Technical Programme

Developing the Powder Metallurgy Future

Euro PM2021 International Powder Metallurgy Congress & Exhibition

18 – 22 October 2021

ONLINE EVENT

europm2021.com

EURO
PM2021
VIRTUAL CONGRESS & EXHIBITION

Representing the Powder Metallurgy Industry

european powder
metallurgy association

EPMA Membership Benefits

10 Reasons to join the EPMA

1. Enhance your market knowledge through access to unique industry information using our range of powder metal PM statistics, presentations and papers.
2. Improve your product development through access to EU and EPMA Member initiated R&D programmes.
3. Save money by receiving substantial discounts on attending and exhibiting at the leading annual Euro PM Congress and Exhibition and our series of training courses and seminars.
4. Obtain unique international access to government via our lobbying of the EU on key issues such as REACH, ISO standards and health and safety legislation.
5. Promote your sales through free advertising via an entry in the EPMA Members Directory on one of the world's most visited PM websites.
6. Keep updated on industry news and developments through the Email News service and the EPMA newsletter – both free to EPMA Members*.
7. Develop your high-level networking opportunities through EPMA Sectoral Groups, discounted seminars and the general assembly.
8. Keep compliant with ISO 9001:2000 and ISO/TS 16949:2002 by participating in the EPMA Europe-Wide Benchmarking programme.
9. Access Member only content from a range of sources via the EPMA website Members Area.
10. Develop the market for your products by supporting promotion of PM technology via exhibitions and web-based information.

www.epma.com/membership

Contents

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About Euro PM2021 Virtual Congress

The Euro PM2021 Congress is the foremost event for the international powder metallurgy community, and provides the focal point for industry personnel, researchers, and suppliers to meet, network and develop their business.

The Euro PM2021 Congress programme will include over 140 technical papers presented in oral and poster sessions, including EPMA Keynote Paper Award presentations, as well as eleven in-depth Special Interest Seminars. Details of the full programme can be found on the following pages, and on our website **www.europm2021.com**.

The event will be held entirely online in 2021, allowing delegates to remotely access technical sessions either live, or on demand. Live Q & A sessions with authors will provide opportunity for in-depth PM discussions.

Congress Organiser

Euro PM2021 is sponsored and organised by the European Powder Metallurgy Association (EPMA), in co-operation with key members of the PM community and across Europe.

Founded in 1989, EPMA is the leading PM trade association representing the interests of the entire European PM community, and promoting PM technology throughout the world. EPMA Members will qualify for special discounts on their registration fees, and further information on membership, and EPMA's services, can be found at **www.epma.com**

For further information on Euro PM2021 Congress please contact:

European Powder Metallurgy Association


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For Registration Enquiries, please contact:
Shocklogic : registration-epma@shocklogic.com

Sponsorship & Exhibition:
Membership & External Partnership Manager: Andy Cormack
E: ac@epma.com T: +44 750 422 3376

The EPMA reserves the right to make changes to the final programme. All programme timings, content and fees correct at time of creation. E&OE. An electronic version will be updated on **www.europm2021.com** as necessary.
Euro PM2021 Congress and all associated meetings, sessions and events are ruled according to EPMA Antitrust Guidelines. Details of which can be found here: **www.epma.com/antitrust**.

Event Sponsors

GOLD SPONSORS

Rio Tinto Metal Powders (RTMP) was established in 1968 as Quebec Metal Powders Ltd. (QMP) and is wholly owned today by Rio Tinto, a renowned large scale international mining and metallurgical company. Rio Tinto Metal Powders' world headquarters are located in Sorel- Tracy, Canada with sales offices, technical representatives and agents around the globe.

RTMP also operates an annealing and blending facility with comprehensive customer support and distribution capabilities in Suzhou, China. RTMP is the only global powder supplier, to manufacture its products entirely from a consistent, single ore base. Consequently, RTMP offers products of exceptional cleanliness and consistency.

RTMP offers a full range of ferrous powder products for virtually all Powder Metallurgy (PM) applications, and is committed to helping customers produce the best quality components possible by supplying superior powder products

www.qmp-powders.com

SILVER SPONSORS

Höganäs develops, manufactures and sells metal powders that open up a world of opportunities.

Our product range includes pure iron powders, low-alloy steel powders, stainless steel powders and press-ready powder mixes. Höganäs products are tailored to meet demands on part precision, productivity, performance and cost, and many of our brands, such as Distaloy ®, AstaloyTM and Starmix®, are regarded as industry standards.

In the Höganäs Customer Development Centre, we invite customers and end users to work alongside our expert team with application engineering and prototyping.

www.hoganas.com

Miba is one of the leading strategic partners of the international engine and automotive industry.

Our product portfolio includes sintered components, engine bearings, friction materials, power electronics components and coatings.

Miba products makes conventional passenger vehicles and battery electric vehicles, trains, ships, aircraft and power plants more efficient, more reliable and more environmentally friendly.

www.miba.com

Hyperion Materials & Technologies is a global leader in advanced materials with nearly seven decades of experience developing and manufacturing tungsten carbide powders, cemented carbide, synthetic diamond, and cubic boron nitride products.

Hyperion specializes in premium base materials, toolmaker components, engineered products, and process tools and solutions for the most demanding applications. With about 1,600 employees worldwide, Hyperion has its production footprint in North and South America, Europe, and Asia.

We apply our materials science, engineering and manufacturing expertise to position our customers to win.

www.hyperionmt.com

Plansee High Performance Materials is an expert in the field of molybdenum, tungsten, tantalum, niobium and chromium components.

Alloys and composite materials from Plansee come into their own in electronics, coating technology or high-temperature furnaces -wherever traditional materials are stretched beyond their limits.

www.plansee.com

Industrial gases play an essential role in Additive Manufacturing (AM) across the entire value chain from powder production and handling, to printing, through to surface finishing of the final printed part.

Linde's ongoing research into the effects of the atmosphere on AM powders and parts ensures we provide you with the best knowledge and service possible to improve your processes – through increasing efficiency, boosting productivity, and raising product and material quality.

www.linde-am.com

Tekna is world leader in induction plasma technology related to high performancematerials.

Over the last 30 years, Tekna has designed and manufactured more than 250 turnkey plasma systems. Our customer service and maintenance centers are dispatched in Americas, Europe and Asia.

The product offer ranges from R&D plasma systems for rapid material development easily scalable to industrial solutions for 24/7 operation:

• Spheroidization process allows to transform angular powder into highly spherical powder especially designed for advanced part manufacturing processes such as Additive Manufacturing, Metal Injection Molding and near net shape Hot Isostatic Pressing.

• Nanopowder synthesis process is designed to produce a wide range of high purity materials (Ceramics, Pure Metals, Alloys,…) at high yield even below 100 nm. Tekna is also leading manufacturer of plasma atomized spherical metal powders for Additive Manufacturing and MIM.

Tekna powders have been integrated in every AM platform and are part of major OEM's supply chains in different industrial segments, such as aerospace, defense,medical, automotive, and oil & gas. The product portfolio for materials is currently composed of titanium alloys (Ti-6Al-4V), nickel-based alloys (718, 625, HX)*,aluminum alloys (AlSiMg) and specialty refractories: tungsten, tantalum, and molybdenum.

* Imphytek powders, JV between Tekna and Aperam

www.tekna.com
www.imphytekpowders.com

Gas atomised metal powders, superalloy PM billets, HIPped and HIP clad components.

Types of Product: PM semi-products, net shape and near net shape, structural parts, prealloyed powders, bi-metallic part. Range of Materials: Nickel, cobalt.

www.aubertduval.fr

Part of global industrial engineering group Sandvik, Sandvik Coromant is at the forefront of manufacturing tools, machining solutions and knowledge that drive industry standards and innovations demanded by the metalworking industry now and into the next industrial era.

Educational support, extensive R&D investment and strong customer partnerships ensure the development of machining technologies that change, lead and drive the future of manufacturing. Sandvik Coromant owns over 1,800 patents worldwide, employs over 7,600 staff, and is represented in 150 countries

www.sandvikcoromant.com

SACMI is an Italian company world leader in the design, production and supply of industrial technologies and systems, specialized in equipment for ceramics, beverage & packaging, food processing and Powder Metal. SACMI Group is present in 30 Countries worldwide through a total of 80 Companies.

Driven by continuous investments in research, unwavering promotion of technological innovation, conscientious attention to product and service quality, effective reponses in the real needs of world markets, SACMI proposes a wide range of new equipment and technologies for the Powder Metal Industry, the result of over 100 year old experience as equipment supplier, exploiting the synergies between the main Companies in the group in their specialized fields and backed up by a world wide network of after sales service centres.

SACMI also produces Sinter Hardening and High Temperature Furnace equipment .

www.sacmi.com/metals

Apart from all facilities to design and manufacture most types of furnaces for the PM industry, Fluidtherm Technology operates a versatile thermal process prototyping facility for process & product development, failure analysis and client servicing.

We manufacture Belt, Pusher & Walking Beam furnaces for operation to 1700°C for sintering, sinter hardening, powder processing, steam treatment & heat treatment of metal & ceramic parts.

Recent developments include low temperature pushers for Aluminum sintering and continuous carburising with gas quenching.

www.fluidtherm.com

CREMER is a world leading manufacturer of furnaces and thermal process plants for a wide range of processes and process temperatures (400°C < T< 2500°C) under various furnace atmospheres (e.g. H2, 02, Endo-gas, N2-mixtures and air) for the field of iron powder metallurgy in general, CIM, MIM, AM or the production of high performance oxide or non-oxide ceramic components.

The applications of the CREMER plants range from de-binding, sintering and combined debinding & sintering (e.g. the new MIM Master neo), to a wide range of thermal treatments for ferrous and non-ferrous powders and high performance ceramics. These include calcination, carburization (e.g. CARBIDE2500 furnace technology), carbonization, pyrolysis;and customized engineering processes under various furnace atmospheres (e.g. H2, 02, Endo-gas, N2-mixtures and air).

Since 2012 CREMER is also a manufacturer of Hot Isostatic Presses (HIP) and ColdIsostatic Presses (CIP). Therefore the product portfolio now not only includes thermal process plants for debinding & sintering, but also HIP and CIP plants for either AM applications or other processes where non-porous near net-shape parts are required.

CREMER stands for Made-in-Germany, continuity, flexibility and reliability. It is a middle sized family business with more than 100 employees, a high production depth and extensive know-how in plant engineering and process engineering. CREMER provides outstanding 24/7 global customer full-service support out of its own workshop including turnkey installation, commissioning, training classes, spare part service and maintenance.

www.cremer-polyfour.de

Join the PM Networking Event of 2021 – Reserve your Booth Today

Running in parallel to the Technical Sessions of the Euro PM2021 Virtual Congress, the Euro PM2021 Virtual Exhibition will become the EPMA's first exclusively online exhibition, with representatives from across the world joining the international exhibition 18 -22 October 2021.

Euro PM2021 Virtual Exhibition will be the EPMA's first ever online exhibition, offering the Powder Metallurgy community the opportunity to network with a global audience of Delegates, End-Users, Academics, Students, and fellow Exhibitors. Exhibition visitors will be encouraged by charging them the minimal admin fee of €50 to join the event.

Due to excellent early sales of Virtual Exhibition Space, our first Exhibition Hall is fully reserved. Ensure your company is represented at the heart of PM Industry by reserving your place in Exhibition Hall Two.

The layout will be identical to Hall One, with all sizes of Exhibition Booth still available for a limited time only. Find all the details in our Exhibition Package, or on our website at http://www.europm2021.com/exhibition.

As an exhibitor joining the Virtual Exhibition you will be able to:

- Communicate live to visitors on your stand, or arrange meetings with attendees in advance using PM2021's new networking tool
- Promote your business through HD Video and PDF downloads
- Analyse post-event performance using analytics and reports on the number of clicks, views and downloads achieved during the event.

Find out more, and make your reservation at http://www.europm2021.com/exhibition; or please contact:

Sponsorship & Exhibition:
Membership & External Partnership Manager: Andy Cormack
E: ac@epma.com T: +44 750 422 3376

Reserve your booth ahead of the 30 June 2021 - Deadline

world

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Developing the Powder Metallurgy Future

Congress Proceedings

Proceedings from PM2002 – PM2015 are free to download from the EPMA website.

Proceedings from PM2016 – PM2021 are available to purchase as:

- Individual papers (PDF download)
- Grouped by topic (PDF download)
- Complete proceedings available by downloading

Proceedings for Euro PM2021 are included in the 'full delegate' registration package. For all other participants, proceedings can be pre-ordered on the registration form or purchased on EPMA website.

EURO PM2021
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www.europm2021.com

Technical Sessions

- Technical Sessions
- Industry Corner
- Special Interest Seminars

Virtual Congress Schedule

Interested in a particular topic?

