



Kilometro Rosso | Bergamo (Italy)

21-22 November 2019

International  
Meeting

Organized by



**ASSOCIAZIONE  
ITALIANA DI  
METALLURGIA**

# METALS FOR ROAD MOBILITY

in co-operation with

**siderweb**  
THE ITALIAN STEEL COMMUNITY

supported by



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

Trends and future  
of alloys  
for automotive  
and trucks

## SCOPE

The Meeting will focus on the development and innovation of the metallic materials used for the car body structures, equipments and the new propulsion architectures that will condition the mobility technologies in the next years.

The attention will be devoted, in particular, on cast irons, steels, aluminum and magnesium alloys. The discussion will involve the microstructural aspects and the technological ones for the production of high performance and reliable materials to fit the safety and the environmental requirements of both current regulation and its upcoming evolution.

MeMo aims at providing a forum for information transfer among producers, components manufacturers and suppliers, research and academics, designers and engineers, active in the mobility (automotive and trucks) field.

Trends and future of automotive sector will be widely discussed during the session organized by Siderweb.

**AIM is looking forward to welcoming you in Bergamo!**

## TOPICS

### Metal alloys & components

- \_Steel plates, bars, rods and wires
- \_Cast iron castings
- \_Light alloy castings
- \_Aluminium extruded profiles
- \_Use of tube and tubular components
- \_Metal alloys for the car body, engine, mechanical transmission components, bolts and fasteners
- \_Gears, bearings and shafts

### Performance

- \_Mechanical performances
- \_Corrosion performances
- \_Prediction of product performances
- \_Environmental performance and safety aspects
- \_Life Cycle Assessment
- \_Failure analysis and prevention
- \_Joining performances

### Processing solutions

- \_Metal plastic drawing, metal blanking and fine blanking
- \_Forging and forming
- \_Foundry solutions
- \_High Pressure Die Casting
- \_Low Pressure Die Casting
- \_Investment casting
- \_Powder Metallurgy
- \_Additive Manufacturing (3D printing of metal alloys)
- \_Heat treatment
- \_Welding
- \_Zinc and Aluminium coating for steels
- \_Process simulation, control and optimization
- \_Surface engineering
- \_Metals extrusion

### Market

- \_Market perspectives



# COMMITTEES

## SCIENTIFIC & STEERING COMMITTEE

Franco Bonollo - *Università degli Studi di Padova, Vicenza*  
 Lorella Ceschini - *Università degli Studi di Bologna*  
 Caterina Epis - *Tenarisdalmine*  
 Enrico Frigerio - *Fonderia di Torbole*  
 Saverio Gaboardi - *Cluster Lombardo della Mobilità*  
 Maurizio Galli - *Stemcor, France*  
 Gian Luca Gigli - *Marcegaglia*  
 Livio Marietti - *A. Benevenuta & C.*  
 Alfredo Masi - *AIDA*  
 Gianpiero Mastinu - *Politecnico di Milano*  
 Mattia Merlin - *Università degli Studi di Ferrara*  
 Enrico Morgano - *CRF, FCA company*  
 Francesco Semino - *Acciaierie Venete*  
 Jacopo Tatti - *CRF, FCA company*  
 Roberto Venturini - *Acciaierie Arvedi*  
 Paolo Veronesi - *Università degli Studi di Modena e Reggio Emilia*  
 Cinzia Vezzosi - *Assofermet*  
 Franco Zanardi - *Fonderie Zanardi*

## ORGANISING COMMITTEE

Federica Bassani - *Associazione Italiana di Metallurgia*  
 Giovanni Maria Caironi - *President of AIM/Assofond Foundry Study Group*  
 Guido Capoferri - *President of AIM Plastic Deformation of Metals Study Group*  
 Paola Cristiani - *IPSAI*  
 Lucio Dall'Angelo - *Siderweb*  
 Maurizio Grillo - *President of AIM Light Metals Study Group*  
 Carlo Mapelli - *President of AIM Steelmaking Study Group*  
 Federico Mazzolari - *Associazione Italiana di Metallurgia*  
 Emanuele Morandi - *Siderweb*  
 Piero Parona - *President of AIM Diecasting Study Group*  
 Danilo Petta - *President of AIM Heat Treatment and Metallography Group*



