

# FINAL PROGRAMME



## HEAT TREATMENT & SURFACE ENGINEERING FOR AUTOMOTIVE

5-7 JUNE 2019

Bardolino  
Garda Lake - Italy



Organised by



ASSOCIAZIONE  
ITALIANA  
DI METALLURGIA

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CRF - an FCA Company, Italy

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**Danilo Petta**

*AIM / Italy*

**Klaus Löser**

*AWT / Germany*

## WEDNESDAY, 5 JUNE 2019

9:30 | Registration of attendees

### GARDENIA ROOM

11:00 | OPENING SESSION

12:40 | LUNCH

### GARDENIA ROOM

### LILIJUM+IRIS ROOM

14:00 | MASSIVE HEAT TREATMENTS I

INDUSTRIAL HT EQUIPMENT AND PROCESS INNOVATION I

16:00 | COFFEE BREAK

16:20 | CRYOGENIC TREATMENT

MASSIVE HEAT TREATMENTS II

QUENCHING

## THURSDAY, 6 JUNE 2019

### GARDENIA ROOM

### LILIJUM+IRIS ROOM

8:50 | NITRIDING AND NITROCARBURIZING I

QUALITY AND ACCREDITATION

10:50 | COFFEE BREAK

11:20 | NITRIDING AND NITROCARBURIZING II

INDUSTRIAL HT EQUIPMENT AND PROCESS INNOVATION II

12:40 | LUNCH

14:00 | COATINGS I

INDUSTRIAL HT PROCESS AND SIMULATION

16:00 | COFFEE BREAK

16:20 | COATINGS II

18:00

SOCIAL EVENT

22:45

## FRIDAY, 7 JUNE 2019

### GARDENIA ROOM

### LILIJUM+IRIS ROOM

8:50 | CARBURIZING PROCESSES AND PROPERTIES

NON FERROUS PROCESSES AND PROPERTIES

10:30 | COFFEE BREAK

11:00 | STAINLESS STEELS

APPLICATIONS

### GARDENIA ROOM

12:40 | CLOSING SESSION

13:00 | END OF THE CONFERENCE

# WEDNESDAY, 5 JUNE 2019

09:30 Registration of attendees

## WEDNESDAY, 5 JUNE 2019 – GARDENIA ROOM

### OPENING SESSION

- 11:00 Welcome addresses  
Ing. Federico Mazzolari - AIM President  
Ing. Enrico Morgano - Conference Chairman  
Ing. Danilo Petta - President of AIM Heat Treatment and Metallography Group
- 11:25 **Overview on steels, heat treatment and shot peening in automotive field**  
ECHT065 E. Morgano, J. Tatti - *CRF GML Metals An FCA company, Italy*
- 11:50 **Bainitic transformation during the two-step Q&P process in a lean medium Mn steel containing silicon**  
ECHT028 S. Kaar, R. Schneider - *University of Applied Sciences Upper Austria, Austria*  
D. Krizan - *voestalpine Stahl GmbH, Austria*  
C. Béal, C. Sommitsch - *Graz University of Technology, Austria*
- 12:15 **Composition and stress profiles developing during low temperature surface hardening of stainless steel; experimental assessment and numerical prediction**  
ECHT041 Ö.C. Kücüküydiz, T.L. Christiansen, G. Winther, M.A.J. Somers - *Technical University of Denmark, Lyngby, Denmark*
- 12:40 Lunch

