



# ESSC & DUPLEX 2017

9<sup>th</sup> European Stainless Steel Conference - Science & Market  
&

5<sup>th</sup> European Duplex Stainless Steel Conference & Exhibition  
Bergamo · Italy, 25-27 May 2017

## ADVANCE PROGRAMME

Organized by



**ASSOCIAZIONE  
ITALIANA  
DI METALLURGIA**

In Cooperation with

**siderweb**  
THE ITALIAN STEEL COMMUNITY

Patronized by



**EUROFER**  
The European Steel Association



UNIVERSITÀ DEGLI STUDI DI BERGAMO



## Scope

After the successful experience of Graz 2015, once again, the 9<sup>th</sup> European Stainless Steel Conference Science & Market and the 5<sup>th</sup> European Duplex Stainless Steel Conference & Exhibition will be jointly organized, as a single event, by AIM, the Italian Association for Metallurgy.

The Conference will focus on all aspects of development, production technology (hot and cold rolling, heat treatment, etc.) and corrosion of stainless steels and duplex stainless steels and address delegates with both academic and industrial backgrounds. The results shall contribute to the advancement of existing and potential applications and will help to guide future development. The event will bring together developers, manufacturers and users of stainless steel from industry and academia and will compare the present and future needs to satisfy these demands now or in the future.

Short and medium term perspectives of European stainless steel flat and long products will be widely discussed during the Stainless Steel Market Outlook session.

It is expected the presence of speakers representing the most important European stainless steel associations and reports coming from the big stainless steel companies.

## Previous Conferences

### **European STAINLESS STEEL Conference Science & Market**

- 1<sup>st</sup> - Florence, Italy (1993)
- 2<sup>nd</sup> - Düsseldorf, Germany (1996)
- 3<sup>rd</sup> - Chia Laguna, Sardinia, Italy (1999)
- 4<sup>th</sup> - Paris, France (2002)
- 5<sup>th</sup> - Sevilla, Spain (2005)
- 6<sup>th</sup> - Helsinki, Finland (2008)
- 7<sup>th</sup> - Como, Italy (2011)
- 8<sup>th</sup> - Graz, Austria (2015)

### **European DUPLEX STAINLESS STEEL Conference & Exhibition**

- 1<sup>st</sup> - Venice, Italy (2000)
- 2<sup>nd</sup> - Grado, Italy (2007)
- 3<sup>rd</sup> - Beaune, France (2010)
- 4<sup>th</sup> - Graz, Austria (2015)



### Scientific & Steering Committee

- F. Bolzoni** - *Politecnico di Milano, Italy*
- G. Gabetta** - *ENI, Italy*
- C. Garcia de Andrés** - *Cenim-Csic, Spain*
- S. Hertzman** - *Outokumpu Stainless Research Foundation, Sweden*
- P. Karjalainen** - *University of Oulu, Finland*
- S.-J. Kim** - *Pohang University of Science and Technology, Korea*
- N. Kinsman** - *International Molybdenum Association, UK*
- H. Leitner** - *Böhler Edelstahl, Austria*
- N. C. Mathur** - *Indian Stainless Steel Development Association, India*
- G. Mori** - *University of Leoben, Austria*
- E. Ramous** - *University of Padua, Italy*
- A. Salieri** - *Aso Siderurgica, Italy*
- C. Sommitsch** - *Graz University of Technology, Austria*
- S. Trasatti** - *Università di Milano, Italy*
- C. Veronesi** - *Italfond, Italy*
- P. Zhao** - *The Chinese Society for Metals, China*

### Organising Committee

Chairman: **Sandro Fraccia**

- F. Bassani** - *AIM, Italy*
- M. Brancaleoni** - *IVS, Italy*
- M. Cavagnola** - *Italfond, Italy*
- M. Cusolito** - *Italy*
- S. De Donato** - *AIM, Italy*
- A. Ferraiuolo** - *Marcegaglia, Italy*
- M. Frigo** - *Outokumpu, Italy*
- E. Giacomazzi** - *Cogne Acciai Speciali, Italy*
- C. Mapelli** - *AIM, Italy*
- A. Mazzocchi** - *APERAM, Italy*
- G. Mercurelli** - *Aso Siderurgica, Italy*
- A. Morini** - *Fondinox, Italy*
- R. Nemfardi** - *Eure Inox, Italy*
- R. Rolando** - *A.C.P., Italy*
- M. Sacco** - *Arinox, Italy*



▶▶▶ **Thursday, 25 May 2017**

**Room OGGIONI**

**8.30** Registration of attendees

## **OPENING SESSION**

**10.00** Welcome addresses by prof. Carlo Mapelli, AIM President and ing. Sandro Fraccia, Chairman of the ESSC & DUPLEX 2017 Organising Committee.

