

final programme

Rolling-12

12th International ROLLING Conference

Trieste (Italy), 26-28 October 2022

Organised by



**ASSOCIAZIONE
ITALIANA DI
METALLURGIA**

in cooperation with

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THE ITALIAN STEEL COMMUNITY

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TIMETABLE

WEDNESDAY, 26 OCTOBER 2022

9:00	Attendees registration	
	SATURNIA ROOM	
10:00	Opening session	
11:00	coffee break	
	SATURNIA ROOM	VULCANIA I ROOM
11:30	LONG PRODUCTS I	AUTOMATION, CONTROL & MEASUREMENTS I
12:50	lunch	
14:00	LONG PRODUCTS II	AUTOMATION, CONTROL & MEASUREMENTS II
15:40	coffee break	
16:00	LONG PRODUCTS III	AUTOMATION, CONTROL & MEASUREMENTS III
	PLATE MILL	RESOURCE EFFICIENT PRODUCTION TECHNIQUES
18:00	End of the 1st day sessions	

THURSDAY, 27 OCTOBER 2022

	SATURNIA ROOM	VULCANIA I ROOM	OCEANIA ROOM
9:00	CONVENTIONAL HOT STRIP MILLS I	MATHEMATICAL MODELLING & SIMULATION I	
10:40	coffee break		
11:00	CONVENTIONAL HOT STRIP MILLS II	MATHEMATICAL MODELLING & SIMULATION II	
12:20	NEW PRODUCTS & PROCESSES		
12:40	lunch		
14:00	STRIP COLD ROLLING & ANNEALING I	MATHEMATICAL MODELLING & SIMULATION III	ROLL TECHNOLOGY I
15:40	coffee break		
16:10	STRIP COLD ROLLING & ANNEALING II	MATHEMATICAL MODELLING & SIMULATION IV	ROLL TECHNOLOGY II
17:50	End of the 2nd day sessions		
19:00	Social event at Teatro Verdi		

FRIDAY, 28 OCTOBER 2022

	SATURNIA ROOM	VULCANIA I ROOM
8:50	STRIP COLD ROLLING & ANNEALING III	MATHEMATICAL MODELLING & SIMULATION V
	REHEATING FURNACE – OXIDATION AND DESCALING I	
10:30	coffee break	
11:00	REHEATING FURNACE – OXIDATION AND DESCALING II	MATHEMATICAL MODELLING & SIMULATION VI
12:40	Closing remarks in Saturnia Room	
13:00	End of the Conference & Departure for ABS plant tour	

PRESENTATION

Thanks to a long and successful series, the ROLLING conferences have become the premier international event for rolling practitioners world-wide. The target audience embraces the whole metals rolling community: flat and long products rolling, hot and cold rolling and ferrous and non-ferrous rolling. The forum will cover product and process topics, encompassing rolled product properties, quality and applications, in addition to the design, control and management of mill assets.

The Conference will bring together rolling practitioners, steel producers, plant designers and researchers and it will provide a forum for best practices and state-of-the-art technology. It will also take a look at developments in the foreseeable future.

BACKGROUND

1985 Tokyo, Japan
1987 Deauville, France
1990 London, UK
1994 Düsseldorf, Germany
1998 Tokyo, Japan
2002 Orlando, USA
2006 Paris, France
2010 Beijing, China
2013 Venice, Italy
2016 Graz, Austria
2019 São Paulo, Brazil

COMMITTEES

CONFERENCE CHAIRMAN

ING. GIANPIETRO BENEDETTI - DANIELI

INTERNATIONAL SCIENTIFIC & STEERING COMMITTEE

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Paola Perabò - Danieli, Italy

Alberto Perin - Danieli, Italy

Gabriele Rampinini - Forgiatura A. Vienna, Italy

9:00 Attendees registration

SATURNIA ROOM

10:00 **Welcome** addresses

Massimiliano Fedriga - President of Friuli Venezia Giulia Region

Alessia Rosolen - Regional councilor for work and training

Gianpietro Benedetti - Conference Chairman

Carlo Mapelli - Associazione Italiana di Metallurgia

11:00 coffee break

LONG PRODUCTS I

chairperson: **Alberto Nardini**

11:30 **The revolutionary MIDA Hybrid Minimill for a competitive green steel production**

R12026

J. Shuli, V. Collini - Danieli & C. Officine Meccaniche, Italy

11:50 **New autonomous mechanical system for trimming and sampling wire rod coils**

R12039

J. Nylander, G. Muscarà - Automazioni Industriali Capitanio, Odolo, Italy

12:10 **Design of graphitic lubrication processes for mandrels intended to produce seamless tubes**

R12043

F. Arizzi, A. Tavaschi - TenarisDalmine, Italy

12:30 **ABS QWR 4.0 quality from the start: new rolling mill concept and free furnace enhanced operational performance, sustainability and product quality**

R12027

M. Cimolino, F. Rocchetti - Danieli & C. Officine Meccaniche, Buttrio, Italy

E. Salamone - Danieli Centro Combustion, Genova, Italy

12:50 *lunch*

SATURNIA ROOM

LONG PRODUCTS II

chairperson: Jozi Shuli

- 14:00 **4th PQF® generation - New horizons for seamless tube production**
R12028 M. Leferink - SMS group GmbH, Germany
- 14:20 **Intelligent guides and BMS for bar mills**
R12050 E. Galeazzo, S. Capra - Danieli & C. Officine Meccaniche, Italy
- 14:40 **Finishing/Sizing Group with AGC system**
R12084 A. Nardini, E. Colombo, D. Biagini, J. Timoteo Da Silva - POMINI Long Rolling Mills, Italy
- 15:00 **Abrasive Cut-Off Machines in modern rolling mills**
R12010 N. Asamer, S. Purrer - BRAUN Maschinenfabrik, Austria
- 15:20 **Improvement of both mechanical properties and metallurgical microstructure
of wire rod cold heading steel by applying Thermo-Mechanical Rolling**
R12052 M. Cimolino - Danieli & C. Officine Meccaniche, Buttrio, Italy
A. Spadaccini, S. Marzio - Acciaierie Bertoli Safau (ABS), Pozzuolo del Friuli, Italy
- 15:40 *coffee break*

SATURNIA ROOM
LONG PRODUCTS III

chairperson: Karl Berger

16:00 **CARTA® neo - Advanced automation for stretch-reducing mills**

R12034 A. Gohr, M. Leferink - SMS group, Germany

PLATE MILL

chairperson: Karl Berger

16:20 **Modern levelers to keep plates free of residual stress - the ingredients to deliver your height strength steel plates flat and free of internal stresses**

R12106

E. Zambon, A. Meyer - Danieli Germany GmbH, Duisburg, Germany

E. Crisa', M.R. Bulfone - Danieli & C. Officine Meccaniche, Italy

M. Mossutti - Danieli Automation, Italy

16:40 **Influence of thickness profile after sizing press on width profile at head and tail portions of slab**