## MASSIVE HEAT TREATMENTS I

Chairperson: **Reinhold Schneider**

- 14:00** Specific air-blowing cooling pattern enhancing mechanical properties of bainitic steels in the as-forged state  
*ECHT045*  
V. Bordereau - ArcelorMittal Global R&D Bars & Wires, France
- 14:20** Ultra-fine-grained thermo-mechanically treated XTP® bars with high toughness for cold forming and machining  
*ECHT069*  
M.D. Bambach, K. Helas - GMT mbH, Berlin, Germany  
L. Oberli - Steeltec AG, Emmenbrücke, Switzerland
- 14:40** Heat treatment routes utilizing intercritical annealing of automotive medium-Mn steel sheets  
*ECHT087*  
A. Grajcar, M. Morawiec - Silesian University of Technology, Gliwice, Poland
- 15:00** Effect of titanium on the hardenability of boron-treated steels for higher abrasion resistance  
*ECHT075*  
R. Bruna, G. Ebri, A. Cerliani - Ternium, Argentina  
C.I. Garcia - University of Pittsburgh, USA
- 15:20** Investigation on heat treatment of powder metallurgy carbon free Fe-Co-Mo alloy  
*ECHT023*  
S. Roggero, D. Franchi - Trattamenti Termici Ferioli & Gianotti spa, Caselette, Italy  
D. Magistroni, A. Rivolta - Böhler, divisione della voestalpine High Performance Metals Italia spa, Milano, Italy
- 16:00** Coffee break

## CRYOGENIC TREATMENT

Chairperson: **Massimo Pellizzari**

- 16:20** Influence of RT soaking on the stability of retained austenite in 72NiCrMo4-2 tool steel  
*ECHT017*  
E. Caldesi, D. Carlevaris, A. Dauriz, S. Lindholm, A. Ometto, M. Zampiccoli, M. Pellizzari - Università di Trento, Italy
- 16:40** Time-dependent transformation of retained austenite at sub-zero Celsius temperatures; from metallurgical understanding to application in practice  
*ECHT034*  
M. Villa, M.A.J. Somers - Technical University of Denmark, Lyngby, Denmark
- 17:00** Deep cryogenic treatment of metallic materials in automotive applications: a review  
*ECHT038*  
P. Jovičević Klug, B. Podgornik - Institute of Metals and Technology, Ljubljana, Slovenia and Jožef Stefan International Postgraduate School, Ljubljana, Slovenia
- 17:20** Effect of multistage cryogenic treatment (MCT) on wear resistant of Böhler K390 powder cold work tool steel  
*ECHT089*  
P. Nawrocki, T. Babul, A. Ciski - Institute of Precision Mechanics, Warsaw, Poland  
D. Hradil - COMTES F.H.T., Dobřany, Czech Republic
- 17:40** Influence of cryogenic treatment on the mechanical properties of X45NiCrMo4 cold work tool steel  
*ECHT090*  
T. Babul, P. Nawrocki, A. Ciski - Institute of Precision Mechanics, Warsaw, Poland
- 18:00** Effect of deep cryogenic treatment on steel wear and corrosion resistance  
*ECHT067*  
B. Podgornik, M. Sedlaček, Č. Donik, A. Kocijan - Institute of Metals and Technology, Ljubljana, Slovenia

# WEDNESDAY, 5 JUNE 2019 - LILIUM+IRIS ROOM

## INDUSTRIAL HEAT TREATMENT EQUIPMENT AND PROCESS INNOVATION I

Chairperson: **Klaus Löser**

- 14:00 Inductive fixture hardening and tempering: A big step forward in gear manufacturing**  
ECHT073 M. Bergmeir, R. Jenne - *EMA Indutec GmbH, Meckesheim, Germany*
- 14:20 Use of ceramic hollow microspheres to reduce the thermal conductivity of unshaped dense refractories**  
ECHT048 R. Peri, A. Bertora, D. Bozano, L. Giacomelli - *SANAC spa, Vado Ligure, Italy*
- 14:40 Laser surface hardening of ferrous alloys: feasibility and applications**  
ECHT074 N. Pagano, R. Squatrito, L. Todaro - *Nextema srl, Bologna, Italy*  
A. Ascari, A. Fortunato - *Alma Mater Studiorum - Università degli studi di Bologna, Italy*  
S. Zarini - *Optoprim srl, Monza, Italy*
- 15:00 Residual stress measurement by hard X – Ray diffraction**  
ECHT083 D. Maestrini, G.P. Marconi, A. Benedetti - *2 Effe Engineering srl, Soiano D/L (BS), Italy*
- 15:20 Design and installation of an APC system on a steel industry reheating furnace**  
ECHT082 G. Bartucci, G. Astolfi, S. Montironi, L. Orlietti, C. Pepe, C. Valzecchi - *Alperia Bartucci spa, Soave (VR), Italy*  
M. Fusato, F. Morandini, S. Salvagno, G. Politano, G. Mazzi, G. Forbice - *Feralpi Group, Lonato del Garda (BS), Italy*
- 15:40 The application of waste heat recover system and discussion of saving energy in strip continuous annealing furnace**  
ECHT005 L. Wang - *Baosteel-NSC Automotive Steel Sheets Co.Ltd, Shanghai, China*
- 16:00** Coffee break