**10.15** **How do the Winds blow for Stainless Steels and Duplex Steels in 2017 and thereafter?**

M. Moll - SMR Steel & Metals Market Research, Reutte, Austria

**10.45** *Presentation of the Stainless Steel "Gabriele Di Caprio" Medal to Gianluca Roda*

## **APPLICATIONS I**

**Chairperson:** Wolfgang Lipp

**11.00** **Stainless steel long products in architecture, building and construction**

B. Heritier - International Stainless Steel Forum, Brussels, Belgium

**11.20** **Experience of stainless steel as construction material in bridges**

S.H. Mameng, R. Signorelli, C. Tigerstrand - Outokumpu Stainless AB, Avesta, Sweden

J. McCray, G. Gedge - Arup, London, United Kingdom

**11.40** **Novel sandwich panels with stainless steel skin**

S. Mauro - Acciai Speciali Terni, Italy

A. Bergo, L. Tortoreto - Centro Sviluppo Materiali, Italy

**12.00** **Fracture mechanical analysis of low-temperature fracture characteristics of large-scale U-profile beam tests on new ferritic stainless steel grades for welded structures**

P. Nevasmaa, P. Karjalainen-Roikonen - VTT Technical Research Centre of Finland, Espoo, Finland

**12.20** **Superferritic stainless steel in association with glass for high-performance glazed surfaces**

G.R. Carfagni - Università di Parma, Italy

G. Gigli, D. Maccari - Acciai Speciali Terni, Italy

M.G. Serra - Centro Sviluppo Materiali, Italy

P. Vandereecken - Dow Corning Corporation, USA

**12.40** lunch





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**Room OGGIONI**

## **DUPLEX STAINLESS STEELS I**

**Chairperson:** Staffan Hertzman

**13.40 Aspects of delivery test methods for Forta LDX 2404®, part II**

J.Y. Jonsson, J. Björk, P-E. Arnvig – Outokumpu, Sweden

**14.00 Recent advances in dissolution kinetics of sigma phase in duplex stainless steels**

P. Ferro, A. Fabrizi, F. Bonollo - Università di Padova, Vicenza, Italy  
M. Longin - Siderforgerossi Group spa, Arsiero, Italy

**14.20 Spinodal decomposition of ferrite and its implications on applications of DSS at elevated temperature**

J-O. Nilsson - JON Materials Consulting, Sandviken, Sweden

**14.40 Aging behavior of a TRIP-aided lean duplex STS**

J. Y. Choi - POSCO, Pohang, Republic of Korea  
K-T. Park - Hanbat National University, Daejeon, Republic of Korea

**15.00 Hot deformation and restoration mechanisms in duplex stainless steels: Effect of strain rate**

N. Haghdadi, P. Cizek, H. Beladi, P.D. Hodgson - Deakin University, Victoria, Australia

**15.20 Hot tensile tests and phase transformations in 2101 lean duplex stainless steel**

F. Tehovnik, J. Burja, F. Vode - Institute of Metals and Technology, Ljubljana, Slovenia

**15.40 coffee break**

## **DUPLEX STAINLESS STEELS II**

**Chairperson:** Emilio Ramous

**16.00 Aperam experience on the ferrite fraction measurement in duplex stainless steel**

F. Krajcarz, J. Bridel - Aperam Stainless Research Isbergues, France

**16.20 Kinetics of phase transformation in weld heat affected zone of duplex stainless steels**

T. Ogura, Y. Tanabe, H. Inoue, K. Saida - Osaka University, Japan  
Y. Oikawa - Nippon Steel & Sumikin Stainless Steel Co., Japan

**16.40 Phase transformations during high temperature treatments in SAF 2205 duplex stainless steel**

J. Burja, F. Tehovnik, F. Vode, B. Šetina Batič - Institute of Metals and Technology, Ljubljana, Slovenia

**17.00 Effect of severe plastic deformation on microstructure and properties of duplex stainless steel**

I. Calliari, C. Gennari - Università di Padova, Italy  
N. Llorca-Isern, I. Lopez, J.M. Cabrera, M. Chand, A. Roca - Universitat de Barcelona, Spain

**17.20 Effect of the heat treatment on toughness of F55 steel grade**

B. Rivolta, R. Gerosa, F. Tavasci - Politecnico di Milano, Italy

**17.40 Influence of small amount of secondary phases on impact toughness of UNS S32205 and Zeron® 100 duplex stainless steel**