**21 November 2019**

- 10.30 Welcome coffee and registration of attendees
- 11.30 Welcome address by  
Ing. Federico Mazzolari - AIM President  
Prof. Carlo Mapelli - AIM Steelmaking Study Group President
- 12.00 **Opening lecture by Alberto Bombassei, President and Founder of Brembo SpA (\*)**
- 12.40 Lunch
- 14.00 **Vehicles and alloys: is it a marriage due to continue? (\*)**  
**Perspectives for the use of metals for automotive**  
*Auto e metalli: un matrimonio destinato a continuare?*  
*Le prospettive per l'impiego di metalli nell'automotive*
- In light of the changes expected in the automotive sector, what are the possible scenarios for the use of metals? How shall enterprises prepare themselves to face those changes? What are the perspectives for the Italian industry?
- Alla luce dei cambiamenti che si prospettano per il settore dell'automotive, quali scenari si dipingono per l'impiego di metalli? Come possono attrezzarsi le imprese per far fronte a questo cambiamento? Quali sono le prospettive per l'Italia?*
- Automotive: current and future scenarios**  
*Automotive: gli scenari di oggi e di domani*
- Italy: perspectives for the metallurgical industry in the automotive sector**  
*Italia: mappa e prospettive del settore dei metalli per il comparto automotive*
- Future challenges and how to face them: players' debate**  
*Come affrontare il domani: operatori a confronto*  
**Round table**  
*Tavola rotonda*
- 16.30 Coffee break
- 16.50 **Perspective and opportunities for electric vehicles**  
*Prospettive e opportunità per l'auto elettrica*  
M. Longo - Politecnico di Milano  
P. Perani - ABB, Milano
- 17.20 **The evolution of the vehicle**  
*L'evoluzione del veicolo*  
G. Mastinu - Politecnico di Milano
- 19.00 Meeting dinner

(\*) PRESENTATIONS IN ITALIAN LANGUAGE. A SERVICE OF SIMULTANEOUS TRANSLATION (ITALIAN-ENGLISH) WILL BE PROVIDED.



**22 November 2019**

8.30 Registration of attendees

## **Session: High strength steels to make the vehicles light and safe**

Chairperson: Carlo Mapelli

**9.00 Development of new bainitic forging steels for automotive and truck applications**

MM001

R. Valentini - DICI-Università di Pisa, Italy  
M. Frigerio, I. Bertino - Riva Acciaio, Milano, Italy  
E. Morgano - CRF, Torino, Italy

**9.20 Metallurgical design and production of AHSS grades DP800 and CP800 by thin slab ISP and ESP technology at Acciaieria Arvedi in Cremona, Italy**

MM007

R. Venturini, A. Bianchi - Acciaieria Arvedi, Cremona, Italy  
C. Guarnaschelli, M.C. Cesile, P.E. Di Nunzio - Rina Consulting - Centro Sviluppo Materiali, Roma, Italy

**9.40 Effect of Niobium in the 3rd Gen steel**

MM009

F. D'Aiuto - CBMM Europe B.V., Amsterdam, The Netherlands

**10.00 Development of a new methodology for online measurement of austenite fraction formed during continuous annealing process.**

MM012

**Part I: Measure on high strength microalloyed steel grades**

A. Ferraiuolo - Marcegaglia Ravenna, Ravenna, Italy

**10.20 New light corrosion resistant Fe-Al-Mn-C alloy**

MM014

S. Barella, C. Mapelli, A. Gruttadauria, D. Mombelli - Politecnico di Milano, Italy

10.40 Coffee break



**22 November 2019**

## **Session: Light metal Alloys for low carbon mobility**

Chairperson: **Alessandro Morri**

**11.00 Materials, design and manufacturing for lightweight vehicles: a solution to low carbon mobility**

MM005

S. Cecchel, F. Mega, D. Ferrario - Streparava, Adro (BS), Italy  
G. Cornacchia - Università di Brescia, Italy  
B. Previtali - Politecnico di Milano, Italy