## MASSIVE HEAT TREATMENTS II

Chairperson: **Silvia Roggero**

- 16:20 Studying the segregation pattern in hot rolled steel**  
ECHT006 W.M. Al-Othman, H. Bayati, A. Al-Shahrani, H. Al-Jabr - *SABIC, Jubail, Saudi Arabia*
- 16:40 Benefits and properties of laser-hardened tool steel surfaces**  
ECHT004 S. Němeček - *Raptech, Zruc-Senec, Czech Republic*  
I. Černý, J. Kec - *SVÚM Praha, Czech Republic*  
N. Ganev, J. Čapek - *ČVUT Praha, Czech Republic*

## QUENCHING

Chairperson: **Silvia Roggero**

- 17:00 Automotive components heat treatments: isothermal annealing, quench and tempered and low pressure case hardening**  
ECHT091 M. Ferrando, V. Sisti, L. Cislighi - *T.T.N. spa, Italy*
- 17:20 High pressure gas quenching: assessment of velocity experimental measurements and steps for model validation**  
ECHT050 E. Vyazmina - *Air Liquide R&D, Jouy en Josas, France*  
L. Bustamante-Valencia - *Air Liquide, AL France Industrie, Bagneux, France*  
V. Woimbee - *Faurecia, Brières les scellés, France*  
G. Michel - *IRT M2P, Metz, France*  
A. Belhajria, Ch. David - *Sciences Computers Consultants, Saint Etienne, France*
- 17:40 Factors influencing spray quenching of steel products**  
ECHT071 M. Chabičovský, P. Kotrbáček, M. Raudenský - *Brno University of Technology, Czech Republic*

## NITRIDING AND NITROCARBURIZING. APPLICATION AND COMBINED PROCESSES I

Chairpersons: **Carlo Dell'Oste, Mattia Merlin**

- 08:50** **Stainless steel & titanium surface hardening**  
*ECHT014* T. Strabo Hummelshøj - *Expanite A/S, Hillerød, Denmark*
- 09:10** **Future trends in surface hardening of stainless steels for automotive applications**  
*ECHT016* U. Oberste-Lehn, A. Karl, V. Bordiga - *Bodycote, Landsberg, Germany*
- 09:30** **Influence of gas nitriding conditions on layer structure formation on grey- and white- solidified cast irons (part I)**  
*ECHT060* A. Holst, A. Buchwalder - *TU Bergakademie Freiberg, Germany*  
R. Zenker - *TU Bergakademie Freiberg, Germany and Zenker Consult, Mittweida, Germany*
- 09:50** **Material-dependent aspects for the use of nitriding as a single or duplex treatment in improving the tribological load-bearing behaviour of cast irons (part II)**  
*ECHT061* A. Buchwalder, N. Klose, R. Zenker - *TU Bergakademie Freiberg, Germany*
- 10:10** **Liquid nitrocarburizing treatment on valves in internal combustion engines**  
*ECHT080* M. Legrand, V. Monteux - *HEF Durferrit, Andrezieux Boutheon, France*
- 10:30** **New environmental-friendly developments and applications of the pulsed plasma heat treatment technology in the field of engine, transmission and power train engineering**  
*ECHT012* A. Gebeshuber, V. Strobl, T. Müller - *Rübig GmbH&Co.KG, Wels, Austria*
- 10:50** Coffee break