C. Gennari, M. Breda, K. Brunelli, E. Ramous, I. Calliari - Università di Padova, Italy



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**Room OGGIONI**

## **APPLICATIONS II**

**Chairperson: Sandro Fraccia**

- 8.40 Development of application to parts with high forging and weld in high purity ferritic stainless steel**  
M. Tojo, K. Takano, M. Tendoh - Nippon Steel & Sumikin Stainless Steel Corporation, Japan
- 9.00 Development of a new high-performance cost-efficient high-Cr stainless steel grade for sheet forming applications**  
S. Kodukula - Outokumpu Stainless Oy and University of Oulu, Finland  
T. Ylimäinen, J. Kela - Outokumpu Oy, Finland  
S. Anttila - University of Oulu, Finland
- 9.20 Comparative investigation of deep drawing formability in austenitic (AISI 321) and in ferritic (DIN 1.4509) stainless steel sheets**  
C. de Paula Camargo Pisano - Aperam South America Universidade de Sao Paulo, Brazil  
H.J. Batista Alves, T. Reis de Oliveira - Aperam South America  
C.G. Schön - Universidade de Sao Paulo, Brazil
- 9.40 Mechanical and corrosion properties of high CrMnN-Austenitic stainless steels for oil and gas applications**  
A. Bauch, C. Herrera - Deutsche Edelstahlwerke, Germany
- 10.00 Development of new ferritic stainless steel sheets with excellent heat resistance and formability for automotive exhaust manifolds**  
J-i. Hamada, N. Kanno, A. Hayashi, N. Hiraide, M. Abe, K. Nishimura, C. Takushima, A. Yakawa, F. Fudanoki - Nippon Steel & Sumikin Stainless Steel Corp., Japan
- 10.20 Bad cold heading behaviour in type 316L stainless wire for fasteners**  
A. Núñez, R. Sánchez, P. Acosta, J.F. Almagro - Acerinox Europa S.A.U, Los Barrios, Spain
- 10.40 coffee break**



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Room ALABASTRO

## WELDING

**Chairperson:** Marco Frigo

- 8.20 Welding guidelines for duplex, super duplex and hyper duplex stainless steels**  
M. Frodigh, P-A. Björnstedt - Sandvik Materials Technology, Sandviken, Sweden
- 8.40 2-beam Laser-based procedure for welding thin-walled semi-finished products made from duplex steel**  
S. Ulrich, S. Jahn - Guenter Koehler Institute of Joining and Material Testing, Jena, Germany  
J. Bliedtner - Ernst Abbe University of Applied Sciences, Germany  
P. Schaaf - TU Ilmenau, Germany
- 9.00 Solidification cracking susceptibility of extra high-purity type 304 and 316 stainless steels for ferrite-free welding**  
T. Ogura, T. Masaki, K. Saida - Osaka University, Japan  
K. Nishimoto - Fukui University of Technology, Japan  
K. Kikuchi - Japan Atomic Energy Agency  
J. Nakayama - Kobe Steel Ltd., Japan
- 9.20 Lean duplex stainless steel plastically deformed joined by laser welding**  
A.F. Miranda Pérez, E. Hurtado Delgado, G.Y. Pérez Medina, B.R. Rodriguez Vargas - Corporación Mexicana de Investigación en Materiales, Saltillo, México  
I. Calliari, C. Gennari - Università di Padova, Italy
- 9.40 Influencing factors on the metallurgy during TIG keyhole welding**  
S. Ulrich, A. Lüderitz, S. Jahn - Guenter Koehler Institute of Joining and Material Testing, Jena, Germany
- 10.00 Influence of shielding gas composition and post welding heat treatment temperature on corrosion resistance of UNS S31803 stainless steel welded joints**  
P. Ferro, F. Bonollo - Università di Padova, Vicenza, Italy  
J-O. Nilsson - JON Materials Consulting, Sandviken, Sweden
- 10.20 Solidification cracking behavior during laser welding of type 310s stainless steel evaluated using in-situ observation technique**  
K. Kadoi - Osaka University, Japan  
D. Wang, K. Shinozaki - Hiroshima University, Japan
- 10.40 coffee break**



