011 - Progress in Analytical Chemistry & Materials Characterisation in the Steel and Metals Industries

Programme

Conference Dinner

CETAS 2011 - Progress in Analytical Chemistry & Materials Characterisation in the Steel and Metals Industries

Programme

Thursday May 19, 2011

Session Characterisation of Raw Materials and Final products

Session Chairs

Tamas VARADY (ISD DUNAFERR ZRT, Dunaujvaros, Hungary)
Maria PELE (CTIF, Sèvres, France)

09:00 Original Position Statistic Distribution Analysis for the Sulfides in Gear Steels (17)

Dongling LI
(BEIJING NCS ANALYTICAL INSTRUMENTS CO., Beijing, China)

09:25 Brief of the Quality Control of the Automatic Analysis System in Steel-Making Industry (70)

Yang LE
(BAOSHAN IRON & STEEL CO., LTD., Shanghai, China)

09:50 Qualitative and Quantitative Analysis of Precipitate Phases in 2205 Duplex Stainless Steel in Different Isothermal Treatment Situation (18)

Miao LEDE
(BAOSHAN IRON AND STEEL CO., Shanghai, China)

10:15 Coffee Break

Session Micro and Nano Scale Characterisation

Session Chairs

Javier LASERNA (UNIVERSITY OF MALAGA, Malaga, Spain)
Guy MONFORT (CRM GROUP, Liège, Belgium)

09:00 Precipitation Study on Ti-Nb-Mo Contained High Strength Steels (40)

Ning CAI
(SHOUGANG TECHNIC RESEARCH INSTITUTE, Beijing, China)

09:25 Monitoring of Heat Treatment Processes with High Energy X-ray (39)

Thomas RIEGER
(RWTH AACHEN UNIVERSITY, Aachen, Germany)

10:15 Coffee Break

Session Cleanliness of Steel and Metal

Session Chairs

Bo LARSSON (SANDVIK MATERIALS TECHNOLOGY, Sandviken, Sweden)
Patrick KICQ (CARSID, Marcinelle, Belgium)

09:00 Application of Laser Ablation ICP Mass Spectrometry for Rapid Analysis of Oxide Particles in Metal Samples (56)

Andrey KARASEV
(ROYAL INSTITUTE OF TECHNOLOGY (KTH), Stockholm, Sweden)

09:25 Determining Inclusion Size Distributions from OES/PDA Data (59)

Rolf WESTER
(FRAUNHOFER INSTITUT FÜR LASERTECHNIK, Aachen, Germany)

09:50 tbc

10:15 Coffee Break

Session Characterisation of Raw Materials and Final products

Session Chairs

Maria PELE (CTIF, Sèvres, France)
Tamas VARADY (ISD DUNAFERR ZRT, Dunaujvaros, Hungary)

10:45 True Simultaneous Elemental Analysis for Rapid Process Control by XRF (95)

CETAS 2011 - Progress in Analytical Chemistry & Materials Characterisation in the Steel and Metals Industries

Programme

Kai BEHRENS
(BRUKER AXS, Karlsruhe, Germany)

11:10 Online Monitoring of Hot Dip Galvanizing Bath by LIBS Technique (100)

Sophie JACQUES
(ARCELORMITTAL, Maizieres-les-Metz Cedex, France)

11:35 Direct Determination of Trace Elements in Steel by Laser Ablation/ICP-MS (68)

Tomoharu ISHIDA
(JFE STEEL CORPORATION, Fukuyama, Japan)

Session Characterisation of Surfaces and Coatings

Session Chairs

Dieter SOMMER (THYSSENKRUPP STEEL EUROPE AG, Duisburg, Germany)
Guy MONFORT (CRM GROUP, Liège, Belgium)

10:45 Characterization of Thin Films on Rough Steel Substrates: Which Method Fits Best? (46)

Ann DE VYT
(OCAS, Zelzate, Belgium)

11:10 Mechanical Resistance of Aluminium-Epoxy Assemblies as a Function of Aluminium Surface Treatment with Atmospheric Plasma (106)

Joao BOMFIM
(CRP HENRI TUDOR, Hautcharage / Kaerjeng, Luxembourg)

11:35 Use of Glow Discharge Spectrometry for Bulk and Coating Analysis at Hot-dip Galvanizing Lines (27)

Thomas BRIXIUS
(THYSSENKRUPP STEEL EUROPE, Duisburg, Germany)

Session Cleanliness of Steel and Metal

Session Chairs

Bo LARSSON (SANDVIK MATERIALS TECHNOLOGY, Sandviken, Sweden)
Patrick KICQ (CARSID, Marcinelle, Belgium)

10:45 Establishment and Application of Analysis Model for Al Inclusion Size on the Basis of Abnormal Spark Frequency Distribution (41)

Meiling LI
(CHINA IRON & STEEL RESEARCH INSTITUTE GROUP, Beijing, China)

11:10 Application of Extraction Methods for Investigation of Non-metallic Inclusions and Clusters in Steel and Alloys (84)

Diana VASILJEVIC
(ROYAL INSTITUTE OF TECHNOLOGY, Stockholm, Sweden)

Closing Session

Victor TUSSET
(CRM GROUP, Liège, Belgium)