## NITRIDING AND NITROCARBURIZING. APPLICATION AND COMBINED PROCESSES II

Chairpersons: **Carlo Dell'Oste, Mattia Merlin**

- 11:20** **Cross-sectional gradients of residual stresses, microstructure and phases in a nitrided steel revealed by 20µm synchrotron X-ray diffraction**  
*ECHT032* S.C. Bodner, T. Ziegelwanger, M. Meindlhumer, J. Holcova, J. Keckes - *Montanuniversität Leoben, Austria*  
J. Todt - *Austrian Academy of Science, Austria*  
N. Schell - *Helmholtz-Zentrum Geesthacht, Germany*
- 11:40** **Nitriding and ferritic nitrocarburizing controlled according to AMS 2759/10 and 2759/12**  
*ECHT078* S. Nouisir, J. Kalucki - *Nitrex Metal Inc., Montreal, Canada*
- 12:00** **Effect of barrel nitriding on friction and wear characteristics of aluminum alloy**  
*ECHT003* K. Nambu, K. Sayo, M. Okumiya - *Toyota Technological Institute, Aichi, Japan*
- 12:40** Lunch

## QUALITY AND ACCREDITATION

Chairperson: **Bernard Vandewiele**

- 08:50** “LPC – Outsourcing” – advanced distortion control as a service  
*ECHT031* V. Heuer, B. Reinhold - VACUHEAT GmbH, Limbach-Oberfrohna, Germany
- 09:10** Save handling of furnace fixtures and charging equipment – why CE marking is obligatory and what operators should consider  
*ECHT047* R. Ritzenhoff - Friedr. Lohmann GmbH, Witten, Germany
- 09:30** Evaluation of the quality of weld lines in ERW steel pipe  
*ECHT025* M. Hua, Q. Wang - University of Pittsburgh, USA  
A.J. DeArdo - University of Pittsburgh, USA and University of Oulu, Finland
- 09:50** Non-destructive hardness / microstructure testing of heat-treated parts by mass production, with multiple frequency magnetic induction method  
*ECHT049* A. Horsch - Arnold Horsch e.K., Remscheid, Germany
- 10:10** AreX family: an XRD solution to retained austenite quantification  
*ECHT042* G. Siviero, A. Torboli, L. Seralessandri - GNR srl, Agrate Conturbia (NO), Italy
- 10:30** Residual stress measurements in order to reduce non-conformity by distortion in machining  
*ECHT081* D. Magagnini, M. Bertoldi - RTM Breda, Italy
- 10:50** Coffee break

## INDUSTRIAL HEAT TREATMENT EQUIPMENT AND PROCESS INNOVATION II

Chairperson: **Alessandro Fiorese**

- 11:20** Effect of cyclic thermal loading on the lifetime of furnace components  
*ECHT002* N.K. Karthik, N. Schmitz, H. Pfeifer - RWTH Aachen University, Germany
- 11:40** New compact 100 kW HF inverter for a wide range of induction heating applications  
*ECHT066* E. J. Dede, V. Esteve, J. Jordán - University Valencia / Smart Induction Converter Technologies S.L, Spain
- 12:00** Accurate infrared temperature measurement for metal strip processing  
*ECHT063* S. Fiona Turner, P. Drögmöller - Land Instruments, Dronfield, United Kingdom  
M. Hayk - Ametek GmbH, Meerbusch, Germany
- 12:20** Introduction of Toyo Tanso’s CFC material and application to carburization and oil quenching  
*ECHT092* H. Machino, S. Bito, S. Tomita - Toyo Tanso Co. Ltd., Japan
- 12:40** Lunch