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**Room OGGIONI**

## **APPLICATIONS III**

**Chairperson: Alessandro Alcamo**

- 11.00 The standardization of stainless steels: basic rules, present standards and future developments**  
M. Cusolito - Italy
- 11.20 Ongoing implementation of modern duplex stainless steel into European and ISO standards**  
T. Kirchhartz - Outokumpu EMEA GmbH, Germany
- 11.40 Microbic corrosion in stainless steel for electromagnetic valves applied in water plants**  
C. Mapelli, S. Barella, A. Gruttadauria, D. Mombelli, A. F. Ciuffini - Politecnico di Milano, Italy  
R. Nemfardi, D. Bonora - Eure Inox, Italy
- 12.00 Migration testing of low temperature surface hardened stainless steels**  
A. Friedrich, A. Karl, U. Oberste-Lehn - Bodycote, Germany
- 12.20 Martensite quantification, mechanical properties and cold rolling in AISI 301 austenitic stainless steel**  
P. Piccardo, D. Lanteri, F. Canepa - DCCI, Università di Genova, Italy  
I. Citi - Arinox spa - Riva Trigoso, Italy
- 12.40 Industry 4.0 - quality assurance for stainless steel rolling**  
H. Evers, H. Peintinger - QuinLogic GmbH, Aachen, Germany
- 13.00 New light corrosion resistant steel without chromium**  
C. Mapelli, A.F. Ciuffini, S. Barella, A. Gruttadauria, D. Mombelli - Politecnico di Milano, Italy
- 13.20 lunch**





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**Room ALABASTRO**

## **CORROSION I**

**Chairperson:** Marina Cabrini

**11.00 Pitting corrosion behaviour of stainless steel AISI 304 with different tinting colours**

K. Pradeep, B. Gsellmann, R. Vallant, Ch. Sommitsch - Graz University of Technology, Austria

**11.20 Hyperduplex pitting and crevice corrosion resistance**

A. Spaghetti - Sandvik Italia spa, Milano, Italy

**11.40 Effect of copper addition on passivity and on pitting corrosion resistance of super duplex stainless steels**

J. Poinot - Industeel & Université de Bourgogne-Franche-Comté, France  
S. Le Manchet, S. Cisse - Industeel, Le Creusot, France  
V. Vignal - Université de Bourgogne-Franche-Comté, France

**12.00 Potentiostatic and potentiodynamic polarization tests for the definition of the Pedferri's diagrams of stainless steels**

A. Azimi Dastgerdi, S. Beretta, F. Bolzoni, A. Brenna, M.V. Diamanti, M.P. Pedferri, M. Ormellese - Politecnico di Milano, Italy

**12.20 Role of the stabilizing elements in the ferritic stainless steel on the microstructural, corrosion properties and durability of the stainless steel weld joints**

D. Dyja, R. Marek - Tenneco Automotive, Rybnik, Poland  
S. Zbigniew - Technical University of Czestochowa, Poland

**12.40 Evaluation of the corrosion resistance properties of 1080° C isothermally annealed AISI F55 – UNS S32760 super duplex stainless steel**

A.F. Ciuffini, C. Di Cecca, S. Barella, A. Gruttadauria, F. Parisi, C. Mapelli - Politecnico di Milano, Italy

**13.00 lunch**



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**Room OGGIONI**

## **PROCESS TECHNOLOGIES I**

**Chairperson:** Giovanni Fantini

**14.00 Flexible stainless steel production in electric arc furnaces**

H. Beile, J. Apfel - Primetals Technologies GmbH, Germany

**14.20 Improved ductility via two-step heat treatment in low-C and low-Ni martensitic stainless steel**

I. Miettunen, T. Kaupinmäki, S. Anttila, D. A. Porter - University of Oulu, Finland

**14.40 Evaluation of liquid metal embrittlement susceptibility of austenitic stainless steel by zinc**

C. Béal, B. Wolfgruber, C. Alvarez, B. Petit, C. Sommitsch - Graz University of Technology, Austria

**15.00 Effect of processing route on the toughness and stress corrosion cracking of a 2205 duplex stainless steel**

N. Haghdadi, P. Cizek, P.D. Hodgson, H. Beladi - Deakin University, Victoria, Australia

**15.20 Optimization of steelmaking process in duplex stainless steel using factsage thermodynamic calculation**

M. Seo, D. Kim, J. Lee - Doosan Heavy Industries & Construction, Republic of Korea

**15.40 A new thermomechanical compact cycle for the production of stabilized ferritic stainless steels with improved formability**

C. Rocchi, G. Gigli, M. Sciacaluga - Acciai Speciali Terni, Italy  
F. Ruffini, R. Guerra - Centro Sviluppo Materiali, Italy

**16.00 Coffee break**



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**Room ALABASTRO**

## **CORROSION II**

**Chairperson:** Stefano Trasatti

**14.00 Corrosion resistance of Supra 316plus – A comparison with 1.4404 and 1.4432**

R. Signorelli, L. Wegrelius - Outokumpu, Sweden  
T. Ohlgschläger - Outokumpu, Finland

**14.20 Probabilistic model based on Markov chain for the assessment of localized corrosion of stainless steels**

A. Brenna, F. Bolzoni, M.P. Pedefferri, M. Ormellese - Politecnico di Milano, Italy  
L. Lazzari - Cescor, Milano, Italy

## **MICROSTRUCTURE & CHARACTERISATION I**

**Chairperson:** Stefano Trasatti

**14.40 Design of a production cycle applied to a grain size controlled round forged 1.4550 stainless steel through FEM simulations and subsequent microstructural analysis**