The following seminars, technical sessions and meetings have been colour-coded to aid faster navigation throughout the Technical Programme and other EPMA booklets. Please see the guide below

- Powder Production
- Consolidation technologies
- Materials
- Applications
- Tools for improving PM
- **KNP** Keynote Paper Award Presentation
- **SIS** Special Interest Seminar
- Campfire Meeting

Please note schedules are listed in CET time (Brussels, Copenhagen, Madrid, Paris)

Monday 18 October 2021			**Room**
09:00 - 12:15		Plenary Session	Room 1
12:15 - 13:00		*Lunch Break*	
13:00 - 14:30		Session 1: Cermets and Applications	Room 1
13:00 - 14:30		Session 2: **SIS** HIP: Optimization of PM parts using HIP	Room 2
13:00 - 14:30		Session 3: AM Beam Based Technologies: Nickel-Based Materials|Refractory Metals **KNP**	Room 3
13:00 - 14:30		Session 4: Applications: Automotive **KNP**	Room 4
14:30 - 14:45		*Break*	
14:45 - 16:15		Session 5: Materials for Press & Sinter **KNP**	Room 1
14:45 - 16:15		Session 6: **SIS** HIP: Key Industrial Applications of HIP	Room 2
14:45 - 16:15		Session 7: Industry Corner - 1	Room 3
14:45 - 16:15		Session 8: Applications: Biomedical **KNP**	Room 4
Tuesday 19 October 2021			**Room**
09:00 - 10:30		Session 9: Modelling and Super Hard Materials	Room 1
09:00 - 10:30		Session 10: **SIS** FM: Advances and Challenges for Hard Magnets	Room 2
09:00 - 10:30		Session 11: AM Beam Based Technologies: Hard Metals and Hard Materials	Room 3
09:00 - 10:30		Session 12: Sintering	Room 4
10:30 - 10:45		*Break*	
10:45 - 12:15		Session 13: Non-Ferrous & Ferrous Materials **KNP**	Room 1
10:45 - 12:15		Session 14: **SIS** FM: Functional Materials for Thermal Management	Room 2
10:45 - 12:15		Session 15: AM Beam Based Technologies: Steels	Room 3
10:45 - 12:15		Session 16: Compaction and Application	Room 4
12:15 - 13:00		*Lunch Break*	
13:00 - 14:30		Session 17: Magnetic and Iron based Functional Materials **KNP**	Room 1
13:00 - 14:30		Session 18: **SIS** MIM: Sustainability of MIM	Room 2
13:00 - 14:30		Session 19: Industry Corner - 2	Room 3
13:00 - 14:30		Session 20: Hot Isostatic Pressing	Room 4
Wednesday 20 October 2021			**Room**
09:00 - 10:30		Session 21: High Temperature Applications	Room 1
09:00 - 10:30		Session 22: **SIS** HM: Outlook on Hard Materials	Room 2
09:00 - 10:30		Session 23: AM Sinter Based Technologies: Extrusion-Based Methods in AM	Room 3
09:00 - 10:30		Session 24: MIM Feedstocks **KNP**	Room 4

Please note schedules are listed in CET time (Brussels, Copenhagen, Madrid, Paris)

10:30 - 10:45		*Break*	
10:45 - 12:15		Session 25: ODS and High Entropy Alloys **KNP**	Room 1
10:45 - 12:15		Session 26: **SIS** HM: HM Club Projects of EPMA	Room 2
10:45 - 12:15		Session 27: AM Beam Based Technologies: Related Process	Room 3
10:45 - 12:15		Session 28: PIM Materials	Room 4
12:15 - 13:00		*Lunch Break*	
13:00 - 14:30		Session 29: Light Weight Materials	Room 1
13:00 - 14:30		Session 30: Industry Corner - 3	Room 2
13:00 - 14:30		Session 31: AM Beam Based Technologies: Process Development and Simulation **KNP**	Room 3
13:00 - 14:30		Session 32: Gas Atomizer: Theory and Design	Room 4
Thursday 21 October 2021			**Room**
09:00 - 10:30		Session 34: **SIS** P&S: CO2 reduction in Press&Sinter - Part 1	Room 2
09:00 - 10:30		Session 35: AM Beam Based Technologies: Special Materials	Room 3
09:00 - 10:30		Session 36: Alternative Powder Production Processes	Room 4
10:30 - 10:45		*Break*	
10:45 - 12:15		Session 37: Alternative Hardmetals **KNP**	Room 1
10:45 - 12:15		Session 38: **SIS** P&S: CO2 reduction in Press&Sinter - Part 2	Room 2
10:45 - 12:15		Session 39: AM Sinter based Technologies - Other Processes	Room 3
10:45 - 12:15		Session 40: Influence of Powder Process on Material Properties	Room 4
12:15 - 13:00		*Lunch Break*	
13:00 - 14:30		Session 41: AM Sinter Based Technologies: Binder Jetting	Room 1
13:00 - 14:30		Session 42: Industry Corner - 4	Room 2
13:00 - 14:30		Session 43: Field Assisted Sintering Technologies	Room 3
13:00 - 14:30		Session 44: Design and modelling **KNP**	Room 4
Friday 22 October 2021			**Room**
09:00 - 10:30		Session 45: Hard metals Corrosion	Room 1
09:00 - 10:30		Session 46: **SIS** AM: Spare parts and Repair using AM	Room 2
09:00 - 10:30		Session 47: Testing & Evaluation	Room 3
09:00 - 10:30		Session 48: Applications: Aerospace	Room 4
10:30 - 10:45		*Break*	
10:45 - 12:15		Session 49: Ferrous Materials for AM	Room 1
10:45 - 12:15		Session 50: **SIS** AM: Sinter Based AM	Room 2
10:45 - 12:15		Session 51: Testing & Evaluation: Powder Characterisation	Room 3
10:45 - 12:15		Session 52: Applications: Energy	Room 4
12:15 - 12:30		Closing Session	Room 1

Virtual Congress by Strand

Please note schedules are listed in CET time (Brussels, Copenhagen, Madrid, Paris)

Materials

Monday 18 October	
13:00 - 14:30	Session 1: Cermets and Applications
14:45 - 16:15	Session 5: Materials for Press & Sinter
Tuesday 19 October	
09:00 - 10:30	Session 9: Modelling and Super Hard Materials
10:45 - 12:15	Session 13: Non-Ferrous & Ferrous Materials
13:00 - 14:30	Session 17: Magnetic and Iron based Functional Materials
Wednesday 20 October	
09:00 - 10:30	Session 21: High Temperature Applications
10:45 - 12:15	Session 25: ODS and High Entropy Alloys
13:00 - 14:30	Session 29: Light Weight Materials
Thursday 21 October	
10:45 - 12:15	Session 37: Alternative Hardmetals
Friday 22 October	
09:00 - 10:30	Session 45: Hard metals Corrosion
10:45 - 12:15	Session 49: Ferrous Materials for AM

Powder Production

Wednesday 20 October	
13:00 - 14:30	Session 32: Gas Atomizer: Theory and Design
Thursday 21 October	
09:00 - 10:30	Session 36: Alternative Powder Production Processes
10:45 - 12:15	Session 40: Influence of Powder Process on Material Properties

Applications

Monday 18 October	
13:00 - 14:30	Session 4: Applications: Automotive
14:45 - 16:15	Session 8: Applications: Biomedical
Friday 22 October	
09:00 - 10:30	Session 48: Applications: Aerospace
10:45 - 12:15	Session 52: Applications: Energy

Consolidation technologies

Monday 18 October	
13:00 - 14:30	Session 3: AM Beam Based Technologies: Nickel-Based Materials|Refractory Metals
Tuesday 19 October	
09:00 - 10:30	Session 11: AM Beam Based Technologies: Hard Metals and Hard Materials
09:00 - 10:30	Session 12: Sintering
10:45 - 12:15	Session 15: AM Beam Based Technologies: Steels
10:45 - 12:15	Session 16: Compaction and Application
13:00 - 14:30	Session 20: Hot Isostatic Pressing
Wednesday 20 October	
09:00 - 10:30	Session 23: AM Sinter Based Technologies: Extrusion-Based Methods in AM
09:00 - 10:30	Session 24: MIM Feedstocks
10:45 - 12:15	Session 27: AM Beam Based Technologies: Related Process
10:45 - 12:15	Session 28: PIM Materials
13:00 - 14:30	Session 31: AM Beam Based Technologies: Process Development and Simulation
Thursday 21 October	
09:00 - 10:30	Session 35: AM Beam Based Technologies: Special Materials
10:45 - 12:15	Session 39: AM Sinter based Technologies - Other Processes
13:00 - 14:30	Session 41: AM Sinter Based Technologies: Binder Jetting
13:00 - 14:30	Session 43: Field Assisted Sintering Technologies

Tools for improving PM

Thursday 21 October	
13:00 - 14:30	Session 44: Design and modelling
Friday 22 October	
09:00 - 10:30	Session 47: Testing & Evaluation
10:45 - 12:15	Session 51: Testing & Evaluation: Powder Characterisation

Industry Corner

Monday 18 October	
14:45 – 16:15	Session 7: Industry Corner - 1
Tuesday 19 October	
13:00 - 14:30	Session 19: Industry Corner - 2
Wednesday 20 October	
13:00 - 14:30	Session 30: Industry Corner - 3
Thursday 21 October	
13:00 - 14:30	Session 42: Industry Corner - 4

Special Interest Seminars

Monday 18 October		
13:00 - 14:30		Session 2: SIS HIP: Optimization of PM parts using HIP
14:45 - 16:15		Session 6: SIS HIP: Key Industrial Applications of HIP
Tuesday 19 October		
09:00 - 10:30		Session 10: SIS FM: Advances and Challenges for Hard Magnets
10:45 - 12:15		Session 14: SIS FM: Functional Materials for Thermal Management
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Wednesday 20 October		
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Thursday 21 October		
09:00 - 10:30		Session 34: SIS P&S: CO2 reduction in Press&Sinter - Part 1
10:45 - 12:15		Session 38: SIS P&S: CO2 reduction in Press&Sinter - Part 2
Friday 22 October		
09:00 - 10:30		Session 46: SIS AM: Spare parts and Repair using AM
10:45 - 12:15		Session 50: SIS AM: Sinter Based AM

AM Additive Manufacturing Magazine

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Monday 18 October

Session 1
Cermets and Applications

SESSION CHAIRS

Dr Siavash Momeni *(Hilti AG, Liechtenstein)*

ORAL PRESENTATIONS

Influence Of Cu And Al Addition On The Properties Of Ti(C,N)-Co|Ni-based Cermets
Lengauer, W (Vienna University of Technology, Austria); Maschke, J; Biagi, A; Fürst, M (Vienna University of Technology, Austria)

Solid State And Liquid Phase Sintered Mo2C, WC, TiC And TiC5N5 Modified NbC-Ni Cermets.
Anwer, Z (KU Leuven, Belgium); Vleugels, J; Huang, S (KU Leuven, Belgium)

Femtosecond Laser Processing Of Hardmetals
Carmona, E (CEIT-BRTA, Spain); Pan Cabo, A; Lozada Cabezas, L; Sanchez Moreno, J-M (CEIT-BRTA, Spain)

Microstructure Evolution Of Cu|Ni Infiltrated NbC-WC Binderless Cermets
Huang, J (KU Leuven, Belgium); Huang, S; Lauwers, B; Qian, J; Vleugels, (KU Leuven, Belgium); Zhou, P (Hunan University of Science and Technology, China)

POSTER PRESENTATIONS

Thermal Residual Micro-stresses Characterizations In NbC-Ni Cemented Carbides
Lavigne, O (Hyperion Materials and Technologies, Spain); Luzin, V (Australian Nuclear Science and Technology Organisation, Australia)

Heat Treatment And Characterization Of Lithography-based Additive Manufactured WC-Co Green Bodies
Rieger, T (Aalen University, Germany); Schubert, T; Schurr, J; Schwenkel, M; Bernthaler, T; Schneider, G (Aalen University, Germany); Rieger, T (Karlsruhe Institute of Technology, Germany)

Session 2
SIS HIP: Optimization of PM parts using HIP

SESSION CHAIRS

Dr Anke Kaletsch *(RWTH Aachen University, Germany)*
Mr James Shipley *(Quintus Technologies AB, Sweden)*

ORAL PRESENTATIONS

The CALHIPSO project: towards a larger use of HIP technology in France
Bernard, F (ICB - UMR 6303 CNRS / UBFC, France); Rigal, E; Emonot, P (CEA Liten, France); Chateau-Cornu, J-P (ICB - UMR 6303 CNRS / UBFC, France); Geneves, T (Framatome, France); Bernacki, M (Mines Paris Tech - UMR 7635 CNRS / PSL, France)

Hot Isostatic Pressing in Additive Manufacturing – a costly necessity or a possibility to add value?
Herzog, D (Hamburg University of Technology, Institute of Laser and System Technologies, Germany); Bossen, B; Bartsch, K; (Hamburg University of Technology, Institute of Laser and System Technologies, Germany)

Session 3
AM Beam Based Technologies: Nickel-Based Materials|Refractory Metals

SESSION CHAIRS

Dr Heinrich Kestler *(Plansee SE, Austria)*

ORAL PRESENTATIONS

Pre KNP - Microstructure Control Of Additively Manufactured IN718 By L-PBF Process
Lacoste, L (Mines ParisTech - Centre des matériaux - PSL University - AddUp - Additive Factory Hub (AFH), France); Sakly, A; Lebel, S; Vayre, B (AddUp, France); Dépinoy, S; Colin, C (Mines ParisTech - Centre des matériaux - PSL University, France)

Optimization Of SLM Lattice Structures Of Inconel 718 For Improving The Mechanical Behavior.
Banait, S (IMDEA MATERIALS INSTITUTE, Spain); Jin, X; Perez Prado, T (IMDEA MATERIALS INSTITUTE, Spain); Campos, M (Universidad Carlos III de Madrid, Spain)

Feasibility Of Grain Refinement By Heterogeneous Nucleation In Molybdenum Processed Via Laser Powder Bed Fusion
Kaserer, L (University of Innsbruck, Austria); Rissbacher, L; Braun, J; Leichtfried, G (University of Innsbruck, Austria); Kestler, H (Plansee SE, Austria)