R12035

H. Goto, Y. Kimura, M. Miyake - JFE Steel Corporation, Japan

17:00 **Smart DanOil**

R12107

M. Nobile - Danieli & C. Officine Meccaniche, Italy

17:20 **Surface grinding of billets, blooms and slabs before rolling**

R12011

N. Asamer, S. Purrer, R. Hemetsberger - BRAUN Maschinenfabrik, Austria

17:40 **A comprehensive study on effect of hot rolling parameters on camber formation**

R12112

S. Khalaj Amnieh, F. Farhadi Amineh - Mobarakeh Steel Company, Iran

18:00 End of the 1st day sessions

VULCANIA I ROOM

AUTOMATION, CONTROL & MEASUREMENTS I

chairperson: Carlo Mapelli

- 11:30 **Master Model: cold complex digitalization and fully integration to overcome the current limit of productivity, efficiency and quality standards**
R12053 A. Ferraiuolo, M. Cocco, M. Paluan, S. Orselli, S. Canto, A. Moretti - Marcegaglia Ravenna Plant, Italy
- 11:50 **Danieli Intelligent Plant: an innovative and outstanding approach to plant supervision and process control – application for QWR 4.0 wire rod mill**
R12024 E. Plazzogna, G. Ambrogini - Danieli Automation, Buttrio, Italy
- 12:10 **Advanced control technologies of hot rolling in an endless line**
R12047 K. Kitagoh, T. Shimotani, M. Nakaema - Toshiba Mitsubishi-Electric Industrial Systems Corporation (TMEIC), Japan
J. Li, Z. Dong, M. Zhang - Shougang Jingtang United Iron & Steel Co., Ltd., China
- 12:30 **Improving product and process quality in rolling processes via prescriptive analytics**
R12031 K. Grasserbauer, S. Strasser, K. Jax, A. Seyr - Primetals Technologies Austria GmbH, Austria
- 12:50 *lunch*

VULCANIA I ROOM

AUTOMATION, CONTROL & MEASUREMENTS II

chairperson: Enrico Plazzogna

- 14:00 **Digital transformation approaches rolling mill. An overview on robotics, machine vision and AI solutions that guide the digitalization process**
R12037 A. Zoppirolli, I. Rusu - BM Group Polytec, Italy
- 14:20 **AI and Big Data tools for monitoring and improving the quality of rolled wire rods**
R12040 A. Vignali, M. Vannucci, V. Colla - Scuola Superiore Sant'Anna, Italy
M. Donnoli, U. Bartoli - JSW, Italy
M. Meneghin - Danieli Automation, Italy
- 14:40 **An alternative solution for DC to AC motor and control conversions in rolling mills and process lines**
R12040 T. Richards - TMEIC, USA
C. Sondek - SDI, USA
- 15:00 **Steering control using vision camera for hot strip mill**
R12046 S. Ueno, S. Takagi, T. Tsukamoto - Toshiba Mitsubishi-Electric Industrial Systems Corporation (TMEIC), Japan
- 15:20 **Tail end strip steering control in Tata Steel's Direct Sheet Plant in IJmuiden**
R12086 P. Schaak, E. van Oploo, J. Ponsioen, G. Goessens - Tata Steel, IJmuiden, The Netherlands
C. Mochizuki - Primetals Technologies Japan, Ltd.
S. Kanemori - Mitsubishi Heavy Industries, Ltd.
- 15:40 *coffee break*

VULCANIA I ROOM

AUTOMATION, CONTROL & MEASUREMENTS III

chairperson: Matteo Marten-Perolino

16:00 **X-ShapeHot - Flatness Measurement in hot rolling mills**

R12032 F. Gorgels, O.N. Jepsen, P. Siemann - SMS group GmbH, Germany

16:20 **Neural Network technologies for Visual Tracking: an innovative technology to improve traceability along the rolling mill**

R12036

A. Zoppirolli, I. Rusu - BM Group Polytec, Italy

16:40 **Equipment solutions by QuakerHoughton for Rolling**

R12038 **Shaping the Global Steel Industry together**

B. Staes, E. van Eijk - QuakerHoughton B.V., Uithoorn, The Netherlands

RESOURCE EFFICIENT PRODUCTION TECHNIQUES

chairperson: Matteo Marten-Perolino

17:00 **OEE improvement for TBB forging mill in the Forge area of "Cogne Acciai Speciali" of Aosta, Italy**

R12098

G. Lonzi, M. Marten Perolino, N. Esquisito, D. Gerard, R. Mammoliti, A. Cheillon, A. Mantione - Cogne Acciai Speciali, Aosta, Italy

17:20 **Decarbonization of steel business - different approaches for different availabilities of green energy**

R12083

M. Lapasin - Danieli & C. Officine Meccaniche, Italy

18:00 End of the 1st day sessions

SATURNIA ROOM

CONVENTIONAL HOT STRIP MILLS I

chairperson: Luca Faralli

- 9:00 **Danieli DUE**
R12003 M. Dropalla, L. Faralli - Danieli & C. Officine Meccaniche, Italy
- 9:20 **Vibration Dissipator for hot strip mills**
R12009 S. Mittlboeck, G. Keintzel, K. Krimpelstaetter - Primetals Technologies Austria GmbH, Austria
- 9:40 **Method of strip centering control in a hot strip mill**
R12016 J. Venancio Barbosa, R.A. Rebelo, E.F. Dadomi - Usiminas, Brazil
DIGITAL
- 10:00 **Arvedi Endless Strip production -zero-carbon high-quality rolling since 2009**
R12100 K. Baumgartner, S. Grosseiber, A. Jungbauer, T. Lengauer, L. Preuler - Primetals Technologies Austria GmbH, Austria
- 10:20 **Influence of critical rolling temperatures on mechanical properties of thermomechanically processed low carbon microalloyed steels**
R12093 H. Al-Jabr, A. Al-Shahrani - SABIC, Jubail, Saudi Arabia
- 10:40 *coffee break*

SATURNIA ROOM

CONVENTIONAL HOT STRIP MILLS II

chairperson: Alfred Seyr

- 11:00 **Insights & observation for optimum work roll cooling in flat hot mills: a case study on shape defect elimination**
R12015
DIGITAL U.S. Goel, G.S. Kumar, B. Ghosh, V.V. Mahashabde - Tata Steel, India
R. Kumar, D. Kumar, H. Manjunath, M. Bhagwat, S. Pandey - TSBSL
- 11:20 **DESTM – Danieli Elettromagnetic stabilizer, enhanced zinc coating quality in HDG lines**
R12104
M. Minen, A. Lugnan, F. Saccomani - Danieli Automation, Italy
A. Russo - Danieli & C. Officine Meccaniche, Italy
- 11:40 **Design and implementation of a new process function improving quality of low thickness narrow width hot rolled strip**
R12013
S.M. Mani - Mobarakeh Steel Company, Isfahan, Iran
- 12:00 **Efficiency improved accelerate cooling**
R12108 U. Saccoman - Danieli & C. Officine Meccaniche, Buttrio, Italy