A. Cavalieri, M. Marten Perolino, A. Zago, M. Marino - Cogne Acciai Speciali spa, Italy

**15.00 Correlation between grain size and surface roughness variation on a tensile sample in austenitic and ferritic stainless steel strips**

I. Citi, A. Usberti, D. Montepagano - Arinox spa, Italy

**15.20 Optimization of selected properties of cast DSS by simulation-based variation of the chemical composition**

U. Diekmann - Matplus GmbH, Kamen, Germany  
P. Becker - Metatech GmbH, Kamen, Germany

**15.40 Strain induced martensite evolution in a rolling contact of SS AISI 304**

M. Werschler, P. Gümpel, K. Werner - HTWG Konstanz, Germany

**16.00 coffee break**



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**Room OGGIONI**

## **PROCESS TECHNOLOGIES II**

**Chairperson:** Mario Cusolito

- 16.20 Measurement techniques for meltdown control in a stainless steel AC electric arc furnace**  
C.N. Schmidt - KTH Royal Institute of Technology, Sweden & Outokumpu Stainless AB, Sweden  
N.Å.I. Andersson, A. Tilliander, P.G. Jönsson - KTH Royal Institute of Technology, Sweden  
P. Ljungqvist - Outokumpu Stainless AB, Sweden
- 16.40 Stainless steel & CRA seamless tube production**  
G. Grandi - Danieli & C. Officine Meccaniche spa, Buttrio, Italy  
S. Carfagno - Danieli & C. Officine Meccaniche spa, Brescia, Italy
- 17.00 Latest developments and references for AOD converter**  
G. Wimmer, K. Pastucha, B. Voraberger, R. Stadlmayr - Primetals Technologies Austria GmbH, Linz, Austria
- 17.20 Influence of microstructure on the hot ductility behavior of super duplex stainless steel**  
R. Ordonez, W. Edwards, J. Paules - Ellwood Materials Technologies Company, New Castle, USA
- 17.40 Mechanical properties evolution on heat treated severe cold rolled UNS S32760 super duplex stainless steel**  
C.M. Tromellini, A.F. Ciuffini, A. Gruttadauria, S. Barella, C. Di Cecca, C. Mapelli - Politecnico di Milano, Italy
- 18.00 Effect of nitrogen content on grain size of 16Cr ferritic stainless steel cast and formability of cold rolled sheet**  
M-H. Lee, J.H. Park - Hanyang University, Korea  
J-H. Kong, S-H. Park - POSCO, Korea
- 19.15 Departure by bus from the Conference venue**
- 19.45 Conference dinner at Restaurant La Marianna, Largo Colle Aperto, 4, Bergamo BG**





Friday, 26 May 2017

Room ALABASTRO

## STAINLESS STEEL: MARKET & OUTLOOK

Co-organised by



ASSOCIAZIONE  
ITALIANA  
DI METALLURGIA

**16.00 Registration**

**16.20 Latest trend of the stainless steel markets**

Markus Moll - Managing Director SMR, Reutte, Austria

**16.40 Stainless steel & raw material price analysis**

Achille Fornasini - Chief Analyst Siderweb, Flero, Italy

**17.00 Effect of duties on stainless steel cold-rolled flat products for European Market**

Stefano Ferrari - Research Centre Siderweb, Flero, Italy

**17.20 Distribution in the Italian stainless steel market**

F. Capelli, P. Viganò - Centro Inox, Milano, Italy

**17.40 Q&A**

The participation is free for the Conference attendees

**19.15 Departure by bus from the Conference venue**

**19.45 Conference dinner at Restaurant La Marianna, Largo Colle Aperto, 4, Bergamo BG**



▶▶▶ **Saturday, 27 May 2017**

**Room OGGIONI**

## **MICROSTRUCTURE & CHARACTERISATION II**

**Chairperson:** Chiara Veronesi

**9.00 Chromium nitrides effects on low temperature impact toughness and durability of duplex stainless steels forgings**

G. Camicia, M. Longin - Siderforgerossi Group spa, Arsiero, Italy  
P. Ferro, F. Bonollo - Università di Padova, Vicenza, Italy