## COATINGS I

Chairpersons: **Paolo Buzzi, Carla Martini**

- 14:00** **A study on PVD coatings for reduction of friction and wear of swashplate axial piston pumps and motors**  
ECHT072  
R. Sola, P. Veronesi, B. Zardin, M. Borghi - *Università di Modena e Reggio Emilia, Italy*
- 14:20** **Dry sliding behaviour of nanoceramic coatings deposited by electrochemical oxidation on the wrought AA6082 aluminium alloy**  
ECHT019  
L. Ceschini, C. Martini, L. Tonelli, S. Toschi - *Università di Bologna, Italy*  
P. Shashkov, S. Usov - *Cambridge Nanolitic Ltd, Haverhill, United Kingdom*
- 14:40** **Surface modification of steels by application of tungsten compounds coatings in high frequency discharge**  
ECHT040  
L.G. Petrova, V.A. Aleksandrov, A.S. Sergeeva - *Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia*
- 15:00** **Modification of tribological properties of DLC through texturing**  
ECHT007  
D. Romagnoli, F. Lavalle, P. Lavalle - *STS srl, Cellatica (Bs), Italy*  
L. Montesano, M. Surfaro, L. Giorleo, G.M. La Vecchia - *Università di Brescia, DIMI, Italy*
- 15:20** **Characterization of thick t-aC coating deposited by novel arc source for automotive components**  
ECHT022  
P. Lavalle, F. Lavalle, D. Romagnoli - *STS srl, Cellatica, Italy*
- 15:40** **Thermo-physical properties of double layered suspension plasma sprayed thermal barrier coatings for light duty diesel engine**  
ECHT056  
W. Uczak de Goes, N. Markocsan, M. Gupta - *University West, Sweden*  
J. Somhorst - *Volvo Car Corporation*  
T. Matsushita - *Jönköping University, Sweden*
- 16:00** Coffee break

## COATINGS II

Chairpersons: **Paolo Buzzi, Carla Martini**

- 16:20** **Nanostructured CVD W/WC coating prevents galling and adhesive wear of mechanisms under dry sliding conditions**  
ECHT024  
Y. Zhuk - *Hardide plc, United Kingdom*
- 16:40** **DLC coating on sliding finger follower**  
ECHT084  
M. Legrand, R. Montélimard - *HEF Durferrit, Andrézieux Bouthéon, France*

**18:00 / 22:45** Social Event (see page 14)

## INDUSTRIAL HEAT TREATMENT PROCESS AND SIMULATION

Chairpersons: **Alessandro Fiorese, Cristian Viscardi**

- 14:00**     **Simulation of heat treatment of Jominy specimen to improve quality of automotive gear components**  
*ECHT079*  
E. Morgano - *FCA CRF Metal Bulk, Italy*  
C. Viscardi, L. Valente - *Ecotre Valente srl, Italy*
- 14:20**     **Investigation of the influence of proximal radiation on the thermal stresses and lifetime of metallic radiant tubes in radiation-dominated industrial furnaces**  
*ECHT008*  
D. Büschgens, N.K. Karthik, C. Schubert, N. Schmitz, H. Pfeifer - *RWTH Aachen University, Germany*
- 14:40**     **Distortion of gears as consequence of lightweight construction – influence of toothing**  
*ECHT013*  
T. Lübben, J. Kagathara - *Leibniz Institute for Materials Engineering – IWT, Bremen, Germany*
- 15:00**     **A posteriori reconstruction of the temperature distribution in surface hardened tempering steel**  
*ECHT057*  
D. Mevec, P. Raninger, P. Prevedel, V. Jászfi - *Materials Center Leoben Forschung GmbH, Austria*  
T. Antretter - *Montanuniversität Leoben, Austria*
- 15:20**     **Aluminium heat treatments simulation solutions with FORGE®**  
*ECHT033*  
S. Grosso, J. Barlier - *Transvalor S.A., France*
- 15:40**     **New numerical approach for enhancing non-conventional energy absorbing capacity of plastically buckled tubular structure**  
*ECHT030*  
H. Haileleoul Sahle - *Laboratoire Quartz, France*  
A. Abdul-Latif - *Laboratoire Quartz, St Ouen, France and UniversitéParis8, France*
- 16:00**     Coffee break
- 18:00 / 22:45**     Social Event (see page 14)