NEW PRODUCTS & PROCESSES

chairperson: Alfred Seyr

- 12:20 **Microstructure and properties of new hot rolled high strength steel containing phosphorus for double-sided enamel**
R12060
DIGITAL Y. Zhang - Northeastern University, Shenyang, China and Maanshan Iron & Steel Co., LTD., Maanshan, China
L.X. Du, H.Y. Wu, X.H. Gao - Northeastern University, Shenyang, China
B. Yu - Maanshan Iron & Steel Co., LTD., Maanshan, China
- 12:40 **Modelling of structures and superior properties of new materials**
R12077
DIGITAL V.B. Ginzburg - International Rolling Mill Consultants, Inc., USA

13:00 *lunch*

SATURNIA ROOM

STRIP COLD ROLLING & ANNEALING I

chairperson: Michele Turchetto

- 14:00 **Full electric annealing furnace for galvanizing and continuous annealing line**
R12105 L. Vignolo, A. Codutti - Danieli & C. Officine Meccaniche, Italy
M. Volpato - Danieli Centro Combustion, Italy
- 14:20 **Flexible lubrication trial on Double Cold Reduction mill no. 11 of Tata Steel**
R12087 L. Jacobs, R. Verhoeven, P. Drent - Tata Steel, The Netherlands
J. op 't Roodt, E. van Eijk - QuakerHoughton Sales B.V., The Netherlands
P. Story - QuakerHoughton, United Kingdom
- 14:40 **Chatter elimination in tandem cold rolling**
R12019 G. Keintzel, K. Krimpelstaetter, S. Mittlboeck - Primetals Technologies Austria GmbH,
Linz, Austria
- 15:00 **Pioneering cold rolling of AHSS and electrical steel**
R12007 K. Krimpelstaetter, R. Kellermayr, M. Bergmann - Primetals Technologies Austria GmbH,
Linz, Austria
- 15:20 **Investigation by inverse analysis of the effect of a green lubricant on the friction condition in cold rolling**
R12033 M. Antonicelli, A. Piccininni, A. Cusanno, G. Palumbo - Politecnico di Bari, Italy
U. Liuzzo, S. Pantarotto, T. Gattamorta - Marcegaglia Ravenna, Italy
- 15:40 *coffee break*

SATURNIA ROOM

STRIP COLD ROLLING & ANNEALING II

chairperson: Konrad Krimpelstätter

- 16:10 **Safety environmental aspects on cold mill design**
R12051 M. Turchetto - Danieli & C. Officine Meccaniche, Italy
- 16:30 **Silicon reduction for pickling lines**
R12012 A. Stadlbauer, K. Kofler, K. Krimpelstaetter - Primetals Technologies Austria GmbH, Austria
- 16:50 **Made to move your coils: the Modular Coil Shuttle system**
R12018 R. Hofer, C. Salzmann, L. Pichler - Primetals Technologies, Austria
- 17:50 End of the 2nd day sessions
- 19:00 SOCIAL EVENT AT TEATRO VERDI

VULCANIA I ROOM

MATHEMATICAL MODELLING & SIMULATION I

chairperson: Valentina Colla

- 9:00 **Simulation of flat rolling and strip roll casting by layered elementary approaches**
R12068 M. Weiner, M. Schmidtchen - TU Bergakademie Freiberg, Germany
- 9:20 **A fully integrated roll deflection and strip buckling model for calculating strip flatness**
R12078 S. Kiakidis, N. Mandagi, C. Hol - Tata Steel, IJmuiden, the Netherlands
- 9:40 **Thermomechanical coil cooling model to tackle shape and mechanical properties issues after hot rolling of steel sheets**
R12099 W. Ayumu, B. Ehrhard - AMNS Calvert, USA
D. Patrault - Ecole Polytechnique, France
N. Legrand, M. Deka, M. Magana - ArcelorMittal Global R&D, USA
S. Jimenez, R. Jacolot - ArcelorMittal Global R&D, France
- 10:00 **Numerical simulation and material characterization for the design of a new rolling line**
R12022 B. Erzar, D. Acevedo Reyes - ABS Centre Métallurgique, France
M. Morandini, A. Chittaro - Acciaierie Bertoli Safau (ABS), Italy
- 10:20 **Numerical simulation of dynamic recrystallization behavior of 316L stainless steel under flexible rolling state**
R12114 C. Liu, S. Liang, Y. Peng, S. Guo, R. Li - Yanshan University, China
DIGITAL S. Barella, A. Gruttadauria, S. Bazri, M. Belfi, C. Mapelli - Politecnico di Milano, Italy
- 10:40 *coffee break*

VULCANIA I ROOM

MATHEMATICAL MODELLING & SIMULATION II

chairperson: **Iolanda Donatiello**

- 11:00 **Fast modelling of elastic work roll deformation in groove rolling**
R12069 C. Renzing, M. Weiner, M. Stirl, M. Schmidtchen, U. Pahl - Technische Universität Bergakademie Freiberg, Germany
- 11:20 **Mathematical prediction by multiple regression and neural network of the cold rolling curves and the cold work hardening rate of stainless steel**
R12073 J. Contreras - Acerinox Europa, Spain and Innanomat Group, Spain
M.I. Rodríguez-García, I. Turias - MIS Group, Spain
R. Sánchez, J.F. Almagro - Acerinox Europa, Spain
D.L. Sales - Innanomat Group, Spain
- 11:40 **Analysis of coupled and decoupled thermomechanical simulation for hot shape rolling of steel**
R12074 I. Ali - University of Ljubljana, Slovenia
U. Hanoglu - Institute of Metals and Technology, Ljubljana, Slovenia and University of Ljubljana, Slovenia
B. Šarler - University of Ljubljana, Slovenia and Institute of Metals and Technology, Ljubljana, Slovenia
- 12:00 **Rolling plant virtualization: 2.5D approach for microstructure and internal quality description**
R12097 C. Viscardi - Ecotre Valente, Brescia, Italy
- 12:20 **Influence of casting defects on damage evolution and potential failures in hot rolling simulation system**
R12054 U. Hanoglu - Institute of Metals and Technology, Slovenia
B. Šarler - University of Ljubljana, Slovenia
- 12:40 *lunch*