**9.20 A comparative study of two different methods for determination of forming limits in the first quadrant**

T. Manninen - Outokumpu, Tornio R&D Center, Finland  
R. Vierelä, M. Ylitolva - Lapland University of Applied Sciences, Kemi, Finland  
O. Leinonen, J. Ilmola, J. Larkiola - University of Oulu, Finland

**9.40 A novel fine grained austenitic stainless steel with excellent properties**

J. Leinonen, N. Rostedt, J. Helin - Solu Stainless Oy, Finland

**10.00 Residual stress in the duplex stainless steel Sandvik SAF 2205 after annealing and tumbling**

C-O. A. Olsson - Sandvik Materials Technology, Sandwiken, Sweden

**10.20 Effect of the interstitial elements and heat treatments on mechanical properties of martensitic stainless steel X4CrNiMo16-5-1 (1.4418)**

C. Herrera, W. Demtröder - Deutsche Edelstahlwerke, Witten, Germany

**10.40 Phase transformations during aging of a hyperduplex stainless steel**

R. Magnabosco, F. Marachin Rabecchini - FEI University, Brazil

**11.00 Coffee break**



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## **PROCESS TECHNOLOGIES III**

**Chairperson:** Daniele Bonora

- 9.00 Alternating Current Pickling: a breakthrough innovation in continuous pickling lines for stainless steel strips**  
A. Barini, C. Ferrari - Marcegaglia Specialties, Italy  
S. Luperi, L. Lattanzi - Centro Sviluppo Materiali, Italy  
S. Martines, G. Astengo - Tenova spa, Italy
- 9.20 Segregations in a defect found on the cold rolled stainless steel strip and connection to the bleed defects on the cast slabs**  
P. Hooli - Sapotech Oy, Oulu, Finland
- 9.40 HFREELIFEPICKLING (electro pickling of pipes) in duplex and super duplex alloys without the use of hydrofluoric acid**  
L. Dal Santo - Rivit spa, Caltrano, Italy  
M. Rigamonti - Henkel Italia srl, Caleppio di Settala, Italy
- 10.00 A new process for pickling duplex stainless steel EN 1.4462 (2505) (UNS 31803) at room temperature: study of the electrochemical behavior of the material during the pickling process**  
A. De Biasi, V. Rampazzo, P.L. Barricelli - Ricerca Chimica snc, Vighizzolo D'Este, Italy
- 10.20 Effect of preparatory thermal treatments on F55 – UNS S32760 super duplex stainless steel properties after shot peening**  
A.F. Ciuffini, C. Di Cecca, S. Barella, A. Gruttadauria, C. Mapelli - Politecnico di Milano, Italy  
I.F. Pariente - Universidad de Oviedo, Spain
- 10.40 Influence of hot deformation on microstructural and mechanical properties of F55 super duplex stainless steel**  
N. Șerban, M.L. Angelescu, V.D. Cojocaru, D. Răducanu, I. Cinca - University Politehnica of Bucharest, Romania  
A.N. Vintilă - Forja Rotec Ltd., Buzău, Romania
- 11.00 coffee break**



▶▶▶ **Saturday, 27 May 2017**

**Room OGGIONI**

## **MICROSTRUCTURE & CHARACTERISATION III**

**Chairperson: Jan-Olof Nilsson**

- 11.20 The potential for grain refinement of a super austenitic stainless steel with a cerium grain refiner**  
K. Baumgartner, C. Bernhard, P. Presoly - Montanuniversität Leoben, Austria  
M. Hafok, H. Leitner - Böhler Edelstahl GmbH & Co KG, Kapfenberg, Austria
- 11.40 Impacts of non-metallic inclusions on characteristics of stainless steels – a review**  
Y. Kang - Dong-A University, Korea  
J.H. Park - Hanyang University, Korea
- 12.00 Transmission electron microscopy: a versatile technique for the characterisation of alloys at the nanoscale**  
B. Erkartal, S. Rybarczyk, A. Wallberg - BWS Philipp Boecker + Wender Stahl GmbH & Co. KG, Iserlohn, Germany  
U. Schürmann, L. Kienle - Synthesis and Real Structure of Solids CAU Kiel, Germany
- 12.20 Hydrogen embrittlement and mechanical properties in high nitrogen austenitic stainless steels**  
H-S. Noh, J-H. Kang, S-J. Kim - GIFT, POSTECH, Republic of Korea  
K-M. Kim - POSCO, Republic of Korea
- 12.40 Characterization of the anisotropic necking in duplex stainless steels with lamellar microstructures**  
A. Gallifa Terricabras - Universidad Politecnica de Catalunya, Spain  
C.G. Schön - Escola Politécnica da Universidade de São Paulo, Brazil
- 13.00 End of the Conference**