**11.20 Safety and lightweight innovations for future mobility by using stainless steels**

MM008

M. Frigo, S. Lindner - Outokumpu Nirosta GmbH, Krefeld, Germany

**11.40 Soft Magnetic Composites for current and future Automotive applications**

MM004

F. Della Ricca - Höganäs Italia, Rapallo, Italy

**12.00 Generation of compensated geometry for Ti6Al4V Formula 1 aerodynamic parts produced by PBF**

MM016

N. Gramegna, D. Boscolo - EnginSoft, Padova, Italy  
P. Veronesi, M. F. Bonilauri - Università degli Studi di Modena e Reggio Emilia, Modena, Italy  
F. Baiocchi, N. Forghieri - ADDITIVA, Modena, Italy

**12.20 Corrosion behavior of AlSi10Mg alloys produced by additive manufacturing for automotive**

MM018

A. Gullino, E. Di Francia, S. Grassini, E. Padovano, C. Badini, E. Angelini - Politecnico di Torino, Italy

12.40 Lunch



**22 November 2019**

## **Session: Equipment for high performance and the durability improvement**

Chairperson: **Fabio D'Aiuto**

- 14.00 ESR and PM tool steels for the production of high performance components for racing motorbike**  
MM010  
S. Messieri - Ducati Motor Holding, Bologna, Italy  
L. Ceschini, A. Morri, An. Morri - Università di Bologna, Italy  
R. Sola - Università di Modena e Reggio Emilia, Italy
- 14.20 Hot work tool steel solutions for light alloys diecasting in automotive industry**  
MM011  
A. Ghidini - Lucchini RS, Lovere, Italy
- 14.40 Dimensional stability on fatigue performance of wheel bearing rolling elements: case studies**  
MM013  
S. Pagliassotto, S. Rizzo - Tsubaki Nakashima Co., Ltd, Italy  
R. Sesana, E. Brusa - Politecnico di Torino, Italy
- 15.00 Metal Powder Solutions designed to promote future growth of the PM Industry**  
MM003  
F. Della Ricca - Höganäs Italia, Rapallo, Italy
- 15.20 Control of stiction phenomena in brake systems**  
MM017  
F. Andreatta, L. Fedrizzi - Università di Udine, Italy  
A. Isoardi, A. Sin - ITT Motion Technology, Barge, Italy
- 15.40 Coffee break**



**22 November 2019**

## **Session: Approach to improve the reliability of the mechanical components**

Chairperson: Paolo Veronesi

- 16.00** **A comparison of the overaging behaviour, tensile and fatigue strength at room and high temperature of cast AlSiMg and AlSiCuMg alloys for engine components**  
MM006  
L. Ceschini, Al. Morri, An. Morri - Alma Mater Studiorum, Università di Bologna, Italy  
S. Messieri, S. Toschi - Ducati Motor Holding, Bologna, Italy  
S. Seifeddine, M. Zamani - Jönköping University, Sweden
- 16.20** **A systematic experimental approach to evaluate knocking induced damage on forged aluminum pistons after bench tests**  
MM015  
A. Brusa, N. Cavina, B. D'Apote, R. Sola - Università di Bologna, Italy  
E. Balducci, F. Boccia - Ferrari, Italy
- 16.40** **Reclassification of spheroidal graphite ferritic pearlitic and ausferritic austempered ductile cast irons grades according to design needs**  
MM019  
F. Zanardi - Zanardi Fonderie, Minerbe VR, Italy
- 17.00** **Laserscanning&3D modelling technology as a valid tools for risk analysis: experience in siderurgic and metallurgic field**  
MM002  
G. Romano - Romano Safety Management STP, Osio Sotto BG, Italy

### **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, chairmen, timetable or duration, etc. Possible changes in the programme will be communicated before the beginning of the event.