VULCANIA I ROOM

MATHEMATICAL MODELLING & SIMULATION III

chairperson: Federico Fracasso

- 14:00 **Cold rolling theory with relative-velocity dependent friction law**
R12056 H. Utsunomiya, Y. Noguchi, R. Matsumoto - Osaka University, Japan
DIGITAL
- 14:20 **Finite Element Modeling evaluation of a void closure criterion using a multi-scale approach during hot rolling**
R12049 C. Pondaven, B. Erzar - ABS Centre Métallurgique, France
A. Spadaccini, M. Grion - Acciaierie Bertoli Safau (ABS), Italy
- 14:40 **Wicon EVO – a preview of Danieli’s easy-to-use rolling process simulation software for wire rod and bar mills**
R12109 M. Dovigo - Danieli & C. Officine Meccaniche, Italy
- 15:00 **Nozzle orientation effect on thermal crown and stress in the work roll**
R12055 M. Pohanka, O. Resl - Brno University of Technology, Czech Republic
- 15:20 **The application of physical simulation in hot and cold rolling of steels**
R12103 F. Siciliano - Dynamic Systems Inc., USA
- 15:40 *coffee break*

VULCANIA I ROOM

MATHEMATICAL MODELLING & SIMULATION IV

chairperson: Cristian Viscardi

- 16:10 **Roll neck stress calculation in case of torsion or combined (bending+torsion) loading. Torsion stress concentration factors assessment**
R12005 N. Tudor - Timken, Romania
- 16:30 **Mill Process Calculations - A design and simulation tool for wire rod and bar mills developed at the University of Duisburg-Essen**
R12017 C. Overhagen - University of Duisburg-Essen, Germany
- 16:50 **The effect of the roll stack wear on the hot bands flatness and crown**
R12089 E. Nikitenko - U. S. Steel, USA
DIGITAL
- 17:10 **Fast virtual rolling model for hot strip mill**
R12101 J. Ilmola, O. Seppälä, J. Paananen, A. Pohjonen, A. Kaijalainen, J. Larkiola - University of Oulu, Finland
J. Pyykkönen - SSAB Europe, Finland
- 17:30 **FEM simulation of the de-coiling of low carbon steel strips with the anti coil break system**
R12048 S. Cerza, I. Donatiello, A. Gotti - RINA Consulting-CSM, Italy
L. Langellotto, L. Pontecorvo, S. Ferrara - Acciaierie d'Italia, Italy
- 17:50 End of the 2nd day sessions
- 19:00 SOCIAL EVENT AT TEATRO VERDI

OCEANIA ROOM
ROLL TECHNOLOGY I
chairperson: Marcello Gabrielli

- 14:00 **Rolling mills strip chatter - causes and solutions**
R12002 Y. Benhafsij, J. McCormick - Farrat Isolevel Limited, United Kingdom
- 14:20 **New roll alloys concepts using in finishing stands of rebar rolling**
R12002 A. Sheikhosseini Esfahani, H. Zakerinia - Chodansazan, Iran
DIGITAL B. Nazari - CSMetal, Canada
- 14:40 **Determination of optimal backup roll hardness level for different applications**
R12102 W. Ji, A. Cestonaro, K. Fota - Gontermann-Peipers GmbH, Germany
- 15:00 **The investigation on generating a new sleeve grade using in initial stand of Rebar rolling Danieli mills for improving fracture toughness of coupling**
R12004 A. Sheikhosseini Esfahani, H. Zakerinia - Chodansazan, Iran
DIGITAL B. Nazari - CSMetal, Canada
- 15:20 **New back up roll profiles decrease fatigue degradation and increase available time at Tubarao roughing and finishing hot mills**
R12094 V. Pin, J. Possatti - ArcelorMittal Tubarao, Brazil
N. Legrand, O. Lanzi - ArcelorMittal Global R&D, USA
J.C. De Pontes - ArcelorMittal Global R&D, Tubarao, Brazil
- 15:40 *coffee break*

OCEANIA ROOM
ROLL TECHNOLOGY II
chairperson: Ulrich Prahll

- 16:10 **Comparison in thermal fatigue resistance of two hot strip mill working rolls with different content of vanadium**
R12091 M. Drobne - U. Klančnik - Valji d.o.o., Štore, Slovenia
P. Fajfar, M. Terčelj - University of Ljubljana, Slovenia
- 16:30 **Sleeved backup rolls**
R12041 D. Hajduk - ITA, Ostrava, Czech Republic
P. Ferrecki - VSB-Technical University Ostrava, Czech Republic
- 16:50 **The effect of ferrovanadium as an inoculant using in HSS Rolls using in light section mills**
R12003 A. Sheikhsosseini Esfahani, H. Zakerinia - Chodansazan, Iran
B. Nazari - CSMetal, Canada
- 17:10 **Novel uses of discarded cold mill rolls at Tata Steel India**
R12014 U. S. Goel, A. Kumar, S. Patel, A. Jha, V. V. Mahashabde, V. Shah, C. Bhanu - Tata Steel,
DIGITAL India
- 17:50 End of the 2nd day sessions
- 19:00 SOCIAL EVENT AT TEATRO VERDI

SATURNIA ROOM

STRIP COLD ROLLING & ANNEALING III

chairperson: Karl Berger

8:50 **Flexible cassette makes traditional cold mills fit for future steel grades**
R12008 K. Krimpelstaetter, S. Angerer, B. Schinagl - Primetals Technologies Austria GmbH, Linz, Austria

9:10 **Development of rolling oil for PLTCM in Ternium's plant**
R12096 D.F. Rodríguez, C. Gómez-de-la-Garza, J. Salinas Reyes - Ternium, México
P. Simeone - Lubritalia, Italy
N. Turrini, D.A. Aranda-Regino, E. Olvera Sandoval, C. Campos - Lubritalia de México, México

9:30 **Optimization method of cold rolled flatness control parameters based on error back propagation algorithm**
R12080
DIGITAL Y. Chen, L. Peng, Y. Wang, C. Li - Northeastern University, China
Y. Zhou - Panzhihua Steel and Vanadium Co.Ltd., China

REHEATING FURNACE - OXIDATION AND DESCALING I

chairperson: Karl Berger

9:50 **Effect of Si-Cr-Mo on oxidation behavior of duplex steel and strip surface quality**
R12075
DIGITAL C. Wang, Y. Yu, K. Liu, L. Wang, Z. Guo, T. Niu - Shougang Research Institute of Technology, China

10:10 **Dry Plus Furnace: A step towards decarbonization**
R12025 E. Salamone, A. Venzani - Danielli Centro Combustion, Italy