# FRIDAY, 7 JUNE 2019 – GARDENIA ROOM

## CARBURIZING PROCESS AND PROPERTIES

Chairperson: **Danilo Petta**

- 08:50**    **Control of austenitic grain size in standard steel grades of transmission market**  
ECHT018    V. Smanio, F.X. Hoche - *ArcelorMittal Global Research and Development Bars&Wires, France*  
              S. Jansto - *CBMM, Brazil*
- 09:10**    **Grain size control in process chains of cold and hot forged drive train components**  
ECHT021    I. Ortlepp - *ZF Friedrichshafen AG, Germany*
- 09:30**    **How Low Pressure Carburizing evolutions will face the new car industry challenges**  
ECHT051    N. Vanoise - *ECM Technologies, France*  
              A. Rosso - *Silco srl, Italy*
- 09:50**    **Heat treatment of automotive components in the age of digitalization**  
ECHT062    K. Löser, K. Ritter, G. Schmitt - *ALD Vacuum Technologies GmbH, Hanau, Germany*
- 10:10**    **Low pressure carburizing and Kolsterising the Bodycote proposal to the automotive industry**  
ECHT043    A. Magnacca - *Bodycote sas, Italy*  
              V. Bordiga - *Bodycote S3P, Italy*
- 10:30**    Coffee break

## STAINLESS STEELS

Chairperson: **Marcel A.J. Somers**

- 11:00**    **High temperature solution nitriding of stainless steels; current status and future trends**  
ECHT052    T.L. Christiansen, M. Villa, C. Tibollo, K.V. Dahl, M.A.J. Somers - *Technical University of Denmark, Lyngby, Denmark*
- 11:20**    **Wear solutions for stainless automotive components**  
ECHT053    A. Hunger, R. Berger - *BorTec GmbH & Co. KG, Huerth, Germany*
- 11:40**    **Wear solution for turbo charger applications up to 1.000°C**  
ECHT058    R. Hunger, R. Berger - *BorTec GmbH & Co. KG, Huerth, Germany*
- 12:00**    **Effect of low temperature carburization of austenitic stainless steels on residual stress and magnetic properties**  
ECHT076    K.V. Werner, F.B. Grumsen, T.L. Christiansen, M.A.J. Somers - *Technical University of Denmark, Lyngby, Denmark*  
              P. Schuler, A. Hörtnagl, P. Gümpel - *Institut für Werkstoffsystemtechnik Thurgau, Switzerland*
- 12:20**    **Deep rolling and its modifications applied to martensitic stainless steel AISI 420**  
ECHT009    S. Prmee, P. Juijerm - *Kasetsart University, Bangkok, Thailand*
- 12:40**    *Closing session*  
              Enrico Morgano - Conference Chairman  
              Danilo Petta - President of AIM Heat Treatment and Metallography Group
- 13:00**    End of the Conference

## NON FERROUS PROCESSES AND PROPERTIES

Chairperson: **Giulio Timelli**

- 08:50** **Quenching of aluminium alloys in sodium silicate solutions of various silicate concentrations**  
ECHT059 P. Krug, T. Tenostendarp, W. Stips - *Cologne Technical University of Applied Sciences, Germany*
- 09:10** **Aluminum brazing and additive manufacturing vacuum furnaces for automotive applications**  
ECHT077 A. Fiorese - *TAV VACUUM FURNACES spa, Caravaggio (BG), Italy*  
S. Cecchel - *Streparava spa, Adro (BS), Italy*  
G. Cornacchia, M. Gelfi - *Università di Brescia, Italy*
- 09:30** **Surface treatment of aluminium alloys by Plasma Transferred Arc (PTA) of HSS30 Steel**  
ECHT015 K. Jirounkova, J. Cais - *Jan Evangelista Purkyně University, Czech Republic*
- 09:50** **The effects of artificial ageing conditions on A356 aluminum cast alloys**  
ECHT064 O. Özeydin, E. Armakan, A. Kaya - *Cevher Wheels, İzmir, Turkey*  
E. Dokumaci - *Dokuz Eylül University, İzmir, Turkey*
- 10:10** **Mechanical properties of novel high-zinc aluminium cast alloys**  
ECHT020 P.K. Krajewski, W.K. Krajewski - *AGH University of Science and Technology, Krakow, Poland*  
A.L. Greer - *University of Cambridge, United Kingdom*
- 10:30** Coffee break