Effect Of (electro)chemical Post-processing Parameters On The Surface Roughness Reduction And Support Removal Of INCO718 Produced By Selective Laser Melting.
Pazos, D (Cidetec Surface Engineering, Spain); Espinosa, E; García-Blanco, M (Cidetec Surface Engineering, Spain)

Session 4
Applications: Automotive

SESSION CHAIRS

Dr José Garcia *(Sandvik Machining Solutions, Sweden)*
Prof Alberto Molinari *(Trento University, Italy)*

ORAL PRESENTATIONS

Pre KNP - Influence Of Heat Treatment And Densification On The Load Capacity Of Sintered Gears
Scholzen, P (Laboratory for Machine Tools and Production Engineering (WZL) of RWTH Aachen University, Germany); Rajaei, A; Hallstedt, B; Broeckmann, C (Chair and Institute for Materials Applications in Mechanical Engineering (IWM) of RWTH Aachen University, Germany); Brimmers, J; Bergs, T (Laboratory for Machine Tools and Production Engineering (WZL) of RWTH Aachen University, Germany)

FAST STEP 3: Field Assisted Sintering Technology For Swarf Titanium To Engine Parts In 3 Steps
Weston, N (The University of Sheffield, United Kingdom); Jackson, M (The University of Sheffield, United Kingdom); Holden, C (Northern Automotive Alliance Ltd, United Kingdom); Ingall, D (Transition International Ltd, United Kingdom); Lunn, D (W.H. Tildesley Ltd, United Kingdom); Williams, (Force Technology Ltd, United Kingdom); Balderson, J (Bentley Motors Ltd, United Kingdom)

Approach To Achieve Improved Elongation Combined With Sufficient Hardness, Tensile- And Fatigue Strength Utilizing Belt Furnace Sintering Conditions At 1120°C
Schneider, R (Höganäs GmbH, Germany); Ljung, K (Höganäs Sweden AB, Sweden); Szabo, C (Höganäs GmbH, Germany)

Hybrid-Additive Manufacturing Of Press Tools With Laser Metal Deposition Using Buffer Layers To Reduce Crack Issues
Belitz, S (Mercedes-Benz AG, Germany); Scheider, D (Mercedes-Benz AG, Germany); Zeidler, H (Technische Universität Bergakademie Freiberg, Germany)

Session 5
Materials for Press & Sinter

SESSION CHAIRS

Prof Ilaria Cristofolini *(Trento University, Italy)*
Prof Christoph Broeckmann *(RWTH Aachen IWM, Germany)*

ORAL PRESENTATIONS

Pre KNP - The Complete High Cycle Fatigue Response Of Case-hardened Astaloy CrA + 1 % Cu + 0.2 % C
Schneider, M (GKN Sinter Metals Engineering GmbH, Germany

Benchmarking Of Tooth Root Bending Fatigue Strength Of Different P|M Material Variants Which Have Been Subjected To Various Heat Treatment Processes.
Szabo, C (Höganäs GmbH, Germany); Andersson, O; Andersson, M (Höganäs AB, Sweden)

Sintering Of PM Steels With High Mn Content -- Using The Masteralloy Route
Danninger, H (Technische Universität Wien, Austria); Prokofyev, M; Gierl-Mayer, C (Technische Universität Wien, Austria); Hellein, R; Müller, A (Mina Sinter Austria GmbH, Austria)

Carbon As Key Element For The Behavior Of "tailored" Liquid Phases During Sintering
Geroldinger, S (TU WIEN, Austria); De Oro Calderon, R; Gierl-Mayer, C; Danninger, H (TU WIEN, Austria)

Session 6
SIS HIP: Key Industrial Applications of HIP

SESSION CHAIRS

Dr Anke Kaletsch *(RWTH Aachen University, Germany)*
Mr James Shipley *(Quintus Technologies AB, Sweden)*

ORAL PRESENTATIONS

Advanced Technology for Large Scale (ATLAS) PM-HIP
Gandy, D (EPRI, USA); Puerta, D (Stack Metallurgical, USA)

Faster manufacturing by additive manufacturing of shelled parts followed by HIP
Du Plessis, A (Stellenbosch University, South Africa)

Session 7
Industry Corner - To be Announced

Session 8
Applications: Biomedical

SESSION CHAIRS

Dr Thomas Ebel *(Helmholtz-Zentrum Geesthacht, Germany)*
Cristina Berges Serrano

ORAL PRESENTATIONS

Pre KNP - Titanium Scaffolds Fabricated By Direct Ink Writing And Functionalized With Dual-action Coatings With Osteoinductive And Antibacterial Properties
Torres Garrido, D (AMES PM TECH, Spain); Maria Manero, J; Rupérez, E (polytechnic university of catalonia, Spain); Calero, J (AMES PM TECH, Spain)

Properties And Prospects For Biomedical Application Of New TiNbSn Alloys Obtained By Electrical Resistance Sintering
Vinogradova, M (Universitat Politècnica de València, Spain); Klyatskina, E; Navarro-Laboulais, J; Segovia, F; Vicente, Á; Amigó, V (Universitat Politècnica de València, Spain)

Optimization Of Selective Laser Melting Process For Zirconium Lattices As Orthopaedic Implants
Crocco, B (University of Strathclyde, United Kingdom); Imbrogno, S; Attallah, M (University of Birmingham, United Kingdom); Tamimi, S; Butler, D (University of Strathclyde, United Kingdom)

Biodegradable Molybdenum As An Implant Material
Poehle, G (Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM, Germany); Redlich, C; Quadbeck, P; Weissgaerber, T (Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM, Germany); Schauer, A; Adams, V; Linke, A (Technische Universität Dresden, Germany)

POSTER PRESENTATIONS

Influence Of The Composition Of The Initial Charge Based On Magnesium Powder And The Technology Of Obtaining Compact Blanks Of Biodegradable Implants On The Change In Their Properties In Vitro.
Savich, V (O.V. Roman Powder Metallurgy Institute, Belarus); Tarusov, I; Taraykovich, A; Kuznechik, O (O.V. Roman Powder Metallurgy Institute, Belarus)

Study Of The Influence Of The Parameters Of The Application Process Of Spongy Titanium Powder On Ultra-High Molecular Polyethylene By Thermomechanical Methods On The Properties Of The Formed Layer
Savich, V (O.V. Roman Powder Metallurgy Institute, Belarus); Golodok, R; Taraykovich, A; Kuznechik, O (O.V. Roman Powder Metallurgy Institute, Belarus)

Fabrication Of Architectured Materials Based On Ti6Al4V For Biomedical Applications By Conventional Powder Metallurgy
Olmos, L (UMSNH, Mexico); Mihalcea, E; Vergar-Hernández, H (División de Estudios de Posgrado e Investigación, TecNM|Instituto Tecnológico de Morelia, Mexico); Bouvard, D (Univ. Grenoble Alpes, CNRS, France); Jimenez, O (Universidad de Guadalajara, DIP, Mexico); Chavez, J (Universidad Michoacana de San Nicolás de Hidalgo, Mexico)

Tuesday 19 October

Session 9
Modelling and Super Hard Materials

SESSION CHAIRS

Dr Bjoern Hoschke *(ZCC Cutting Tools Europe GmbH, Germany)*

ORAL PRESENTATIONS

Dynamic Carbon Window Modeling For The Design Of Cemented Carbides - Low Carbon Contents
Lamelas Cubero, V (Kungliga Tekniska Högskolan (KTH), Sweden); Bonvalet-Rolland, M; Borgenstam, A (Kungliga Tekniska Högskolan (KTH), Sweden); Walbrühl, M (QuesTek AB., Sweden)

Empirical Model For Room Temperature Thermal Conductivity Of WC-Co Hardmetals
Vornberger, A (Fraunhofer IKTS, Germany); Pötschke, J; Herrmann, M; Michaelis, A (Fraunhofer IKTS, Germany)

Influence Of Microstructural Assemblage Of The Substrate On The Adhesion Strenght Of Coated PcBN Grades
Gordon Pozuelo, S (Universitat Politècnica de Catalunya - UPC, Spain); Roa, J-J; Jiménez Piqué, E; Llanes, L (Universitat Politècnica de Catalunya - UPC, Spain); Rodriguez Suarez, T; Franca, L (Element Six (UK), Global Innovation Centre, Virgin Island (United Kingdom); M'saoubi, R (Seco Tools AB, R&D Materials and Technology Development, Sweden)

Metal-Diamond Materials Obtained By Electric Resistance Sintering: Microstructure, Processing And Mechanical Properties
Lagos, M (TECNALIA, Spain); Agote, I; Leizaola, I (TECNALIA, Spain); Viñuela, J; Beranoagirre, A (UPV-EHU, Spain)

Session 10
SIS FM: Advances and Challenges for Hard Magnets

SESSION CHAIRS

Dr Sebastian Boris Hein *(Fraunhofer IFAM Bremen, Germany)*
Dr Peter Kjeldsteen *(Sintex a/s, Denmark)*

ORAL PRESENTATIONS

Recent Developments for Bonded RE-Fe-B Magnets
Nimit, S (Magnequench Technology Center, Singapore); Zhongmin, C (Magnequench Technology Center, Singapore); Grieb, B; Schmersahl, K (Magnequench GmbH, Germany)

Electric current assisted sintering of NdFeB magnet materials
Prasad Mishra, T (Forschungszentrum Jülich, IEK-1, Germany); Leich, L; Weber, S; Röttger, A (Institut für Werkstoffe, Germany); Krengel, M (Wilo SE, Germany); Bram, M (Institute of Energy and Climate Research, Germany)

Advances and Challenges for Hard Magnets
Weck, C (Fraunhofer IFAM, Germany)

Session 11
AM Beam Based Technologies: Hard Metals and Hard Materials

SESSION CHAIRS

Dr Diego Manfredi *(Politecnico di Torino, Italy)*

ORAL PRESENTATIONS

Investigations On Processability And Material Characteristics Of Diamond-metal Composites Fabricated By Laser Powder Bed Fusion
Ferreira, M (TU Dortmund, Germany); Schnell, N; Kleszczynski, S; Wegner, J; Witt, (University Duisburg-Essen, Germany); Tillmann, W (TU Dortmund, Germany)

Influence Of Z-increment On The Build Height, Porosity And Microstructure Of Laser Deposited WC-10wt%FeCr Thin Walls
Molobi, E (University of the Witwatersrand, South Africa); Sacks, N (Stellenbosch University, South Africa); Theron, M (CSIR National Laser Centre, South Africa)

Session 12
Sintering

SESSION CHAIRS

Dr Peter Vervoort *(Eisenmann Thermal Solutions, Germany)*

ORAL PRESENTATIONS

Powder Is The Future Of Metallurgy
Honnart, A (METALVALUE LTD, United Kingdom)

Effect Of Sintering Atmosphere On Sintering Process, Microstructure And Physical Properties Of Compacted Carbon Steel.
Hojati, M (Institute of Chemical Technologies and Analytics| Vienna University of Technology, Austria); Gierl-Mayer, C; Danninger, H (Institute of Chemical Technologies and Analytics| Vienna University of Technology, Austria)

High Temperature Sintering Of Low Alloyed Steels: Effect On Mechanical Properties And On The Dimensional And Geometrical Precision
Molinari, A (University of Trento, Italy); Toledo Dos Santos, D; Cristofolini, I (University of Trento, Italy); Arnhold, V; Kruzhanov, V (Powder Metallurgy Consulting, Germany); Baumgärtner, F (Schunk Sintermetalltechnik, Germany); Creutziger, M (ONEJOON GmbH, Germany); Dougan, M-J (Ames, Spain); Hellein, R (Miba Sinter Group, Austria); Larsson, C (Höganäs AB, Sweden); Lorenzon, I (Pometon SpA, Italy); Schneider, M (GKN SinterMetals, Germany); Weber H (Riedhammer GmbH, Germany); Wimbert, L (GKN Hoeganaes Corporation Europe, Germany)

How Particle Size And Green Density Affect The Anisothermal And Isothermal Shrinkage Of Uniaxially Cold Compacted AISI 316L
Baselli, S (University of Trento, Italy); Molinari, A (University of Trento, Italy)

POSTER PRESENTATIONS

Effect Of Sintering Temperature On Microstructure And Physical Properties Of Differently Compacted Carbon And Mo Alloyed Steels
Hojati, M (TU Wien | Chemical Technologies and Analytics, Austria); Gierl-Mayer, C; Danninger, H (TU Wien | Chemical Technologies and Analytics, Austria)

Session 13
Non-Ferrous & Ferrous Materials

SESSION CHAIRS

Prof Elena Gordo *(University Carlos III of Madrid, Spain)*

ORAL PRESENTATIONS

Pre KNP - Effects Of Processing Defects On Damage Tolerance Of Sintered Beta Titanium Alloys Under Static And Dynamic Loading
Xu, P (Helmholtz-Zentrum Geesthacht, Germany); Ebel, T; Pyczak, F (Helmholtz-Zentrum Geesthacht, Germany)

Comparison Of Two Different Methods To Manufacture Pure Copper By Laser-powder Bed Fusion (L-PBF)
Baffie, T (CEA-LITEN, Univ. Grenoble-Alpes, France); De Terris, T; Ribiere, C (CEA-LITEN, Univ. Grenoble-Alpes, France)

Sintered Hadfield Steel Containing Graphite Nodules In Its Volume
Ramos Filho, A-I (Federal University of Santa Catarina, Brazil); Schroeder, R; Oliveira Neves, G; Hammes, G; Binder, C; Nelmo Klein, A (Federal University of Santa Catarina, Brazil)