10:30 *coffee break*

SATURNIA ROOM

REHEATING FURNACE - OXIDATION AND DESCALING II

chairperson: **Alessandro Venanzini**

- 11:00 **Effect of nonuniform temperature field of reheating furnace on deformation and recrystallization behavior of bar hot rolling**
R12113
DIGITAL
S. Guo, Y. Peng, R. Li, C. Liu, S. Liang - Yanshan University, China
S. Barella, A. Gruttadauria, S. Bazri, M. Belfi, C. Mapelli - Politecnico di Milano, Italy
- 11:20 **Flameless oxyfuel for decarbonization and use of hydrogen in reheat furnaces**
R12020
J. von Schéele - Linde Technology, Linde plc Germany
D. Razzari, V. Alba - Linde Gas Italia, Italy
- 11:40 **Development of new air/fuel ratio control technology in reheating furnace**
R12029
K. Nakanishi, H. Takahashi, K. Doi, T. Tsukuda - KOBE STEEL Ltd., Japan
- 12:00 **Improved energy efficiency and surface quality in high pressure descaling**
R12001
J. Frick - Lechler GmbH, Germany
- 12:20 **Effect of boron on oxidation behavior of pickling plates**
R12090
DIGITAL
C. Wang, Y. Yu, K. Liu, L. Wang, X. Shi - Shougang Research Institute of Technology, China and Beijing Key Laboratory, China
X. Wu - Beijing Shougang Co. Ltd., China
- 12:40 CLOSING REMARKS
Rolando Paolone
Giacomo Mareschi Danieli
- 13:00 END OF THE CONFERENCE & DEPARTURE FOR ABS PLANT TOUR

VULCANIA I ROOM

MATHEMATICAL MODELLING & SIMULATION V

chairperson: Max Stirl

- 8:50 **TENSIL-PRO: from tensile properties calculation to incremental plasticity applications**
R12006
A. Ferraiuolo - Marcegaglia Ravenna, Italy
L. Ferraiuolo - Università di Bologna, Italy
- 9:10 **Correlation of digital twin and roller surface sensor results for AZ31 alloy twin roll casting process**
R12045
S. Kwiecień, M. Weiner, M. Schmidtchen, M. Ullmann, U. Prah - IFM-Technical University of Freiberg, Germany
L. Hamm, W-G. Drossel - Fraunhofer-Institut für Werkzeugmaschinen und Umformtechnik, Chemnitz, Germany
- 9:30 **Advanced seamless approach for oxide scale growth and descaling prediction in steelmaking industry**
R12042
N. El-Kosseifi, P. Lasne, M. Moreno, S. Andrietti - Transvalor, France
F. Fracasso - EnginSoft, Italy
- 9:50 **Quantitative evaluation of relative sliding between billets and rolls in hot rolling**
R12044
B. Tian, S. Kleber, C. Turk, S. Tolliner, S. Schneller, P. Markiewicz - voestalpine BÖHLER Edelstahl GmbH & Co KG, Kapfenberg, Austria
- 10:10 **Physical simulation of continuous controlled rolling and cooling of HSLA steel**
R12030
DIGITAL
I. Schindler, S. Rusz, R. Kawulok, P. Kawulok, P. Opěla, M. Konderla - VSB-Technical University of Ostrava, Czech Republic
R. Fabík, M. Sauer - Liberty Ostrava a.s., Czech Republic
- 10:30 *coffee break*

VULCANIA I ROOM

MATHEMATICAL MODELLING & SIMULATION VI

chairperson: Alessandro Ferraiuolo

- 11:00 **Sophisticated and advanced plant and process technologies in steel and non-ferrous rolling mills**
R12110 M. Degner, M. Breuer, A. Sprock, C. Hassel, O. Jepsen, M. Quoika - SMS Group, Germany
A. Bregante, G. Zanella - SMS Group GmbH, Italy
- 11:20 **Metallurgical design of X60 steels for gas and hydrogen transport pipes**
R12057 M. Guagnelli, G. Malatesta - CSM, Italy
P. Carone, V. Ruggiero, A. Curci - Acciaierie d'Italia, Italy
- 11:40 **Predicting material and temperature dependent spreading behaviour of steel materials for hot rolling of round sections using an artificial neural network**
R12021 M.T. Gruszka, C. Overhagen, R. Martin - University of Duisburg-Essen, Germany
- 12:00 **Automated groove pass predesign of asymmetrical profiles**
R12067 M. Stirl, C. Renzing, M. Weiner, M. Schmidtchen, U. Prah - Technische Universität Bergakademie Freiberg, Germany
- 12:20 **Optimized & adaptable cooling path control through a novel runout table controller at HSM2 of Tata Steel in IJmuiden**
R12085 R.C.J. Speets, R.W.G. Keijsers, K.C.J. Schutte, R.A. van Dok, J.S. Mosk, R.D.M. Mestrom, M. Bsibi - Tata Steel Nederland, The Netherlands
- 12:40 CLOSING REMARKS IN SATURNIA ROOM
- 13:00 END OF THE CONFERENCE & DEPARTURE FOR ABS PLANT TOUR

NOTE OF THE PROGRAMME

POSSIBLE CHANGES TO THE PROGRAMME WILL BE COMMUNICATED DURING THE CONFERENCE.

POSTER SESSION

- R12061** **Interfacial mechanical properties and microstructure of aluminum alloy clad plates**
DIGITAL
X. Zhang, Z. Luo, Z. Liu, G. Xie - Northeastern University, China
- R12064** **Effect of Ti-Zr oxide particles on microstructure and mechanical properties of hot-rolled low-carbon steel**
DIGITAL
X. Wang - Shenyang University of Technology, China and Northeastern University, Shenyang, China
Z. Wu, C. Wang, J. Kang, G. Yuan - Northeastern University, Shenyang, China
- R12066** **Optimum strength-strain hardening balance under G65 wear test - a case study in austenitic stainless steels**
DIGITAL
H.Y. Zhang, W. Xu, G.D. Wang - Northeastern University, Shenyang, China
- R12063** **Effect of reinforcement particles on friction and wear behavior of low alloy martensitic wear resistant steel**
DIGITAL
C. Li, X. Deng, Z. Wang - Northeastern University, China
- R12111** **Simulation strategies to reduce the computational cost for the simulation of hot rolling of large-format stainless steel slabs**
A. Ojeda, F.J. Botana - Universidad de Cádiz, Puerto Real, Spain
M. Botana-Galvín, P.Astola - Titania, El Puerto de Santa María, Spain
J. Contreras - Acerinox Europa S.A.U., Palmones, Spain

CONFERENCE VENUE

The Conference will be held in Trieste at the Stazione Marittima di Trieste (Piazzale Marinali d'Italia 1).

LANGUAGE

The official language of the Conference will be English.

PROCEEDINGS

The full texts of all accepted papers will be published in the electronic form proceedings. A selection of the best papers will be also published in "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 Clarivate Analytics (formerly Thomson Reuters), and in Scopus by Elsevier B.V

CONFERENCE MATERIAL

All Conference material will be available on a landing page from October 24 to November 30, 2022.

You'll receive next week by email link and instructions to obtain credentials for the landing page.

You'll be able to view / download:

- Conference proceedings
- Final conference programme (A printed copy will be distributed on-site)
- List of attendees (that will be updated after the Conference with the on-site registrations)
- After the Conference, all recorded presentations on-demand (only for viewing, not for download) until November 30, 2022.