## APPLICATIONS

Chairperson: **Fabio Massa**

- 11:00** **Neural networks-based prediction of hardenability of high performance carburizing steels for automotive applications**  
ECHT085 V. Colla, M. Vannucci - *Scuola Superiore Sant'Anna, Italy*  
L. Bacchi - *Letomec srl, Italy*  
R. Valentini - *Università di Pisa, Italy*
- 11:20** **UCI-hardness testing in the production industries – Experiences made from practical work**  
ECHT035 M. Tietze - *NewSonic GmbH, Reutlingen, Germany*
- 11:40** **Superfinishing treatments in the automobile world**  
ECHT044 G. Samadello - *Best Finishing, Italy*
- 12:00** **3 D printing use for inductors and coils - techniques and applications overview**  
ECHT026 F. Marquis, M. Duran - *GH Induction, San Antonio de Benageber, Spain*
- 12:40** *Closing session in Gardenia room*  
Enrico Morgano - Conference Chairman  
Danilo Petta - President of AIM Heat Treatment and Metallography Group
- 13:00** End of the Conference

## POSTER SESSION

*ECHT039* **Effect of phase in surface compound layers on rotating-bending fatigue strength for S45C steel after austenitic nitriding**

Y. Hiraoka - *Parker Netsusyori Kogyo Co. Ltd., Japan*

*ECHT046* **Cross-sectional characterization of depth-dependent mechanical properties of surface treated steel**

T. Ziegelwanger, S.C. Bodner, M. Meindlhumer, J. Keckes - *Montanuniversität Leoben, Austria*  
M.J. Pfeifenberger - *Austrian Academy of Sciences, Leoben, Austria*

**POSTERS WILL BE DISPLAYED FOR THE ENTIRE PERIOD  
OF THE CONFERENCE**

### **NOTE ON THE PROGRAMME**

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

# GENERAL INFORMATION

## CONFERENCE VENUE

The Conference will be held at the Hotel Caesius Thermae & SPA Resort in Bardolino (Verona), via Peschiera 3 (<https://www.hotelcaesiusterme.com>)

## LANGUAGE

The official language of the Conference will be English.

## PROCEEDINGS

The full text of the accepted papers will be published in the electronic proceedings and issued to attendees on arrival at the Conference. Certain papers may be considered for publication in the AIM journal *La Metallurgia Italiana* – International Journal of the Italian Association for Metallurgy, which is covered in the Science Citation indexed by Clarivate Analytics (formerly Thomson Reuters), and in Scopus by Elsevier B.V

## SOCIAL EVENT

In order to give delegates the opportunity to meet informally and enjoy Lake Garda's atmosphere, AIM organized a Social Event in the evening of June 6, 2019. The Social Event will consist of a visit with wine tasting at a local vineyard, Cantina Cesari, in Cavaion Veronese and the Conference dinner at La Loggia Rambaldi in Bardolino (Dress code: business).

### Social event schedule

- 18:00 Meeting point at Hotel Caesius Thermae & SPA Resort reception and departure of the bus transfer
- 18:15 2<sup>nd</sup> Pick-up point at Bardolino's Autostazione / Bus Station (piazzale Aldo Moro, Bardolino)
- 18:30 Arrival and Welcome at **Cantine Cesari**, in Cavaion Veronese
- 19:45 Departure of the bus transfer
- 20:00 **Conference dinner at la Loggia Rambaldi in Bardolino**
- 22:45 Departure of the bus transfer to Hotel Caesius Thermae & SPA Resort

# REGISTRATION INFORMATION

## REGISTRATION FEES

Standard registration fees (after May 8, 2019)

	MEMBER AIM, ASSIOT, ASSOFLUID, CICOF, UPIVEB	NON MEMBER
SESSION CHAIRPERSON		
COMMITTEE MEMBER	€ 480	€ 580
PARTICIPANT (non-presenter)	€ 640	€ 740
EXHIBITOR / SPONSOR	€ 530	€ 630
STUDENT*	€ 400	

**Additional ticket for Social event for accompanying persons:** € 122 (22% VAT included)  
(includes only the social event on June 6)

### CONFERENCE REGISTRATION FEES INCLUDE

- Admittance to technical sessions and to the table-top units exhibition
- Conference bag with electronic proceedings
- Social event on June 6
- Coffee breaks
- Lunches

For non-members the fee includes AIM Membership for the second half of 2019 and for the year 2020.