# GENERAL INFORMATION

## VENUE

The Meeting will be held in Bergamo at Kilometro Rosso - Gate 4, Centro delle Professioni - Via Stezzano, 87 (<http://www.kilometrorosso.com>)

## LANGUAGE

The official language of the Meeting will be English.

## REGISTRATION FEES

Early bird registration fees (by October 25, 2019)

**N.B:** Speaker registration deadline: **October 11, 2019**

ALL REGISTRATION FEES ARE REVENUE STAMP INCLUDED	AIM MEMBER	NON MEMBER	
SPEAKER (PRESENTER) SESSION CHAIRPERSON COMMITTEE MEMBER	€ 350	€ 440	MEETING REGISTRATION FEES INCLUDE: <ul style="list-style-type: none"><li>• admittance to technical sessions and to the exhibition</li><li>• Meeting bag with electronic proceedings</li><li>• Meeting dinner on November 21</li><li>• coffee breaks</li><li>• lunches</li></ul>
PARTICIPANT (NON-PRESENTER)	€ 450 <small>AFTER OCTOBER 25, 2019</small> € 490	€ 540 <small>AFTER OCTOBER 25, 2019</small> € 580	
STUDENT *	280 <small>AFTER OCTOBER 25, 2019</small> € 330 (22% VAT included)		
			For non-members the fee includes AIM Membership for the last quarter of 2019 and for the year 2020. * Students will have to provide valid proof of student status. The Meeting dinner on November 21 is <u>not</u> included in the student registration fee.

**Additional ticket for Meeting dinner for accompanying persons: € 110** (22% VAT included)  
 (Includes only the Meeting dinner on November 21)

## Payment and remittance

- by bank transfer, to the order of Associazione Italiana di Metallurgia - AIM at "UBI Banca S.p.A.", 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 "MeMo2019". A copy of the transfer order must be sent to AIM, together with the Registration Form.
- by credit card online ([www.aimnet.it/memo.htm](http://www.aimnet.it/memo.htm)).

## Speakers registration

Please be aware that only presentation submitted on time and with presenting author regularly registered (registration fee paid) before **October 11, 2019** will be included in the final programme and published in the Meeting 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 October 11, 2019**. For speakers who notify their cancellation **after October 11, 2019** or will not attend the Meeting, **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 Meeting website [www.aimnet.it/memo.htm](http://www.aimnet.it/memo.htm) or fill in the enclosed Registration Form and send it to the Organising Secretariat best before **October 25, 2019** (*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 October 25, 2019**. For attendees who notify their cancellation **after October 25, 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.

## 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 Meeting. Participants should therefore take whatever steps they consider necessary as regards insurance.

## Exhibition & Sponsorship opportunities

As an integral element of the event, MeMo 2019 will feature a table top exhibition that will enable excellent exposure for company products, technologies, innovative solutions or services. At this opportunity, the Organizers will set an area strategically located. This area will be a focal point of the Meeting, so that enough time will be available to guarantee a perfectly targeted potential customer's environment.

Companies will be able to reinforce their participation and enhance their corporate identification by taking advantage of the benefits offered to them as Sponsor of the Conference. Companies interested in exhibiting and/or sponsoring the event may visit the Conference website:

[www.aimnet.it/memo.htm](http://www.aimnet.it/memo.htm) or contact the **MeMo2019 Organising Secretariat**: e-mail: [aim@aimnet.it](mailto:aim@aimnet.it)

## Visa Application Form

If you need an official invitation please send your request to the Organising Secretariat best before October 18, 2019 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.

## Mobile/cell phone

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

## Meeting Dinner

The Meeting dinner will be held on the evening of November 21, in order to give delegates the opportunity to meet informally.





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