Processability And Mechanical Properties Analysis Of Dual Phase Low Alloy Steel Powder (DP 600) Produced On Multi-laser Powder Bed Fusion Systems
Zhu, D (GKN Sinter Metals Engineering GmbH, Germany); Höges, S; Blümer, S (GKN Sinter Metals Engineering GmbH, Germany); Schade, C; Horvay, K (Hoeganaes Corporation, USA)

POSTER PRESENTATIONS

Structure And Properties Of Hot-Deformed Chromium-Vanadium Powder White Cast Irons With Microadditives Of Alloying Elements
Dorofeyev, V (Platov South-Russian State Polytechnic University (NPI), Russia); Sviridova, A; Berezhnoi, Y; Bessarabov, E (Platov South-Russian State Polytechnic University (NPI), Russia); Sviridova, S (Derzhavin Tambov State University, Russia); Vodolazhenko (MIREA - Russian Technological University, Russia); Kochkarova, K (North Caucasian State Academy, Russia)

Session 14
SIS FM: Functional Materials for Thermal Management

SESSION CHAIRS

Dr Sebastian Boris Hein *(Fraunhofer IFAM Bremen, Germany)*
Dr Peter Kjeldsteen *(Sintex a/s, Denmark)*

ORAL PRESENTATIONS

Thermal Management Solutions with Advanced Composite Materials and Additive Manufacturing
Weissgaerber, T (Fraunhofer IFAM Dresden, Germany); Hutsch, T; Studnitzky, T; Schlott, A; Andersen, O (Fraunhofer IFAM Dresden, Germany)

Solid state thermal control devices and circuits
Kitanovski, A (University of Ljubljana, Slovenia); Klinar, K; Vozel, K; Petelin, N (University of Ljubljana, Slovenia)

Adding energy harvesting into thermal management – a win-win solution
Yin, H (TEGnology ApS, Denmark)

Session 15
AM Beam Based Technologies: Steels

SESSION CHAIRS

Dr Anke Kaletsch *(RWTH Aachen University, Germany)*

ORAL PRESENTATIONS

Parameter Optimization For Laser Powder Bed Fusion Of Case Hardening Steels
Schmitt, M (Fraunhofer IGCV, Germany); Schlick, G; Schilp, J; Reinhart, G (Fraunhofer IGCV, Germany)

Influence Of The Powder Particle Size Distribution On The Microstructure Of Laser Powder Bed Alloyed Cold Work Tool Steel
Koehler, M-L (RWTH Aachen, Germany); Herzog, S; Kaletsch, A; Broeckmann, C (RWTH Aachen, Germany); Norda, M; Petzoldt, F (Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM, Germany)

Mechanical Evaluation Of Punching Tools Manufactured From A Cold Work Tool Steel Via Electron Beam Melting (EBM)
Botero, C (Mid Sweden University, Sweden); Selte, A; Maistro, J; Katsanos, D (Uddeholms AB, Sweden); Sjöström, W; Rännar, L (Mid Sweden University, Sweden)

Session 16
Compaction and Application

SESSION CHAIRS

Dr Pierre Blanchard *(Welding Alloys Group, France)*
Prof Herbert Danninger *(Technische Universität Wien, Austria)*

ORAL PRESENTATIONS

Die Wall Lubrication Vs. Bulk Lubrication: Microstructure, Mechanical Properties And Dimensional And Geometrical Precision Of Low Alloyed Steels
Molinari, A (University of Trento, Italy); Toledo Dos Santos, D; Cristofolini, I (University of Trento, Italy); Zadra, M; Girardini, L (K4Sint Srl, Italy); Bordin, S; Libardi, S (TFM Group SpA, Italy), Albonetti, P (B.U. Advanced Technologies - Sacmi Imola S.C., Italy)

Productivity And Quality Improvements Achievable Through High-performance Lubricant Compositions In Standard Powder Metallurgy Compaction
Paris, V (Rio Tinto Metal Powders, Canada); Mousavinasab, S (Rio Tinto Metal Powders, Canada); Thomas, Y (National Research Council Canada, Canada)

Influence Of Materials, Shape, And Process Variables On The Densification Equation Coefficients
Zago, M (University of Trento, Italy); Molinari, A; Cristofolini, I (University of Trento, Italy); Rambelli, A; Foschi, D (Sacmi Imola S.C., Italy)

Powder Metallurgy Fabrication And Characterization Of Ti6Al4V|xCu Alloys For Biomedical Applications
Olmos, L (UMSNH, Mexico); Chavez, J; Omar, O (Universidad de Guadalajara, DIP, Mexico); Solorio, V (Tecnológico Nacional de México|ITMorelia, Mexico); Bouvard, D (Univ. Grenoble Alpes, CNRS, France); Vergara, H (División de Estudios de Posgrado e Investigación, TecNM|Instituto Tec)

Session 17
Magnetic and Iron based Functional Materials

SESSION CHAIRS

Dr Yoko Pittini-Yamada *(Meyer Sintermetall AG, Switzerland)*

ORAL PRESENTATIONS

Pre KNP - Magnetic Aging, Strain Aging And Blue Brittleness - The Negative Role Of Nitrogen In PM Technology
Schneider, M (GKN Sinter Metals Engineering GmbH, Germany)

Fe Based Composites With Unique Damping Behaviour Prepared By Press-Sinter Technology
Hutsch, T (Fraunhofer IFAM, Germany); Weissgaerber, T; Walther, G (Fraunhofer IFAM Dresden, Germany)

Fundamental Study Of The Hydrogen Decrepitation Process Of Nd-Fe-B Alloys
Martin, J-M (CEIT-BRTA, Spain); Checa, B-L; Burgos, N; Sarriegui, G (CEIT-BRTA, Spain)

Development Of A Lightweight, Nickel-Free, Non-magnetic Steel Powder And MIM Feedstock Made Thereof, For The Manufacture Of Components For A New Generation Of Hand-held Electronic Devices
Hermant, M (BASF SE, Germany); Davies, P; Harris, L (Sandvik Additive Manufacturing, United Kingdom); Bettini, E (Sandvik Additive Manufacturing, Sweden); Blömacher, M (BASF SE, Germany)

POSTER PRESENTATIONS

Improving Thermal Conductivity Of Microporous Catalytic Cermet Composites By Metal Foam Insertion
Ilyushchanka, A (O.V. Roman Powder Metallurgy Institute, Belarus); Smorygo, O; Vazhnova, A; Mikutski, V (O.V. Roman Powder Metallurgy Institute, Belarus); Tikhov, S; Valeev, ; Minyukova, T (Boreskov Institute of Catalysis, Russia)

The Effect Of The Introduction Of An Iron-chromium Alloy Powder On The Strength And Tribotechnical Properties Of A Sintered Friction Material Based On Copper
Ilyushchanka, A (O.V. Roman Powder Metallurgy Institute, Belarus); Liashok, A; Rahavy, A (O.V. Roman Powder Metallurgy Institute, Belarus)

Composition Al2O3|FeSiTiAl For High Temperature Microwave Absorbing Application
Ilyushchanka, A (O.V.Roman Powder Metallurgy Institute, Belarus); Baray, S; Letsko, A (O.V.Roman Powder Metallurgy Institute, Belarus); Patra, M; Saini, L (DRDO, India)

Session 18
SIS MIM: Sustainability of MIM

SESSION CHAIRS

Prof Frank Petzoldt *(Fraunhofer IFAM Bremen, Germany)*
Georg Breitenmoser *(Parmaco AG, Switzerland)*

ORAL PRESENTATIONS

Sustainability of Inert Gas Atomised Powders for Additive Manufacturing and MIM
Davies, P-A (Sandvik Osprey, United Kingdom)

Sustainability in MIM: A feedstock producer's view
Staudt, T (BASF, Germany); Hermant, M-C; Wallot, J (BASF, Germany)

Sustainability of the MIM process from the perspective of a parts manufacturer
Schwarz, J (GKN Sinter Metals, Germany)

Session 19
Industry Corner - To be Announced

Session 20
Hot Isostatic Pressing

SESSION CHAIRS

Dr Anke Kaletsch *(RWTH Aachen University, Germany)*
Mr James Shipley *(Quintus Technologies AB, Sweden)*

ORAL PRESENTATIONS

Reduced Oxygen Content Of PM HIP Materials For Nuclear Power Plants
Heikkilä, I (Swerim, Sweden); Strandh, E; Eggertson, C (Swerim, Sweden); Johansson, F (MTC Powder Solutions, Sweden); Angré, A (Linde GAS, Sweden); Gårdstam, J (Quintus Technologies, Sweden); Forssgren, B (Ringhals AB, Sweden); Geneves, T (Framatome, France)

Super Duplex Stainless Steels Obtained By Advanced Manufacturing Technologies: PM-HIP And Laser Directed Energy Deposition
Ordas, N (Ceit, Spain); Azpeleta, M; Ausejo, S; Iturriza, I (Ceit, Spain); Calleja, B; Rodriguez, R (Tubacex Innovación AIE, Spain); Guraya, T (Universidad del País Vasco|Euskal Herriko Unibertsitatea, Spain); Lopez-Galilea, I (Ruhr-Universität Bochum, Germany)

POSTER PRESENTATIONS

A Comparative Study Of The Microstructure And Mechanical Properties Of The High Temperature Ti-based Alloy Products Fabricated By PM HIP Using The Rapidly Quenched Powder And By Traditional Technology
Shulga, A (National Research Nuclear University MEPhI (Moscow Engineering Physics Institute), Russia)

Wednesday 20 October

Session 21
High Temperature Applications

SESSION CHAIRS

Dr Georg Josef Schlick *(Fraunhofer IGCV, Germany)*

ORAL PRESENTATIONS

Assessment Of New Crack Reduction Strategies For Cobalt Based Superalloys Processed By Directed Energy Deposition
Froeliger, T (ONERA, France); Toualbi, L; Locq, D (ONERA, France); Chauvet, E; Ferrandez, A (Poly-Shape, France); Dendievel, R (Univ. Grenoble Alpes, CNRS, Grenoble INP, SIMaP, France)

Chromium As Alloying Element In Mo Base Material--Mechanical Behavior At High Temperatures
Gierl-Mayer, C (TU Wien, Austria); Stepan, T; Danninger, H (TU Wien, Austria); Caliskanoglu, O; Weinberger, T (Stirtec GmbH, Austria)

A Comparison Of Different Approaches To Study The Porosity And Surface Defects For Electron Beam Melting
Ghibaudo, C (Politecnico di Torino, Italy); Rizza, G; Marchese, G; Galati, M; Iuliano, L; Ugues, ; Biamino, S (Politecnico di Torino, Italy)

POSTER PRESENTATIONS

Anomalous particles (granules) in PREP-powders – III. A multiscale study of the structure evolution of PM HIP compacts of the NI-based superalloys under hot forging and heat treatment
Shulga, A (National Research Nuclear University MEPhI (Moscow Engineering Physics Institute), Russia)

Modification Of Ni-Cr Powder Alloys With Rhenium For Wear-resistant Coatings
Wrona, A (Lukasiewicz Research Network - Institute of Non-Ferrous Metals, Poland); Kustra, K; Lis, M; Weglowski, M; Dworak, J; Mazur, J (Lukasiewicz Research Network - Institute of Non-Ferrous Metals, Poland); Kalemba-Rec, I; Dymek, S (AGH University of Science and Technology, Poland)

Session 22
SIS HM: Outlook on Hard Materials

SESSION CHAIRS

Prof Luis Miguel Llanes *(Catalunya Univ Polytecnica, Spain)*
Mrs Susanne Norgren *(Sandvik, Sweden)*

ORAL PRESENTATIONS

The evolving regulation of cobalt
Blakeney, M (The Cobalt Institute, United Kingdom)

To be announced

Session 23
AM Sinter Based Technologies: Extrusion-Based Methods in AM

SESSION CHAIRS

Dr Sofia Tsipas *(University Carlos III of Madrid, Spain)*

ORAL PRESENTATIONS

Experimental Investigations Of Extrusion 3D Printing And Sintering Of Copper MIM Feedstock
Missiaen, J-M (University of Grenoble Alpes, France); Singh, G; Bouvard, D; Chaix, J (University of Grenoble Alpes, France)

A Comparative Study Of Mechanical Properties For MIM Standard 17-4PH Samples Manufactured Via Binder Jetting And Material Extrusion
Masurtschak, S (LORTEK S.COOP, Spain); Irastorza, U; San Sebastian Ormazabal, M (LORTEK S.COOP, Spain); Andres, U (MIM TECH ALFA S.L., Spain); Rodriguez Gutiérrez, P (EIPC EIBAR PRECISION CASTING, S.L., Spain)

Mechanical Properties Of 3D Printed MAX Phases
Tsipas, S (Universidad Carlos III de Madrid, Spain); Tabares, E; Cifuentes, S-C; Jimenez-Morales, A; Mazón-Ortíz, G (Universidad Carlos III de Madrid, Spain); Kitzmantel, M; Neubauer, E (RHP Technology GmbH, Austria)

Session 24
MIM Feedstocks

SESSION CHAIRS

Mr Marko Maetzig *(ARBURG GmbH + Co KG, Germany)*

ORAL PRESENTATIONS

Unraveling The Homogeneity Of MIM Feedstock
Madkour, S (BASF SE, Germany); Hennig, I; Koban, W; Hermant, M (BASF SE, Germany)