*\*Students will have to provide valid proof of student status. AIM membership and the Social event on June 6 are not included in the student registration fee.*

## REGISTRATION

If you plan to attend, please register online on the Conference website [www.aimnet.it/echt2019.htm](http://www.aimnet.it/echt2019.htm) by filling in the Registration Form in pdf and send it to the Organising Secretariat by **May 31, 2019**. Please use a separate form for each participant. Please contact the Organising Secretariat by e-mail, if possible.

## CANCELLATION AND REFUND POLICY

For attendees who notify their cancellation **after May 8, 2019** 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.

## MOBILE/CELL PHONE

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

## 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.



Bergamo (Italy)  
21-22  
November  
2019

[www.aimnet.it/memo.htm](http://www.aimnet.it/memo.htm)

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Genova 2020

6-8 maggio

convegno nazionale

# 27<sup>th</sup> trattamenti termici

27<sup>th</sup> AIM National Conference & Exhibition on Heat Treatment

[www.aimnet.it/tt.htm](http://www.aimnet.it/tt.htm)

AIM è lieta di annunciare la 27<sup>a</sup> edizione del Convegno Nazionale Trattamenti Termici, il più autorevole ed affermato evento sui trattamenti termici a livello nazionale. Il Convegno - mostra si svolgerà nei giorni 6-8 maggio 2020 a Genova, dove si tenne la prima edizione nel 1960.

Sede dell'evento saranno i Magazzini del Cotone, nel bellissimo contesto del porto antico di Genova.

Maggiori informazioni saranno presto disponibili sul sito dell'evento:  
[www.aimnet.it/tt.htm](http://www.aimnet.it/tt.htm)

AIM is proud to announce the 27<sup>th</sup> National Conference on Heat Treatment! The Conference & Exhibition will be held on May 6-8, 2020 at the Magazzini del Cotone, a former cotton storehouse, located in a picturesque setting right on the old harbour of Genoa.

All information will be soon available at:  
[www.aimnet.it/tt.htm](http://www.aimnet.it/tt.htm)

Segreteria organizzativa  
Organising Secretariat



ASSOCIAZIONE  
ITALIANA  
DI METALLURGIA

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[www.aimnet.it](http://www.aimnet.it)



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**1st announcement  
call for papers**

# 10th European Conference on Continuous Casting 2020

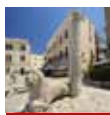
**Bari · Italy  
17-19 June  
2020**

[www.aimnet.it/eccc2020](http://www.aimnet.it/eccc2020)

Organised by



**ASSOCIAZIONE  
ITALIANA  
DI METALLURGIA**



The 10th European Continuous Casting Conference - ECCC 2020 - will be organised by AIM, the Italian Association for Metallurgy, in Bari (Italy) on 17-19 June 2020 with focus on the status and future developments in the casting of steel.

The ECCC is a unique forum for the European continuous casting community to exchange views on the status and the future development of the continuous casting process. The Conference program is abreast of the latest developments in control and automation, advanced continuous casting technologies, application of electromagnetic technologies and mechanical devices to improve the core microstructure, the lubrication issues for improving the surface qualities. Steel metallurgical issues will be addressed as well as their physical and numerical simulation. The exchange of experience in operational practice, maintenance and first results from the recently commissioned plants will integrate the program. The Conference aims at promoting the dialogue among the delegates with industrial and academic background and among the participants in former Conferences and new members of the continuous casting community.

## Topics

- Trends of innovation in casting technologies
- New developments and advanced technologies for the casting of slabs, blooms and billets
- Ladle and tundish recent metallurgical solutions for steel cleanliness
- Flow control, refractories and clogging
- Mold lubrication and heat transfer
- Product quality control: Surface quality and internal soundness
- Numerical simulation and modelling
- Safety and environmental aspects
- Continuous casting technologies and circular economy
- Operational practice and maintenance
- Measurement, automation and process control
- Post-processing of semi-finished products
- Modernization and new implementations
- Industry 4.0, machine learning and digitalisation



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## Organising Secretariat



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