▶▶▶ **Saturday, 27 May 2017**      **Room ALABASTRO**

## **AUSTENITIC AND FERRITIC STAINLESS STEELS**

**Chairperson:** Andrea Mazzocchi

- 11.20 Different effects of carbon and nitrogen on precipitation behavior and mechanical properties in austenitic stainless steels**  
K-S. Kim, J-H. Kang, S-J. Kim - Postech, Republic of Korea
- 11.40 Continuous cooling sensitization and its evaluation in austenitic stainless steel EN 1.4310**  
S.K. Kolli, D.A. Porter - University of Oulu, Finland  
T. Ohlischläger - Outokumpu, R&D Tornio, Finland
- 12.00 Study of strain induced martensitic transformation in two austenitic stainless steels by x-ray diffraction**  
J.W. Ferezin Vieira, R. Magnabosco - FEI University, Brazil
- 12.20 Suitability of size adjustment in impact toughness transition region for sub-sized ferritic stainless steel Charpy-V results**  
S. Uusikallio, I. Miettunen, S. Anttila - University of Oulu, Finland  
T. Manninen - Outokumpu, Tornio R&D Center, Finland  
P. Nevasmaa - VTT, Espoo, Finland
- 12.40 An analysis of properties of electroless Ni-P layer on stainless steel**  
B. Smoljan, D. Iljkić, M. Maretić, S. Smokvina Hanza, L. Štic, A. Borić - University of Rijeka, Croatia
- 13.00 End of the Conference**

### **NOTE ON THE PROGRAMME**

**This programme is a preliminary programme. It is not definitive and it may be slightly modified: titled and authors, cancelled or added papers or posters, chairperson, timetable or duration, etc.**

**Possible changes in the programme will be communicated before the beginning of the Conference.**



# TIME TABLE

## Thursday, 25 May 2017

8.30 Registration of attendees

### OGGIONI ROOM

10.00	OPENING SESSION
10.45	Presentation of the Stainless Steel Medal
11.00	APPLICATIONS I
12.40	<i>lunch</i>
13.40	DUPLEX STAINLESS STEELS I
15.40	<i>coffee break</i>
16.00	DUPLEX STAINLESS STEELS II

## Friday, 26 May 2017

### OGGIONI ROOM

### ALABASTRO ROOM

8.20	APPLICATIONS II	WELDING
10.40	<i>coffee break</i>	
11.00	APPLICATIONS III	CORROSION I
13.00	<i>lunch</i>	
14.00	PROCESS TECHNOLOGIES I	CORROSION II
14.40		MICROSTRUCTURE & CHARACTERISATION I
16.00	<i>coffee break</i>	
16.20	PROCESS TECHNOLOGIES II	MARKET OUTLOOK
19.45	<i>Conference dinner</i>	

## Saturday, 27 May 2017

### OGGIONI ROOM

### ALABASTRO ROOM

9.00	MICROSTRUCTURE & CHARACTERISATION II	PROCESS TECHNOLOGIES III
11.00	<i>coffee break</i>	
11.20	MICROSTRUCTURE & CHARACTERISATION III	AUSTENITIC & FERRITIC STAINLESS STEELS
13.00	<i>End of the Conference</i>	



# General Information

## **CONFERENCE VENUE**

The Conference will be held in Bergamo at the Congress Center Giovanni XXIII, viale Papa Giovanni XXIII, 106 ([www.congresscenter.bg.it](http://www.congresscenter.bg.it)).

## **LANGUAGE**

The official language of the Conference will be English.

## **PUBLICATION OF PROCEEDINGS**

The full texts of all papers will be published in the electronic form proceedings and issued to delegates on arrival at the Conference. A selection of the best papers will be also published on "La Metallurgia Italiana - International Journal of the Italian Association for Metallurgy", the scientific journal of AIM, which is covered in the Science Citation Index Expanded by Thomson Reuters and in Scopus by Elsevier B.V.

## **ACCOMMODATION**

For information on accommodation in Bergamo, we invite you to visit the Conference website (venue section): [www.aimnet.it/essc2017.htm](http://www.aimnet.it/essc2017.htm)

## **CONFERENCE SCHEDULE**

May 25, 2017: Opening session and technical sessions

May 26, 2017: Technical sessions - Conference dinner

May 27, 2017: Technical sessions



## Registration Information

### REGISTRATION FEES

#### STANDARD REGISTRATION FEES (after April 5, 2017)

	AIM/Centro Inox MEMBER	NON MEMBER
Speaker (presenter)		
Session Chair	€ 560	€ 680
Committee Member		
Participant (non-presenter)	€ 810	€ 930
Student*	free	€ 390

**Additional ticket for Conference dinner for accompanying persons:** € 90  
(22% VAT included)  
(Includes only the Conference dinner on May 26)

#### CONFERENCE REGISTRATION FEES INCLUDE:

- Admittance to technical sessions and to the exhibition
- Conference bag with electronic proceedings
- Conference dinner on May 26
- Coffee breaks
- Lunches

For non-members the fee includes AIM Membership for the last three quarters of 2017 and for the year 2018.