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.

MOBILE/CELL PHONE

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

REGISTRATION INFORMATION

REGISTRATION FEES

SPEAKERS WITH TRAVEL RESTRICTIONS WILL BE ABLE TO PRESENT AND FOLLOW THE CONFERENCE DIGITALLY!

FEES FOR DIGITAL PARTICIPATION ARE THE SAME AS ON-SITE EARLY REGISTRATION FEES

	DELEGATE (NON-PRESENTER)	SESSION CHAIRPERSON; COMMITTEE MEMBER	EXHIBITORS SPONSORS	STUDENT REGISTRATION FEE (VAT INCLUDED) (*)
LATE AND ON-SITE From October 8, 2022	AIM MEMBER € 900,00 NON MEMBER € 1.000,00	AIM MEMBER € 680,00 NON MEMBER € 780,00	AIM MEMBER € 810,00 NON MEMBER € 910,00	€ 530,00
SPEAKER (PRESENTER)	BY AUGUST 31, 2022		AIM MEMBER € 680,00	NON MEMBER € 780,00

ALL ABOVE REGISTRATION FEES ARE REVENUE STAMP INCLUDED

(*) Students will have to provide valid proof of student status. EITHER DELEGATE OR SPEAKER - Registration for speaker is due **BY AUGUST 31, 2022**

CONFERENCE REGISTRATION FEES INCLUDE:

- ✓ ADMITTANCE TO TECHNICAL SESSIONS AND TO THE EXHIBITION
- ✓ SOCIAL EVENT ON OCTOBER 27
- ✓ CONFERENCE ELECTRONIC PROCEEDINGS
- ✓ COFFEE BREAKS
- ✓ LUNCHEs

For non-members (students excluded) the fee includes AIM Membership for the last quarter of the year 2022 and for the year 2023.

PAYMENT AND REMITTANCE

- by bank transfer, to the order of Associazione Italiana di Metallurgia - AIM at "CREDITO EMILIANO SpA", Branch no. 052 Milano Sede - Via Andegari, 14 - 20121 Milano - Italy, account no. 010000480455 cod. ABI 03032- CAB 01600 - cin M
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SPEAKERS CANCELLATION AND REFUND POLICY

A refund, less 20% deduction for administrative costs, will be issued for written cancellations received **before August 31, 2022**. For speakers who notify their cancellation **after August 31, 2022** 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.

CANCELLATION AND REFUND POLICY

A refund, less 20% deduction for administrative costs, will be issued for written cancellations received **by September 9, 2022**. For attendees who notify their cancellation after September 9, 2022 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.

SOCIAL EVENT

For the evening of October 27th, the main sponsor Danieli and the Conference organizers AIM have planned a social event, in order to give delegates the opportunity to meet informally.



Guests are invited to reach Teatro Verdi, piazza Giuseppe Verdi 1, at 19:00 enjoying one hour of classical music concert in one of the oldest running opera houses.

After the concert, a cocktail will be offered in two of the historical halls of the theater; an access to the view of the magnificence of Piazza Unità d'Italia will make this moment even more unique and suggestive.

Here below the schedule:

- 19:00 - Opening of the accesses to Verdi Theater
- 19:15 - Access to the concert hall
- 19:30 - Welcome by DANIELI
- 19:35 - Beginning of the concert
- 20:40 - End of the concert
- 20:50 - Greeting cocktail
- 22:00 - Greetings and goodbye



The Giuseppe Verdi opera house of Trieste, whose original name was Teatro Nuovo, is one of the oldest opera houses in the world, and it takes pride in its uninterrupted activity with such works as *Ginevra di Scozia* by Simone Mayr and *Annibale in Capua* by Antonio Salieri since the date of its inauguration on 21st April, 1801.

It was built on a proposal by Giovanni Matteo Tommasini between 1798 and 1801 by the architects Giannantonio Selva and Matteo Pertsch in a free area overlooking the sea between the commercial and economic hub, the new Teresian village built in the 18th century and the Piazza Grande, the heart of political power.

The Teatro Nuovo has been a hub of activity right from the beginning: all the music dramas, dance, dramas and comedies which were successful in Italy and Europe were promptly welcomed in the Trieste theatre packed with an audience of enthusiasts and connoisseurs.

The main hall, which currently has a capacity of 1,270 seats, is a historical jewel: it is in fact one of the few to maintain its original structures and decorations from 1801. The second hall, the smaller one, was recently dedicated to the famous director from Trieste, Victor de Sabata.

In its over two centuries of history the Verdi Theatre of Trieste has always been the epicentre of the civil and cultural life of the city, sharing all its extraordinary historical events, Napoleon's invasion and belonging to the French Empire, the subsequent Habsburg restoration and the great commercial and economic prosperity of nineteenth-century Central Europe, the annexation to Italy at the end of World War One, the German, Yugoslavian, Anglo-American occupations following the events of the Second World War and Trieste's return to Italy in 1954.

PLANT VISIT

The technical visit to ABS QWR 4.0 wirerod mill, scheduled in the afternoon of October 28, 2022, is reserved for those who have requested it while registering to the Conference and received corresponding confirmation from the organizing secretariat.

13:00 - 13:15	Departure of the transfer service from the Conference venue to ABS (Via Buttrio 28, Pozzuolo del Friuli UD) A pocket lunch will be served on the bus to all plant tour's attendees
14:15	Arrival and welcome at ABS
14:30 - 16:30	Plant Tour
16:45	Transfer to Trieste airport (16:45 – 17:15) and to Trieste city center (17.15-17.45)



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IWSQ-2

2nd International Workshop
Bergamo - Italy - 1-2 December 2022

Surface quality
of
continuously cast
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scope

Six years after the successful first conference on the topic, AIM, in cooperation with its sister society ASMET, organises once again a two-day event focused on the Surface Quality of continuously cast products.

The surface quality of ingots, billets, blooms and slabs is a particularly important issue in order to insure the required surface quality of final rolled and forged products. This aspect is becoming increasingly significant especially nowadays, when a lot of steelmakers are refocusing their activity on the search for better surface quality or new specialty steels requiring high quality surface features. All this lays on a table of new challenges faced by steelmaking industries, when energy efficiency and consequently lower environmental impact are concerned.

This international meeting aims at sharing the knowledge about the improvement of the surface quality of the continuously cast products and this scope will be achieved by clear expositions about:

- recent advances on the defect analysis;
- the root cause of the defects;
- innovative lubricating products;
- operations and maintenance;
- application of electromagnetic devices;
- AI applications, simulation and computing methods.

Programme & Registration

Registrations are open!