Pre KNP - Effect Of Backbone Selection On The Solvent Debinding Of Metal Injection Moulding Feedstocks
Kukla, C (Montanuniversität Leoben, Austria); Cano, S; Schuschnigg, S; Holzer, C; Gonzalez-Gutierrez, J (Montanuniversität Leoben, Austria)

Feedstocks For Powder Injection Molding And Material Extrusion: Description Of Flow Performance
Hausnerova, B (Tomas Bata University, Czech Republic); Filip, P (Czech Academy of Sciences, Czech Republic)

Pre KNP - Accelerated PIM Processing By Chemical Modifications In The Binder During The Debinding Stage
Berges, C (Universidad de Castilla-La Mancha, Spain); Naranjo, J-A; Herranz, G (Universidad de Castilla-La Mancha, Spain)

Session 25
ODS and High Entropy Alloys

SESSION CHAIRS

Mr Peter Kjeldsteen *(Sintex a|s, Denmark)*

ORAL PRESENTATIONS

Pre KNP - Development Of High-entropy Alloys Using Field Assisted Sintering And Gas Atomized Commodity Powders As Raw Materials
Torralba, J-M (Universidad Carlos III de Madrid, IMDEA Materials Institute, Spain); Venkatesh Kumaran, S (IMDEA Materials Institute, Spain)

Assessment Of Refractory Based High Entropy Alloys For High Temperature Tooling Applications
Neubauer, E (RHP TEchnology GmbH, Austria); Kovacova, Z; Kitzmantel, M (RHP Technology GmbH, Austria)

New High Entropy Alloys Compositions: From Design To Mechanical Characterization
Olmos, P (Universidad Carlos III de Madrid, Spain); Monclús, M; Molina-Aldagueria, J (IMDEA Materiales, Spain); Prieto, E (Universidad Carlos III de Madrid, Spain)

Study Of The Thermal Stability Of ODS Ferritic Stainless Steel Through In-situ Annealing Monitoring By TEM
Campos, M (Universidad Carlos III de Madrid, Spain); Meza, A; Rabanal, M-E (Universidad Carlos III de Madrid, Spain); Hernández-Mayoral, M (CIEMAT, Spain)

Session 26
SIS HM: HM Club Projects of EPMA

SESSION CHAIRS

Prof Luis Miguel Llanes *(Catalunya Univ Polytecnica, Spain)*
Mrs Susanne Norgren *(Sandvik, Sweden)*

ORAL PRESENTATIONS

Euro HM Club Projects
Moseley, S (Hilti, Liechtenstein)

To be announced

To be announced

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Session 27
AM Beam Based Technologies: Related Process

SESSION CHAIRS

Dipl.-Ing Claus Aumund-Kopp *(Fraunhofer IFAM, Germany)*

ORAL PRESENTATIONS

Fabrication Of Sensor-Integrated Parts Using Cold Spray Additive Manufacturing
Kindermann, P (Fraunhofer IGCV, Germany); Binder, M; Wunderer, M (Fraunhofer IGCV, Germany); Straßer, M (Munich University of Applied Sciences, Germany)

Adhesion Efficiency Between Shape Memory Wires Of Nitinol In Aluminum Alloy Matrix Produced By Indirect Additive Manufacturing
Cruz, F (Univ. Coimbra, Portugal); Alves, B; Gatões, D; Freitas Rodrigues, P; Vieira, T; Ramos, S (Univ. Coimbra, Portugal)

SLM Processing Of Tool Steels: Microstructure And Mechanical Properties Optimization By Thermal Treatment.
San Sebastian, M (LORTEK S. COOP, Spain); Garciandia, F; Mancisidor, A-M (LORTEK S. COOP, Spain)

Session 28
PIM Materials

SESSION CHAIRS

Dr Gemma Herranz *(Castilla La Mancha Univ, Spain)*

ORAL PRESENTATIONS

Enhancement Of Fatigue Properties Of MIM Ti-6Al-4V By Microstructural Refinement
CLimberg, W (Helmholtz-Zentrum Geeesthacht, Germany); Fang, Z-Z; Sun, P (University of Utah, USA); Ebel, T (Helmholtz-Zentrum Geeesthacht, Germany); Gerdts, F (Element22 GmbH, Germany)

Superelastic Behaviour Of Low Modulus Alloy Ti-35Nb-6Ta Processed By MIM And FFF
Otte, A (Karlsruhe Institute of Technology, Germany); Limberg, W; Ebel, T; Xu, P (Helmholtz-Zentrum Geesthacht, Germany)

Co-Sintering Of Cermet And Black Zirconia For Aesthetic Products
Mannschatz, A (Fraunhofer IKTS, Germany); Szokup, S; Müller-Köhn, A; Pötschke, J; Moritz, T; Michaelis, A (Fraunhofer IKTS, Germany); Von Witzleben, M; Jegust, S (Inmatec Technologies GmbH, Germany)

Session 29
Light Weight Materials

SESSION CHAIRS

Dr José Manuel Martin *(CEIT, Spain)*

ORAL PRESENTATIONS

Process-Microstructure-Property-Relationship Of The Near-Alpha Ti6242S Alloy Fabricated By Laser Powder Bed Fusion
Fleißner-Rieger, C (Montanuniversität Leoben, Austria); Clemens, H; Mayer, S (Montanuniversität Leoben, Austria); Pfeifer, T (Pankl Racing Systems AG, Austria); Jörg, T (voestalpine BÖHLER Edelstahl GmbH & Co KG, Austria)

Evaluation Of The Processing Capability Of Aluminium Alloy 6061 For Metal Binder Jetting
Hein, S-B (Fraunhofer IFAM, Germany); Wieland, S; Weber, D (Fraunhofer IFAM, Germany)

Development Of TiN Coatings By Gas Nitriding On AM Ti-6Al-4V Open-Cell Porous Structures For PEMFC Bipolar Plates
Lozares, J-M (Universidad Carlos III de Madrid, Spain); Gordo Odériz, E; Romero Villarreal, C (Universidad Carlos III de Madrid, Spain); Ureña Alcazar, J; Blasco Puchades, J-R (AIDIMME, Spain)

POSTER PRESENTATIONS

Study Of Al-SiC Composites Manufactured By Laser Powder Bed Fusion (L-PBF)
Manlay, M (CEA, France); Soulier, M; Flament, C; Garandet, J; Chaffron, L (CEA, France)

Structure Of Porous Materials Based On Aluminosilicate Powders And Basalt Fiber.
Savich, V (O.V. Roman Powder Metallurgy Institute, Belarus); Azarau, S; Drobysh, A; Yeutukhova, T (Belarussian National Technical University, Belarus); Fomikhina, I; Hamzeleva, T (O.V. Roman Powder Metallurgy Institute, Belarus); Piatsiushyk, Y (State Research and Production Powder Metallurgy Association, Belarus)

Session 30
Industry Corner - To be Announced

Session 31
AM Beam Based Technologies: Process Development and Simulation

SESSION CHAIRS

Prof Jie Zhou *(Delft Technical University, Netherlands)*

ORAL PRESENTATIONS

Pre KNP - Efficient Process Parameter Optimisation Procedure In Laser Powder Bed Fusion
Montero-Sistiaga, M (NLR (Netherlands Aerospace Centre), Netherlands); De Smit, M; Haagsma, R; Bennett, I (NLR (Netherlands Aerospace Centre), Netherlands)

Towards Increased Quality Of Ti-6Al-4V Medical Parts By Using Argon-Helium To Reduce Spatter Formation
Dubiez-Le Goff, S (Linde AG, Germany); Fischer, M; Volpi, G (3D MEDLAB, France); Forêt, P (Linde AG, Germany)

Laser Powder Bed Fusion Of Hot-working Tool Steel 1.3397 Processed At Elevated Temperatures
Ma, T (RISE, Sweden); Vikner, P (Aubert&Duval, France)

Analytical And Numerical Modeling Of Powder Spreading In Powder-Bed Processes For Additive Manufacturing
Soulier, M (CEA, France); Burr, A; Roux, G; Laucournet, R; Maisonneuve, J (CEA, France)

POSTER PRESENTATIONS

Effect Of Gas Flow Rates On Powder Stream Characteristics And Their Potential Consequences On Alloy Deposition From Coaxial Nozzles
Mouchard, A (University of Limerick, Ireland); Tanner, D; Pomeroy, M; Robinson, J (University of Limerick, Ireland); Mcauliffe, B (Lufthansa Technik Turbine Shannon, Ireland); Donovan, S (Rolls-Royce plc, United Kingdom)

Session 32
Gas Atomizer: Theory and Design

SESSION CHAIRS

Mr Peter Vikner *(Aubert&Duval, France)*
Dr Pierre Blanchard *(Welding Alloys Group, France)*

ORAL PRESENTATIONS

Numerical Simulation And Experimental Testing Of Different Close-Coupled Gas Atomiser Designs
Urionabarrenetxea Gomez, E (CEIT-Basque Research and Technology Alliance (BRTA), Spain); Amatriain, A; Avello, A; Martín, J-M (CEIT-Basque Research and Technology Alliance (BRTA), Spain)

Powder Production For Advanced Hot Isostatic Pressing -- Technical Features And Challenges
Cornelius, J (INTECO melting and casting technologies GmbH, Austria); Klochay, V; Ryabtsev, A; Yavtushenko, P (PJSC Ruspolymet, Russia); Holzgruber, H; Scheriau, A (INTECO melting and casting technologies GmbH, Austria)

POSTER PRESENTATIONS

An Investigation Of Powders Of A Heat-resistant Composite Cobalt-based Material Prepared By VIGA Method
Ilyushchanka, A (O.V. Roman Powder Metallurgy Institute, Belarus); Letsko, A; Talako, T; Reutsionak, Y; Machnev, V (O.V. Roman Powder Metallurgy Institute, Belarus); Yukhvid; Sanin, V; Andreev, S (Merzhanov Institute of Structural Macrokinetics and Materials Science, Russia)

Thursday 21 October

Session 34
SIS P&S: CO2 reduction in Press&Sinter - Part I

SESSION CHAIRS

Dr Cesar Molins *(AMES Group, Spain)*
Dr Caroline Larsson *(Höganäs AB, Sweden)*

ORAL PRESENTATIONS

Innovation to drive net zero carbon operations in material manufacturing
Painter, N (Ricardo Energy and Environment, United Kingdom); Odeh, N (Ricardo Energy and Environment, United Kingdom)

Corporate Carbon Footprint & Product Carbon Footprint
Gutes, M (PMG Holding GmbH, Germany); Nawroth, S (PMG Holding GmbH, Germany)

The Road towards Climate Neutrality for the PM Industry from a powder production perspective
Vidarsson, H (Höganäs AB, Sweden)

Session 35
AM Beam Based Technologies: Special Materials

SESSION CHAIRS

Dr.-Ing Thomas Weißgärber *(Fraunhofer IFAM, Germany)*

ORAL PRESENTATIONS

Mechanical Properties And Microstructural Analysis Of Fe-Co Based Soft Magnetic Alloys Manufactured By Laser Powder Bed Fusion
Mancisidor, A-M (Lortek S.COOP, Spain); Garciandia, F; Escribano, R; San Sebastian, M; Vázquez, L (Lortek S.COOP, Spain)

Microstructures And Mechanical Properties Of A Modified Al7075 Alloy Processed By Additive Manufacturing
Roux, G (CEA de Grenoble, France); Opprecht, M; Garandet, J; Flament, C (CEA de Grenoble, France)

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Session 36
Alternative Powder Production Processes

SESSION CHAIRS

Dr Raquel De Oro Calderon *(TU Wien, Austria)*
Prof Elena Gordo *(University Carlos III of Madrid, Spain)*

ORAL PRESENTATIONS

Spherical Iron Powder Manufactured By Hydrogen Reduction For MIM And AM Application
Walther, G (Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM, Branch Lab Dresden, Germany); Schubert, T; Weißgärber, T (Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM, Branch Lab Dresden, Germany); Fries, M (Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Germany); Hoffmann, M (OSTEC GmbH, Germany)

Atomization Of Ti64 Alloy Using The EIGA Process: Upscaling And Process Instrumentation
Deborde, A (MetaFensch, France); Sasaki, L; Hans, S (Aubert & Duval, France); Delfosse, J (Safran Tech, France); Jourdan, J (IJL - Institut Jean Lamour, France); Mcdonald, N (MetaFensch, France)

Use Of Mechanical Alloying To Develop Novel Titanium-Niobium Alloy Powders Suitable For The Selective Laser Melting Process
Borgman, J (Loughborough University, United Kingdom); Wang, J; Zani, L; Conway, P; Torres-Sanchez, C (Loughborough University, United Kingdom)

POSTER PRESENTATIONS

Influence Of High-Energy Ball-Milling Treatment On The Structure Of Shs-Powders Based On Tantalum Diboride
Ilyushchanka, A (State Scientific Institution «O.V. Roman Powder Metallurgy Institute», Belarus); Talako, T; Reutsionak, Y; Letsko, A; Machnev, V (State Scientific Institution «O.V. Roman Powder Metallurgy Institute», Belarus); Prikhna, T (V.Bakul Institute for Superhard materials NASU UKRAINE, Ukraine)

Session 37
Alternative Hardmetals

SESSION CHAIRS

Dr Steven Moseley *(Hilti Corporation, Liechtenstein)*

ORAL PRESENTATIONS

Pre KNP - High Entropy Based Hardmetals
Pötschke, J (Fraunhofer IKTS, Germany); Vornberger, A; Von Spalden, M (Fraunhofer IKTS, Germany)