\* Students will have to provide valid proof of student status. The Conference dinner on May 26 is not included in the student registration fee.





### Payment and remittance

- by bank transfer, to the order of Associazione Italiana di Metallurgia AIM at "UBI Banca SpA", Branch no. 2 -Via Borgogna, 2/4 - 20122 Milano- Italy, account no. 000000022325 - cod. ABI 03111 - CAB 01604 - cin O, IBAN: IT4900311101604000000022325, swift code BLOPIT22. The transfer order must specify the name of the participant and the reference "ESSC 2017". A copy of the transfer order must be sent to AIM, together with the Registration Form.
- by credit card online ( [www.aimnet.it/essc2017.htm](http://www.aimnet.it/essc2017.htm) ).

### Speakers registration

Please be aware that only papers submitted on time and with presenting author regularly registered (registration fee paid) before March 15, 2017 will be included in the final programme and published in the Conference proceedings.

Registration forms will not be processed without payment. A maximum of two papers will be accepted for each author registered in time.

### Speakers cancellation and refund policy

A refund, less 20% deduction for administrative costs, will be issued for written cancellations received by March 31, 2017.

For speakers who notify their cancellation **after March 31, 2017** or will not attend the Conference, **a charge of 100% of the conference fee will be withheld.**

Their papers will be published anyway in the proceedings and a copy of the proceedings will be sent after the event.

### Advanced registration

If you plan to attend, please register online on the Conference website [www.aimnet.it/essc2017.htm](http://www.aimnet.it/essc2017.htm) or fill in the enclosed Registration Form and send it to the Organising Secretariat best before April 5, 2017 (early-bird registrations deadline).

Please use a separate form for each participant.

Please contact the Organising Secretariat by fax or e-mail, if possible.

### Cancellation and refund policy

A refund, less 20% deduction for administrative costs, will be issued for written cancellations received **by April 5, 2017.**

For attendees who notify their cancellation **after April 5, 2017** or will not attend the conference, **a charge of 100% of the conference fee will be withheld** and a copy of the proceedings will be sent after the event.



### **Insurance**

The Organising Secretariat cannot assume any responsibility for personal accident, loss or damage to the private property of participants and accompanying persons, which may either occur during or arise from the Conference. Participants should therefore take whatever steps they consider necessary as regards insurance.

### **Visa Application Form**

If you need an official invitation please send your request to the Organising Secretariat best before April 14, 2017 complete with family and first name, Mr/Mrs, birth date, passport number, arrival and departure dates, nationality and fax number of the Italian Embassy for your Country.

### **Exhibition & Sponsorship opportunities**

The Conference will be enhanced by an Exhibition of table-top units at which companies will have the opportunity to inform all participants of their latest developments. The Exhibition area will be a focal point of the Conference. Companies will be able to reinforce their participation and enhance their corporate identification by taking advantage of benefits offered to them as Contributing Sponsors of the Conference. The detailed sponsorship packages are available on the Conference website:

<http://www.aimnet.it/essc2017.htm>

Companies interested in taking part in the Exhibition or sponsoring the event may contact the Organising Secretariat (e-mail: [aim@aimnet.it](mailto:aim@aimnet.it) / fax: +39 0276020551).

### **Mobile/cell phone**

Mobiles must be kept turned off or in silent mode in all Conference rooms.

### **Bergamo**

Bergamo greets visitors with its Venetian Walls. Surrounded by rivers and lush, verdant valleys, crossed by paths that widen to Parco dei Colli, the area's largest park, the city looks like a lounge filled with art, culture and nature, with a fascinating and complex history just waiting to be shared with others. The "upper and lower" city reveals a mixture of pleasant surprises and unexpected encounters, such as those with Gaetano Donizetti, the great composer of international renown, Bartolomeo Colleoni, the Bergamo leader who served under the Republic of Venice and Lorenzo Lotto, among the most famous Italian Renaissance artists who lived and worked in Bergamo for over a decade.

### **Social Programme**

AIM is planning the Conference dinner in the evening of May 26, which is included in the registration fee, in order to give participants the opportunity to meet informally and enjoy Bergamo's atmosphere.



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Conference Organizing Secretariat

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<http://www.aimnet.it/essc2017.htm>