The workshop's programme, featuring several interesting presentations by renowned University and Industry speakers, is published on the workshop website. Register **by November 14 for early bird registration fees.**

Venue

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

Organising Secretariat

Associazione Italiana di Metallurgia
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www.aimnet.it/iwsq-2.htm

FIRST ANNOUNCEMENT & CALL FOR PAPERS



HEAT TREATMENT & SURFACE ENGINEERING

GENOVA - ITALY

29-31 MAY 2023

AIM is glad to announce the ECHT 2023 Conference, to be held in Genova, at Magazzini del Cotone, on 29-31 May 2023!

ECHT 2023 will cover all relevant topics for the Heat Treatment & Surface Engineering community. The Conference will have a special focus on sustainability!

Sustainability, with its three pillars - environmental, economic and social dimensions - is playing a keyrole to address the ongoing and future challenges. The metallurgical and mechanical industry are leading the way in creating a healthy development model for the environment and for the future generations.

Presentations and papers from Industry, University and Research Centres on the topic will encourage the discussion and increase awareness on the matter.

We are looking forward to meeting you in beautiful Genova!

IMPORTANT DATES

Abstract Submission Deadline: December 16, 2022

Notification of acceptance: January 31, 2023

Preliminary program: February 27, 2023

Full Paper Submission Deadline: March 31, 2023

CALL FOR ABSTRACTS

Please submit your abstracts (300-400 words) via the Conference website: www.aimnet.it/echt2023.htm

EXHIBITION & SPONSORSHIP

The Conference will feature a technical exhibition that will represent many areas of industry with the latest equipments, facilities, products and services in the field of the conference topics.

For more information visit the conference website:

www.aimnet.it/echt2023.htm

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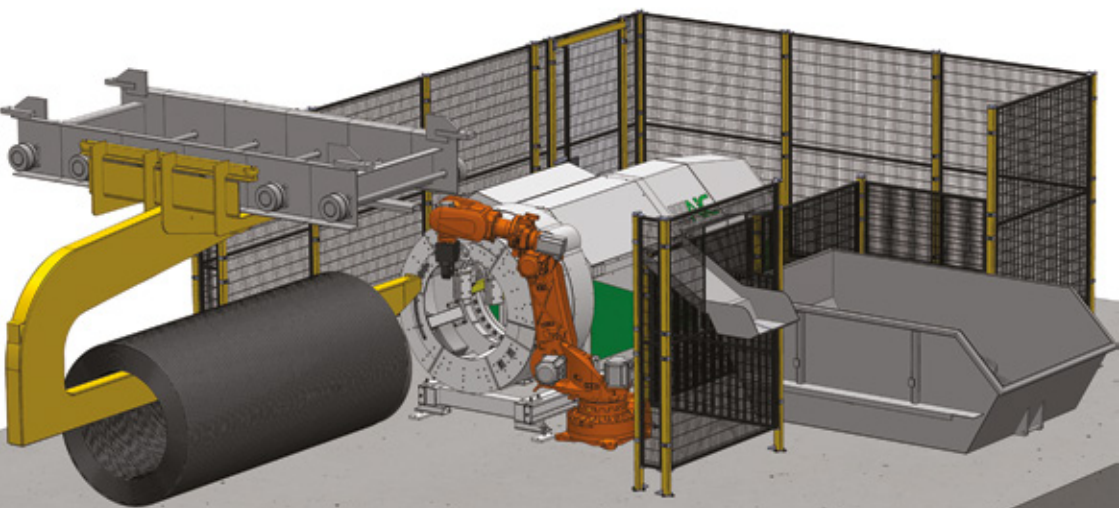


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The logo for Rolling-12 features a stylized red 'R' with a white spiral inside, followed by the word 'Rolling' in a bold, black, sans-serif font with a white outline, and '-12' in a smaller, black, sans-serif font with a white outline.

Rolling-12

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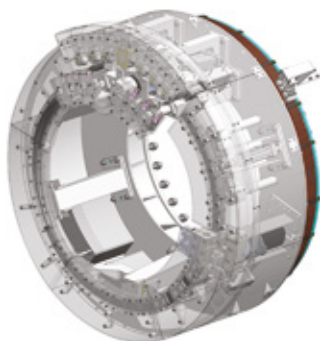
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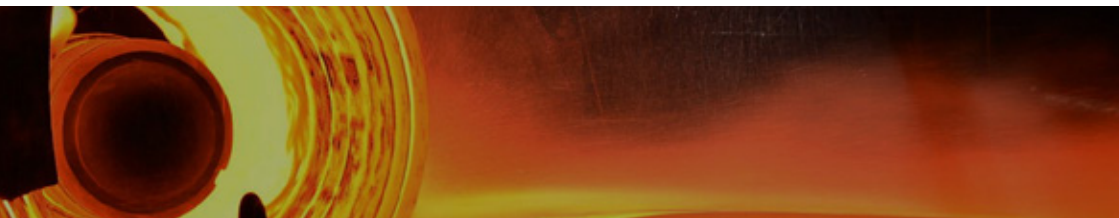


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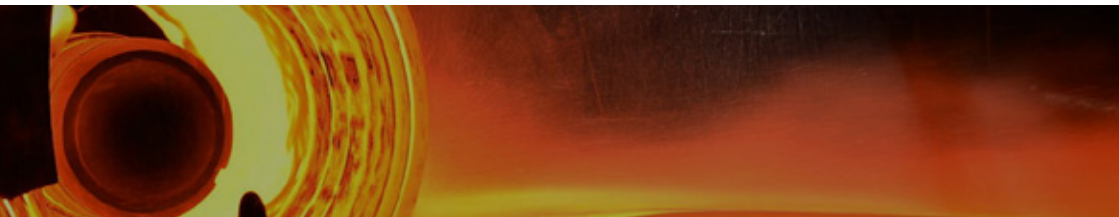


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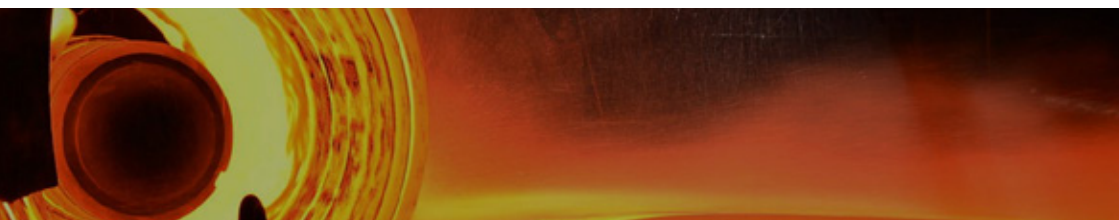