Mechanical Properties Of WC-FeNiCoCr And WC-NiCoCrTiAl Based Hardmetals
Moreno, J-M (CEIT-BRTA, Spain); Soria Biurrun, T; Lozada Cabezas, L (CEIT-BRTA, Spain); Martinez Pampliega, R; Ibarreta Lopez, F (FMD CARBIDE, Fabricación Metales Duros, S.A.L.,, Spain)

(W,Mo)C-based Hardmetals With Ni-rich Binders
Lengauer, W (Vienna University of Technology, Austria); Hatzl, G; Fürst, M (Vienna University of Technology, Austria)

WC-based Cemented Carbides With Fe-Mn And Fe-Mn-Si Binders
De Oro Calderon, R (TU Wien, Austria); Lunzer, M (TU Wien, Austria)

Session 38
SIS P&S: CO2 reduction in Press&Sinter - Part 2

SESSION CHAIRS

Dr Cesar Molins *(AMES Group, Spain)*
Dr Caroline Larsson *(Höganäs AB, Sweden)*

ORAL PRESENTATIONS

An overview on energy efficiency of presses and latest trends for consumption optimization
Albonetti, P (SACMI Imola S.C., Italy)

Opportunities for CO2-reduction in sintering furnaces
Khartik, N-K (Cremer Thermoprozessanlagen GmbH, Germany); Weber, H; Cremer, I (Cremer Thermoprozessanlagen GmbH, Germany)

Sintering atmosphere in heat treatment furnaces - Contribution of industrial gases for reducing the carbon footprint
Bustamante Valencia, L (Air Liquide, France); Coudurier, L (Air Liquide, France); Spizzica, A (Air Liquide, Italy)

Sustainability and carbon footprint: High Temperature Sintering (HTS) of Structural Parts
Arhnold, V (PM Solutions, Germany); Molinari, A (University of Trento, Italy); Kruzhanov, V (PM Consulting, Germany)

Session 39
AM Sinter based Technologies - Other Processes

SESSION CHAIRS

Dr Christian Kukla *(Montanuniversitaet Leoben, Austria)*

ORAL PRESENTATIONS

Metal Part Manufacturing By A Combination Of Fused Filament Fabrication And Gel Casting
Riecker, S (Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM, Germany); Studnitzky, T; Andersen, O; Weißgärber, T (Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM, Germany)

Sinter-Based Additive Manufacturing Using The Innovative MoldJet Process
Teuber, R (Fraunhofer Institute for Manufacturing Technology and Advanced Materials (IFAM), Germany); Andersen, O; Studnitzky, T; Weißgärber, T (Fraunhofer Institute for Manufacturing Technology and Advanced Materials (IFAM), Germany)

Cold Metal Fusion: Combining The Advantages Of PM And The Potential Of AM
Staudigel, C (Headmade Materials GmbH, Germany); Fischer, C (Headmade Materials GmbH, Germany)

Session 40
Influence of Powder Process on Material Properties

SESSION CHAIRS

Prof Marco Actis Grande *(Politecnico di Torino, Italy)*
Dr José Manuel Martin *(CEIT, Spain)*

ORAL PRESENTATIONS

Assessment Of Aluminium Alloy Powder Properties For Additive Manufacturing
Franceschini, A (IRT M2P, France); Bellavoine, M; Chehab, B (C-TEC, France); Deborde, A (METAFENSCH, France)

Investigations Of Air Atomized And Coarser Gas-atomized AlSi12 Powders To Evaluate Cost Reduction Potentials For Additive Manufacturing Processes
Ludwig, I (Fraunhofer Research Institution for Additive Manufacturing Technologies IAPT, Germany); Kluge, M; Grube, M; Imgrund, P (Fraunhofer IAPT Additive Manufacturing Technologies, Germany); Emmelmann, C (Hamburg University of Technology - Institut für Laser- und Anlagensystemtechnik (iLAS), Germany)

Powder Spheroidization For Additive Manufacturing
Altenberend, J (Tekna Plasma Systems Inc, Canada); Vert, R; Dolbec, R (Tekna Plasma Systems Inc, Canada)

Session 41
AM Sinter Based Technologies: Binder Jetting

SESSION CHAIRS

Dr Erich Neubauer *(RHP-Technology GmbH, Austria)*

ORAL PRESENTATIONS

Binder Jet 3D Printing Of Ti-6Al-4V Alloy For Biomedical Applications
Simchi, A (Sharif University of Technology, Iran); Petzoldt, F; Hartwig, T (Fraunhofer Institute IFAM, Germany)

Binder Jetting As Complementary Technology To Metal Injection Molding: Influence Of HIP On Microstructure And Mechanical Properties
Kaletsch, A (RWTH Aachen, Germany); Herzog, S; Broeckmann, C (RWTH Aachen, Germany); Andreeva, E; Hartwig, T (IFAM Bremen, Germany)

A Study On The Sinterability And Properties Of Binder Jet 3D Printing Bimodal INVAR36 Alloy Powder Blends
Lores, A (Tecnalia, Spain); Agote, I; Azurmendi, N (TECNALIA, Spain); Barthel, B; Aumund-Kopp, C (Fraunhofer IFAM, Germany)

Pre KNP - Binder-Jetting Of TiCN-based Cermets
Berger, C (Fraunhofer IKTS, Germany); Pötschke, J; Fries, M; Moritz, T; Michaelis, A (Fraunhofer IKTS, Germany)

POSTER PRESENTATIONS

Print, Press Or Pour - Handshake Between Different Technologies
Hanitzsch, O (ExOne GmbH, Germany)

Session 42
Industry Corner

Session 43
Field Assisted Sintering Technologies

SESSION CHAIRS

Dr Iñigo Agote *(TECNALIA, Spain),*
Dr Erich Neubauer *(RHP-Technology GmbH, Austria)*

ORAL PRESENTATIONS

Field Assisted Sintering Technique|Spark Plasma Sintering (FAST|SPS) As Promising Method For Upcycling Of Waste Materials
Bram, M (Forschungszentrum Jülich GmbH, Germany); Jäger, S (Bergische Universität Wuppertal, Germany); Prasad Mishra, T (Forschungszentrum Jülich GmbH, Germany); Weber, S (Ruhr-Universität Bochum, Germany)

Experimental Investigation Of The Relationship Between Powder Geometry And Sintering Pressure And Pore Ratio
Aydin, S-M (EGE UNIVERSITY, Turkey); Yahsi, Y; Tekin, T; Ferik, S-R; Ipek, R (EGE UNIVERSITY, Turkey)

POSTER PRESENTATIONS

Mechanical And Micro-Structural Properties Of Mechanically Alloyed Mg22AL Sintered With Electric Field Technique
Tekin, T (EGE UNIVERSTY, Turkey); Aydin, S-M; Yahsi, Y; Ferik, S-R; Ipek, R (EGE UNIVERSTY, Turkey)

Session 44
Design and modelling

SESSION CHAIRS

Dr Mark Dougan *(AMES SA, Spain)*

ORAL PRESENTATIONS

Pre KNP - A Finite Element Based Model Of The Influence Of Density On PM Mechanical Properties
Andersson, M (Höganäs AB, Sweden); Schneider, M (GKN Sinter Metals Engineering Gmbh, Germany)

"Design For Sintering 2" Club Project – Towards a New Methodology Describing The Anisotropy Of Dimensional Changes
Cristofolini, I (University of Trento, Italy); Molinari, A; Zago, M; Utku Uçak, O (University of Trento, Italy); Dougan M-J (Ames S.A., Spain); Schneider M (GKN Sinter Metals Engineering GmbH, Germany); Pedersen, P-H (Sintex a|s, Denmark); Bolitschek, J; Voglhuber, J (MIBA Sinter Austria GmbH, Austria); Vincenzi, B (EPMA, France)

Numerical Simulation Of Solid-state Sintering Of Copper Parts Fabricated By Extrusion 3D Printing Using MIM Feedstock
Singh, G (University of Grenoble Alpes, France); Bouvard, D; Missiaen, J; Chaix, J (University of Grenoble Alpes, France)

Quantitative Simulations Of Sintering Of Titanium With Diffuse Interface Methods
Ivannikov, V (Helmholtz-Zentrum Geesthacht, Germany); Ebel, T; Willumeit-Römer, R; Cyron, C (Helmholtz-Zentrum Geesthacht, Germany); Thomsen, F (Flensburg University of Applied Sciences, Germany)

Friday 22 October

Session 45
Hard metals Corrosion

SESSION CHAIRS

Dr Gian Pietro De Gaudenzi *(F.I.L.M.S. - Gruppo OMCD SpA, Italy)*

ORAL PRESENTATIONS

Corrosion Effects On Hertzian Contact Fatigue Behavior Of A WC-Co Cemented Carbide
Zheng, Y (Universitat Politècnica de Catalunya, Spain); Fargas, G; Llanes, L (Universitat Politècnica de Catalunya, Spain); Lavigne, O (Hyperion Materials and Technologies, Spain)

Corrosion Behaviour Of Ni-based Hardmetals In Aggressive Acidic Media
Pereira, P (DURIT - Metalurgia Portuguesa do Tungsténio, Lda, Portugal); Ferro Rocha, A-M; Bastos, A-C; Senos, (University of Aveiro, Portugal); Sacramento, J (DURIT - Metalurgia Portuguesa do Tungsténio, Lda, Portugal); Malheiros, L-F (Faculty of Engineering of the University of Porto, Portugal)

The Corrosion Effects On CoNi-base Hardmetals With Different Co:Ni Ratios And Additives In Simulated Service Conditions
De Gaudenzi, G-P (F.I.L.M.S. S.p.A. - Gruppo OMCD, Italy); Garabelli, M; Tedeschi, S (F.I.L.M.S. SpA - Gruppo OMCD, Italy); Rossi, F (Università del Salento, Italy); Bozzini, B (Politecnico di Milano, Italy)

Effect Of Cr Addition On The Corrosion Behaviour Of Hardmetals With Fe-based Co-free Binders
Romero, C (Universidad Carlos III de Madrid, Spain); De Nicolás, M; Jiménez-Morales, A; Gordo, E (Universidad Carlos III de Madrid, Spain); Llanes, L-M (Universidad de Cataluna, Spain)

POSTER PRESENTATIONS

Effect Of Using Zinc Recycled Cemented Tungsten Carbide Scrap Powder On The Slurry Erosion Of WC-6wt%Co Alloys
Sacks, N (Stellenbosch University, South Africa); Mantu, M; Mokoena, L (University of the Witwatersrand, South Africa); Freemantle, C (Pilot Tools Pty Ltd, South Africa)

Session 46
SIS AM: Spare parts and Repair using AM

SESSION CHAIRS

Mrs Adeline Riou *(Erasteel, France)*
Dipl.-Ing Claus Aumund-Kopp *(Fraunhofer IFAM, Germany)*

ORAL PRESENTATIONS

Additive Manufacturing For Repair: Comparison Of Power Bed Fusion And Solid-state Material Deposition Processes
Toualbi, L (ONERA, France); Davoine, C; Thomas, M (ONERA, France); Bouilly, T; Miot, D (CNES, France)

Reproducibility of LPBF - we have investigated hundreds of samples in a Round Robin for AlSi10Mg
Schlingmann, T (EOS GmbH, Germany)

Defence Manufacturing At The Point Of Need
Stewart, C (Speed3D, Germany)

Session 47
Testing & Evaluation

SESSION CHAIRS

Prof Didier Bouvard *(Univ. Grenoble Alpes, France)*

ORAL PRESENTATIONS

Semi in-situ measurement of microstructural changes in PM steel during indentation
Holmberg, A (Uppsala Universitet, Sweden); Kassman Rudolphi, Å; Wiklund, U (Uppsala Universitet, Sweden); Andersson, M (Höganäs AB, Sweden)

New Analytic Appraoch For Acoustic Material Testing
Ritter, J (Germany, Germany)

Deeper Process Understanding For Metal Binder Jetting By Using X-ray CT
Sperling, P (Volume Graphics GmbH, Germany); Barthel, B (Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM, Germany)

POSTER PRESENTATIONS

Results Of Studying Wettability Of Powder Materials In High-Viscosity Liquids
Ilyushchanka, A (State Research and Production Powder Metallurgy Association, Belarus); Kryvanos, A; Piatsiushyk, Y (State Research and Production Powder Metallurgy Association, Belarus)

Session 48
Applications: Aerospace

SESSION CHAIRS

Stefano Lionetti
Dr Pierre Blanchard *(Welding Alloys Group, France)*

ORAL PRESENTATIONS

Additive Manufacturing Of An Opto-mechanical Telescope: Evolution Of Powder, Material And Final Part Properties
Meisnar, M (Europan Space Agency, United Kingdom); Prante, N; Pambaguian, L; Rohr, T (European Space Agency, United Kingdom)

Study Of Nickel-chromium Super Alloys Processed With Plasma Metal Deposition To Enable Additive Manufacturing Of Large Parts
Ariza, E (RHP Technology GmbH, Austria); Neubauer, E; Bielik, M; Meuthen, J; Kitzmantel, M (RHP Technology GmbH, Austria)

POSTER PRESENTATIONS

How Ceramic 3D Printing Can Help Investment Casting To Compete With Direct Metal Laser Sintering
Mak, L (Admatec Europe BV, Netherlands); Saurwalt, J (Admatec Europe BV, Netherlands); Ziemba, J (Aristo-cast, USA)

Session 49
Ferrous Materials for AM

SESSION CHAIRS

Mr Alexander Angré *(Carpenter Powder Products AB, Sweden)*

ORAL PRESENTATIONS

Binder Jetting Of A Dual Phase Steel - From Powder To Part
Schaak, C (GKN Sinter Metals Engineering GmbH, Germany); Schade, C; Horvay, K (Hoeganaes Corporation, USA); Höges, S (GKN Sinter Metals Engineering GmbH, Germany)

Heat Treatment And Mechanical Properties Of A Novel Ultrahigh Strength Co-free Maraging Steel Fabricated By Additive Manufacturing
Deirmina, F (Sandvik Additive Manufacturing, Sandvik Machining Solutions AB, Sweden); Bettini, E; Harlin, P; Dixit, N (Sandvik Additive Manufacturing, Sandvik Machining Solutions AB, Sweden); Lövquist, S (AB Sandvik Coromant, Sweden); Hagen, B; Magnusson, H (Swerim AB, Sweden); Holländer Pettersson, N; Lindwall, G (KTH Royal Institute of Technology, Sweden)

Influence Of Powder Properties On The Mixing Behavior Of Metal Powders In LPBF
Norda, M (Fraunhofer IFAM, Germany); Köhler, M-L; Herzog, S; Broeckmann, C (IWM Aachen, Germany); Petzoldt, F (Fraunhofer IFAM, Germany)

Preliminary Processability Evaluation Of H13 Steel By Electron Beam Melting
Ghibaudo, C (Politecnico di Torino, Italy); Saboori, A; Marchese, G; Gobber, F; Biamino, S; Ugues, (Politecnico di Torino, Italy)

Session 50
SIS AM: Sinter Based AM

SESSION CHAIRS

Mrs Adeline Riou *(Erasteel, France)*
Dipl.-Ing Claus Aumund-Kopp *(Fraunhofer IFAM, Germany)*

ORAL PRESENTATIONS

To be announced

Comparison of Laser Powder Bed Fusion, Binder Jet & MIM for Stainless Steel alloys
Davies, P (Sandvik Additive Manufacturing, United Kingdom); Harris, L (Sandvik Additive Manufacturing, United Kingdom); Matilainen, V-P; Bostrom, M; Amnebrink, M (Sandvik Additive Manufacturing, Sweden)

To be announced

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INOVAR COMMUNICATIONS

Session 51
Testing & Evaluation: Powder Characterisation

SESSION CHAIRS

Dr Ken Mingard *(NPL - National Physical Laboratory, United Kingdom)*

ORAL PRESENTATIONS

Powder Reuse Assessment Through Advanced Characterization Techniques For Additive Manufacturing Applications
Carrozza, A (Politecnico di Torino, Italy); Virgillito, E; Aversa, A; Manfredi, D; Bondioli, F; Fino, P; Lombardi, M; (Politecnico di Torino, Italy)

Batch To Batch Differentiation For Quality Control In Additive Manufacturing
Neveu, A (GranuTools, Belgium); Rigo, O (Sirris, Belgium); Lumay, G (University of Liège, Belgium); Francqui, F (GranuTools, Belgium

Session 52
Applications: Energy

SESSION CHAIRS

Dr Riccardo Casati *(Politecnico di Milano, Italy)*
Dr Raquel De Oro Calderon *(TU Wien, Austria)*

ORAL PRESENTATIONS

Characterization Of Alloy 600 Heat Exchanger-reactor Mock-ups Obtained By Laser Powder Bed Fusion (L-PBF) Process
Baffie, T (CEA-LITEN, France); Gloriod, D; Anxionnaz-Minvielle, Z; Gaillard, G; Ribiere, C (CEA-LITEN, France)

Exploring Custom Designs Of MIM Components To Optimise Large Scale Production Of SOFC Interconnectors
Herranz, G (Universidad de Castilla La Mancha, Spain); Gallego, A; Delfa, A; Berges, C; Naranjo, J-A; Antón, G (Universidad de Castilla La Mancha, Spain); Andújar, R; Campana, R (Centro Nacional del Hidrógeno- CNH2, Spain)

Lithography-based Copper Manufacturing And Debinding|Sintering
Resch, A (CEA-Liten, France); Roumanie, M (CEA-Liten, France); Croutxe-Barghorn, C (LPIM, France)

Special Interest Seminar

Special Interest Seminar: Consolidation Technologies

Session 2 **Monday 18 October** Time: 13:00 – 14:30

SIS HIP: Optimization of PM parts using HIP

SESSION CHAIRS

Dr Anke Kaletsch (RWTH Aachen University, Germany)
Mr James Shipley (Quintus Technologies AB, Sweden)


PRESENTATIONS

The CALHIPSO project: towards a larger use of HIP technology in France
Bernard, F (ICB - UMR 6303 CNRS / UBFC, France); Rigal, E; Emonot, P (CEA Liten, France); Chateau-Cornu, J-P (ICB - UMR 6303 CNRS / UBFC, France); Geneves, T (Framatome, France); Bernacki, M (Mines Paris Tech - UMR 7635 CNRS / PSL, France)

Hot Isostatic Pressing in Additive Manufacturing – a costly necessity or a possibility to add value?
Herzog, D (Hamburg University of Technology, Institute of Laser and System Technologies, Germany); Bossen, B; Bartsch, K; (Hamburg University of Technology, Institute of Laser and System Technologies, Germany)

Special Interest Seminar: Consolidation Technologies

Session 6 **Monday 18 October** Time: 14:45 – 16:15

SIS HIP: Key Industrial Applications of HIP

SESSION CHAIRS

Dr Anke Kaletsch (RWTH Aachen University, Germany)
Mr James Shipley (Quintus Technologies AB, Sweden)


PRESENTATIONS

Advanced Technology for Large Scale (ATLAS) PM-HIP
Gandy, D (EPRI, USA); Puerta, D (Stack Metallurgical, USA)

Faster manufacturing by additive manufacturing of shelled parts followed by HIP
Du Plessis, A (Stellenbosch University, South Africa)

Special Interest Seminar: Materials

Session 10 **Tuesday 19 October** Time: 09:00 – 10:30

SIS FM: Advances and Challenges for Hard Magnets

SESSION CHAIRS

Dr Sebastian Boris Hein (Fraunhofer IFAM, Germany)
Mr Peter Kjeldsteen (Sintex a/s, Denmark)


PRESENTATIONS

Recent Developments for Bonded RE-Fe-B Magnets
Nimit, S (Magnequench Technology Center, Singapore); Zhongmin, C (Magnequench Technology Center, Singapore); Grieb, B; Schmersahl, K (Magnequench GmbH, Germany)

Electric current assisted sintering of NdFeB magnet materials
Prasad Mishra, T (Forschungszentrum Jülich, IEK-1, Germany); Leich, L; Weber, S; Röttger, A (Institut für Werkstoffe, Germany); Krengel, M (Wilo SE, Germany); Bram, M (Institute of Energy and Climate Research, Germany)

Advances and Challenges for Hard Magnets
Weck, C (Fraunhofer IFAM, Germany)

Special Interest Seminar: Materials

Session 14 **Tuesday 19 October** Time: 10:45 – 12:15

SIS FM: Functional Materials for Thermal Management

SESSION CHAIRS

Dr Sebastian Boris Hein (Fraunhofer IFAM, Germany)
Mr Peter Kjeldsteen (Sintex a/s, Denmark)


PRESENTATIONS

Thermal Management Solutions with Advanced Composite Materials and Additive Manufacturing
Weissgaerber, T (Fraunhofer IFAM Dresden, Germany); Hutsch, T; Studnitzky, T; Klöden, B; Andersen, O (Fraunhofer IFAM Dresden, Germany)

Solid state thermal control devices and circuits
Kitanovski, A (University of Ljubljana, Slovenia); Klinar, K; Vozel, K; Petelin, N (University of Ljubljana, Slovenia)

Adding energy harvesting into thermal management – a win-win solution
Yin, H (TEGnology ApS, Denmark)

Special Interest Seminar: Consolidation Technologies

Session 18 **Tuesday 19 October** Time: 13:00 – 14:30

SIS MIM: Sustainability of MIM


SESSION CHAIRS

Prof Frank Petzoldt (Fraunhofer IFAM, Germany)
Mr Georg Breitenmoser (Parmaco Metal Injection Molding AG, Switzerland)

PRESENTATIONS

Sustainability of Inert Gas Atomised Powders for Additive Manufacturing and MIM
Davies, P-A (Sandvik Osprey, United Kingdom)

Sustainability in MIM: A feedstock producer's view
Staudt, T (BASF, Germany); Hermant, M-C; Wallot, J (BASF, Germany)

Sustainability of the MIM process from the perspective of a parts manufacturer
Schwarz, J (GKN Sinter Metals, Germany)

Special Interest Seminar: Materials

Session 22 **Wednesday 20 October** Time: 09:00 – 10:30

SIS HM: Outlook on Hard Materials


SESSION CHAIRS

Prof Luis Miguel Llanes (Catalunya Univ Polytecnica, Spain)
Mrs Susanne Norgren (Sandvik, Sweden)

PRESENTATIONS

The evolving regulation of cobalt
Blakeney, M (The Cobalt Institute, United Kingdom)

To be announced
Zeiler, B (International Tungsten Industry Association, Austria)

Special Interest Seminar: Materials

Session 26 **Wednesday 20 October** Time: 10:45 – 12:15

SIS HM: HM Club Projects of EPMA

SESSION CHAIRS

Prof Luis Miguel Llanes (Catalunya Univ Polytecnica, Spain)
Mrs Susanne Norgren (Sandvik, Sweden)


PRESENTATIONS

Euro HM Club Projects
Moseley, S (Hilti, Liechtenstein)

Recent & Current Club Projects of EPMA (Micromech II, Simucrack IV, Kinetic II)
To be announced

Future Activities of Club Projects
To be announced

Special Interest Seminar: Consolidation Technologies

Session 34 **Thursday 21 October** Time: 09:00 – 10:30

SIS P&S: CO2 reduction in Press&Sinter - Part I

SESSION CHAIRS

Dr Cesar Molins (AMES SA, Spain)
Mrs Caroline Larsson (Höganäs AB, Sweden)


PRESENTATIONS

Innovation to drive net zero carbon operations in material manufacturing
Painter, N (Ricardo Energy and Environment, United Kingdom)

Corporate Carbon Footprint & Product Carbon Footprint
Gutes, M (PMG Holding GmbH, Germany); Nawroth, S (PMG Holding GmbH, Germany)

The Road towards Climate Neutrality for the PM Industry from a powder production perspective
Vidarsson, H (Höganäs AB, Sweden)

Special Interest Seminar: Consolidation Technologies

Session 38 **Thursday 21 October** Time: 09:00 – 10:30

SIS P&S: CO2 reduction in Press&Sinter - Part 2


SESSION CHAIRS

Dr Cesar Molins (AMES SA, Spain)
Mrs Caroline Larsson (Höganäs AB, Sweden)

PRESENTATIONS

An overview on energy efficiency of presses and latest trends for consumption optimization
Albonetti, P (SACMI Imola S.C., Italy)

Opportunities for CO2-reduction in sintering furnaces
Khartik, N-K (Cremer Thermoprozessanlagen GmbH, Germany); Weber, H; Cremer, I (Cremer Thermoprozessanlagen GmbH, Germany)

Sintering atmosphere in heat treatment furnaces - Contribution of industrial gases for reducing the carbon footprint
Bustamante Valencia, L (Air Liquide, France); Coudurier, L (Air Liquide, France); Spizzica, A (Air Liquide, Italy)

Sustainability and carbon footprint: High Temperature Sintering (HTS) of Structural Parts
Arnhold, V (PM Solutions, Germany); Molinari, A (University of Trento, Italy); Kruzhanov, V (PM Consulting, Germany)

Special Interest Seminar: Applications

Session 46 **Friday 22 October** Time: 09:00 – 10:30

SIS AM: Spare parts and Repair using AM


SESSION CHAIRS

Mrs Adeline Riou (Erasteel, France)
Dipl.-Ing Claus Aumund-Kopp (Fraunhofer IFAM, Germany)

PRESENTATIONS

Additive Manufacturing For Repair: Comparison Of Power Bed Fusion And Solid-state Material Deposition Processes
Toualbi, L (Onera, France); Davoine, C; Thomas, M (ONERA, France); Bouilly, T; Miot, D (CNES, France)

Reproducibility of LPBF - we have investigated hundreds of samples in a Round Robin for AlSi10Mg
Schlingmann, T (EOS, Germany)

Defence Manufacturing At The Point Of Need
Stewart, C (Speed3D, Germany)

Special Interest Seminar: Consolidation Technologies

Session 50 **Friday 22 October** Time: 10:45 – 12:15

SIS AM: Sinter Based AM


SESSION CHAIRS

Mrs Adeline Riou (Erasteel, France)
Dipl.-Ing Claus Aumund-Kopp (Fraunhofer IFAM, Germany)

PRESENTATIONS

Core value for Binder Jetting – Sintering process
To be announced

Comparison of Laser Powder Bed Fusion, Binder Jet & MIM for Stainless Steel alloys
Davies, P (Sandvik Additive Manufacturing, United Kingdom); Harris, L (Sandvik Additive Manufacturing, United Kingdom); Matilainen, V-P; Bostrom, M; Amnebrink, M (Sandvik Additive Manufacturing, Sweden)

Market Analysis of Metal Binder Jetting
To be announced

WORLD PM2022
CONGRESS & EXHIBITION

FIRST ANNOUNCEMENT

World PM2022 International Powder Metallurgy Congress & Exhibition

9 - 13 October 2022

LYON , FRANCE

worldpm2022.com

EPMA european powder metallurgy association

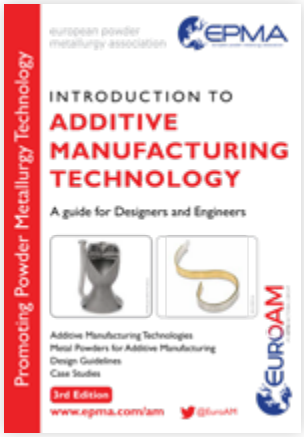
Developing the Powder Metallurgy Future

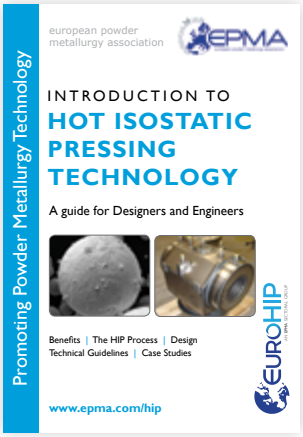
Developing the Powder Metallurgy Future

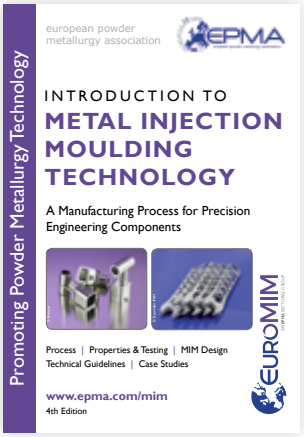
EPMA Publications

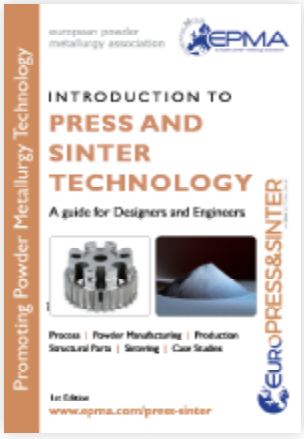
EPMA online PM publications catalogue is one of, if not the most comprehensive listing of Powder Metallurgy and associated titles in Europe.