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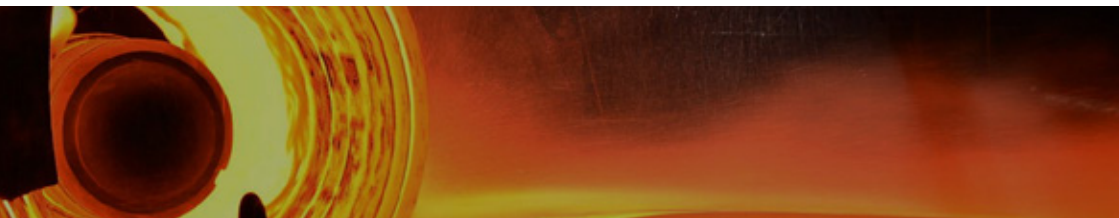


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2.5D APPROACH FOR MICROSTRUCTURE AND
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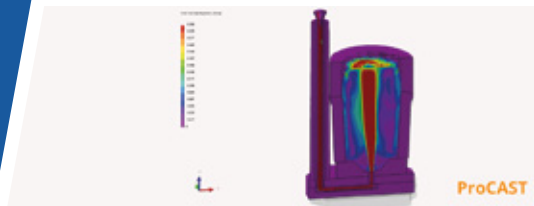
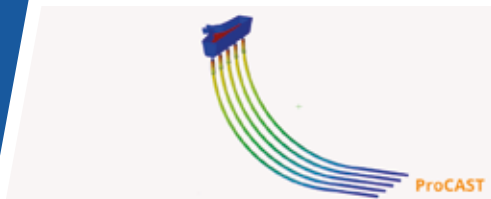
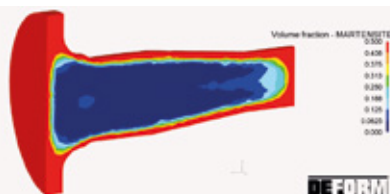
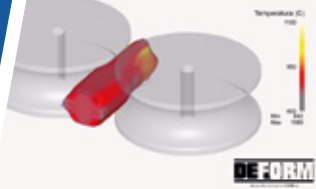
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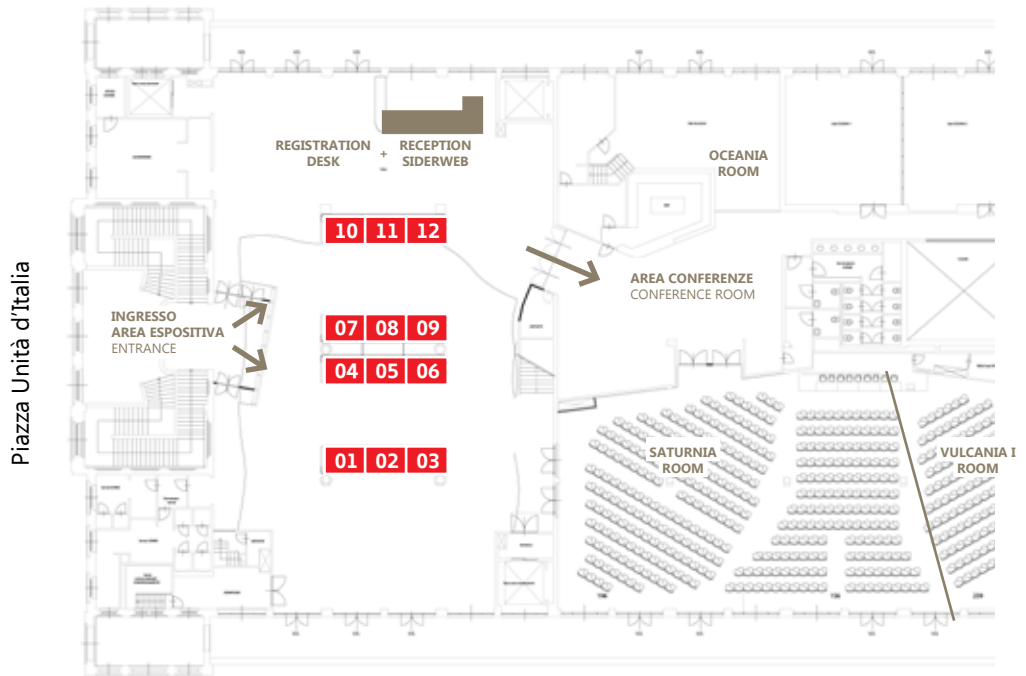
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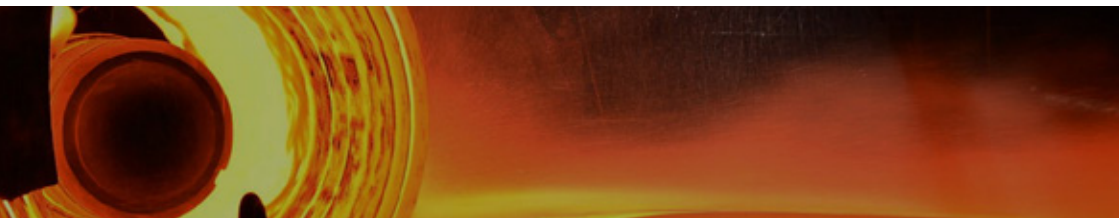
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Est. 1928 and currently headed by
Prof. Dr.-Ing. Ulrich Prah



The IMF is specialised in research, science and education from material science to forming technology.

More information and further contact:
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International Center for Groove Pass Design (IKZ)

Est. 2017 @ IMF, the IKZ is part of the IMF and represents an open platform for knowledge retention, research and professional trainings in groove rolling.

Contact: kalibrierzentrum@imf.tu-freiberg.de

International
Center for
Groove Pass
Design



PyRoll

PyRoll
simulation framework for groove pass design

- Fast simulation approaches for groove rolling
- Open source availability
- Flexible Plug-In System

Free basic configuration available on Github!
www.github.com/pyroll-project



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AIM and Federacciai proudly announce that the 22nd International ForgeMasters Meeting will be held in Italy in 2024.

Save the date!

The appointment will be in Milan on 27-30 May 2024.

All involved in and interested in the area of open die forging and ring rolling are warmly invited to attend.

At IFM 2024 the most important and current issues affecting the sector will be discussed. Experts in the fields of greatest interest will be attending and addressing such issues.

IFM is a unique forum to meet researchers, skilled technicians and decision makers; in other words IFM 2024 is an unmissable event for the forging industry!

Call for papers

Prospective authors wishing to present papers are invited to submit a tentative title and an abstract of about 400 words (in English), specifying a maximum of two topics for each proposal, to the Organising Secretariat.

Visit website **www.ifm2024.org** to submit your abstract.

Deadlines

Submission of abstracts: 30 June 2023

Information on acceptance: 13 October 2023

Submission of full papers and speakers registration: 15 December 2023

Exhibition & sponsorship opportunities

The Conference will be enhanced by an Exhibition at which companies will have the opportunity to inform all delegates of their latest developments. The detailed exhibiting and sponsorship packages will be available on the IFM 2024 website in the following months. In the meantime, companies interested in taking part in the Exhibition or sponsoring the event may contact:

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Organising secretariat



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