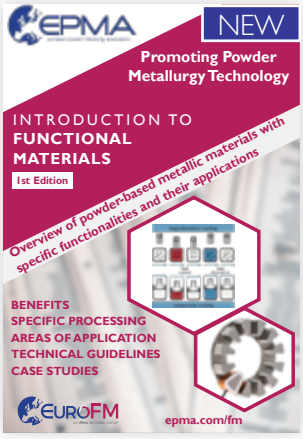
All publications featured are English language titles, with some titles exclusive to the EPMA.

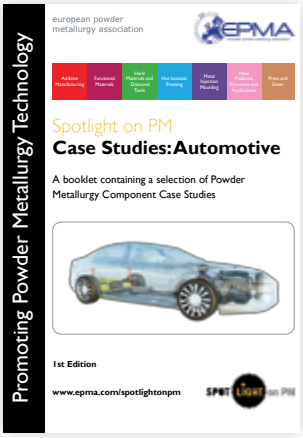


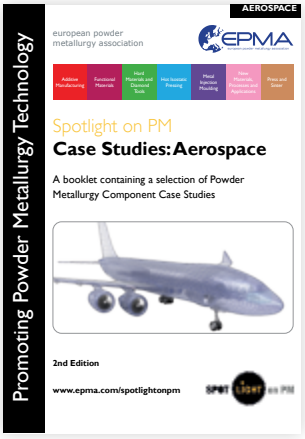


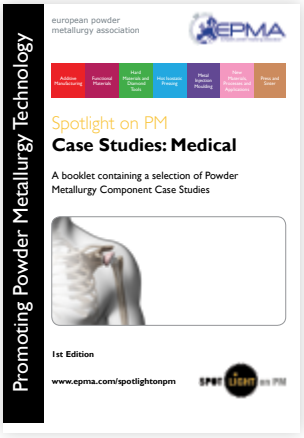


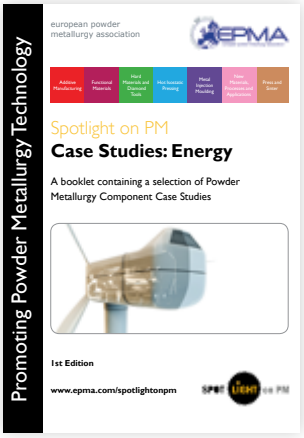












For further information visit: **www.epma.com/publications**

Media Partners

3d Adept

3d Adept is a Communication Company dedicated to the 3D printing industry. 3D Adept Media provides the latest trends and analysis in the 3D printing industry in English & French. Our media include an online media and a bimonthly magazine, 3D Adept Mag. All issues of 3D Adept Mag are available to download free of charge. Our mission is to help any company develop its services and activities in the 3D printing industry.

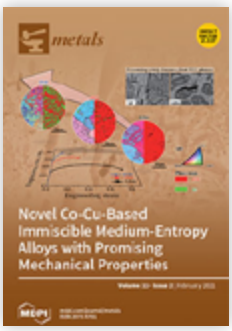
www.3dadept.com/magazine-3d-adept-mag

Diamante A&T Magazine

Diamante A&T is a quarterly international magazine featuring articles on diamond tools technology and industrial diamond applications in stone, building and mechanical sectors. First published in 1995 by G&M Associated, Diamante A&T

is the leading magazine for tools manufacturers, distributors and end users thanks to the quality of its articles always a step ahead in reporting new research and latest technologies.

www.gmassdiamonte.com



Metals

Metals (ISSN 2075-4701; CODEN: MBSEC7) is an international, open access metallurgy journal published monthly online by MDPI. It has been indexed by Science Citation Index Expanded (SCIE) and Scopus (Elsevier). The Impact Factor of /Metals/ is 2.117, ranking 18/79 (Q1) in Metallurgy & Metallurgical & Engineering, 185/314 (Q3) in Materials Science, Multidisciplinary.

www.mdpi.com/journal/metals

Materials

Materials (ISSN 1996-1944; CODEN: MATEG9) is a peer-reviewed, open access journal of materials science and engineering published semimonthly online by MDPI. The Portuguese Materials Society (SPM), Spanish Materials Society (SOCIEMAT) and Manufacturing Engineering Society (MES) are affiliated with Materials and their members receive a discount on the article processing charges.

www.mdpi.com/journal/materials

Metal AM

Metal AM magazine is the leading global media resource that is focused on the industrialisation of metal AM technologies from design and manufacturing to end-use applications. Published quarterly in both digital and print formats, supported by a content rich website, e-newsletter and rapidly-expanding social media presence. Metal AM reaches an expanding global audience that reflects the fastest growing metal component manufacturing process.

www.metal-am.com

Modern Metals

Modern Metals magazine covers new technologies and industry trends for service centers, fabricators and OEMs.

www.modernmetals.com

Powder Injection Moulding International

PIM International is the leading global media resource for commercial and technical developments in metal (MIM) and ceramic (CIM) injection moulding, as well as the closely related sinter-based AM process. It is focused on the industrial application of these technologies, from design and manufacturing to end-use applications. Published quarterly and available in both print and digital formats.

www.pim-international.com

Powder Metallurgy Review

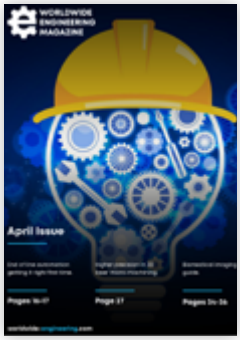
PM Review is the leading global media resource for the for the design, production and application of press and sintered Powder Metallurgy components, as well as HIP/CIP and powder forging. This includes ferrous and non-ferrous components, hard materials, PM high alloy steels, superalloys, diamond tools and sintered magnets. PM Review also focuses on metal powder production for all end-use areas, including Additive Manufacturing. Published quarterly in both digital and print formats it supported by a content rich website, weekly e-newsletter and regular social media campaigns that promote PM as a progressive and dynamic metal forming technology.

www.pm-review.com

Tecnica Ceramica

Professional magazine that informs about materials, equipment and manufacturing techniques for the industrial sector.

www.publica.es



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Worldwide Engineering Magazine provides a tailored platform for the engineering community. With varying monthly topics and features occurring throughout each year, there are plenty of opportunities to promote your business to a targeted readership at the appropriate time.

Our team works tirelessly to share exclusive engineering content across multiple platforms. Content is showcased in our monthly digital magazine, monthly newsletter, social media platforms and the news section of our website.

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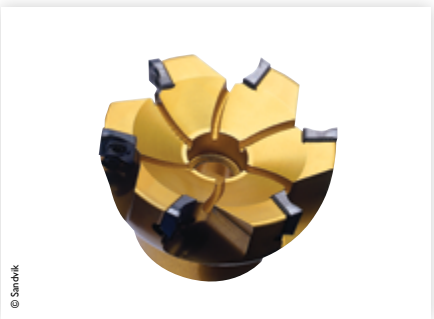
Thinking about using Powder Metallurgy?

Find out more with **Design for PM**

An e-learning resource for designers and engineers

Gain the benefits of PM for your components



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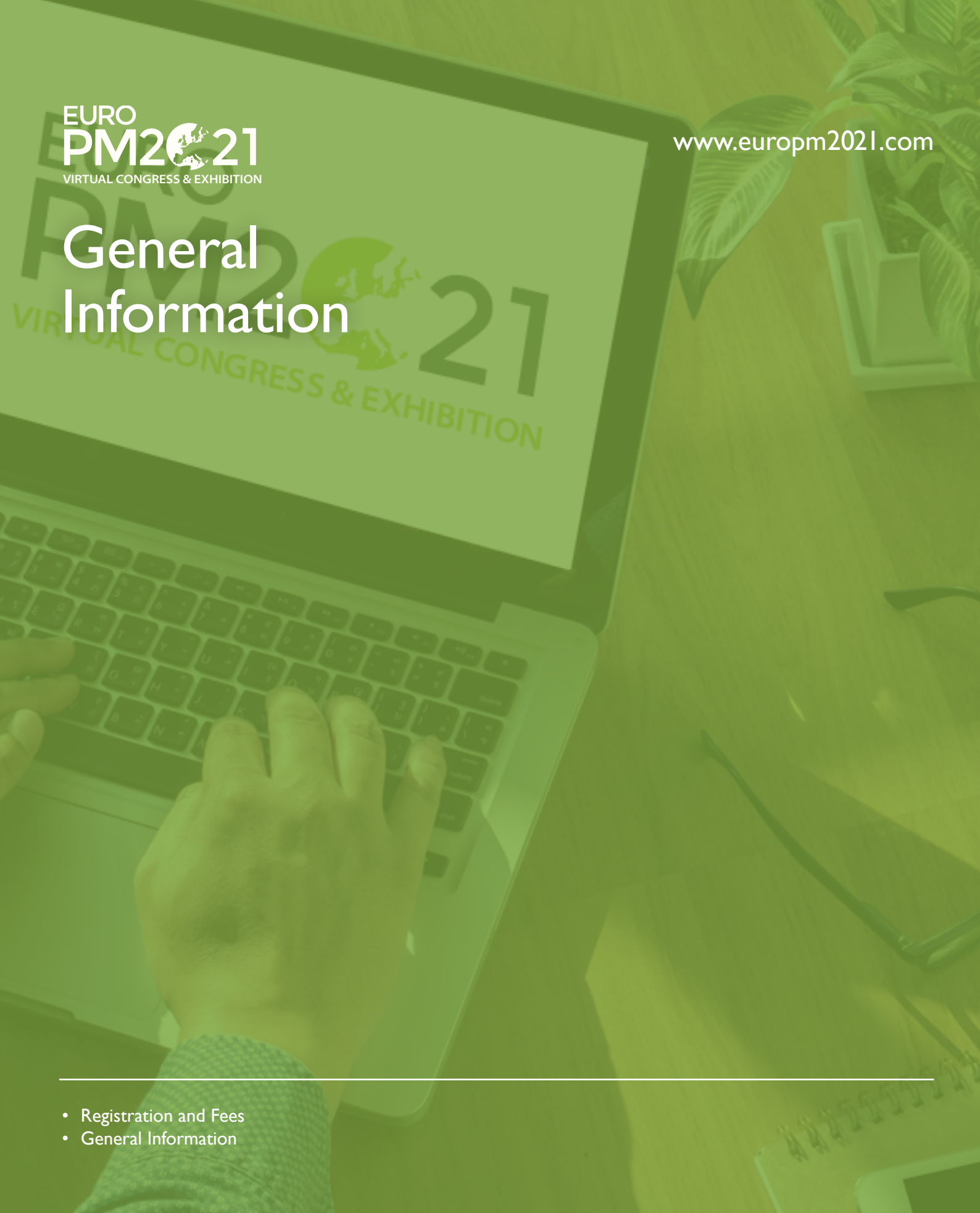
General Information



- Registration and Fees
- General Information

Registration Fees

		Attendees type									
		Delegate						Euro PM2021 Proceedings (optional)	Exhibition access	Technical Sessions & SIS	Posters Gallery
		Chairs, TPC members, Technical Session, Speakers	EPMA Member/ End user	SIS Speakers	Academic package	Non EPMA member	Student delegate				
Until 14/09	Full package (fees+proceedings) before VAT	740	790	550	990	1,050	-	✓	✓	✓	✓
	Registration Fees before VAT	490	540	300	740	800	240	250	✓	✓	✓
	Exhibition entrance only before VAT	35						250	✓		
From 15/09 to 14/10	Full package (fees+proceedings) before VAT	890	950	660	1,150	1,240	-	✓	✓	✓	✓
	Registration Fees before VAT	700	640	390	900	990	250	250	✓	✓	✓
	Exhibition entrance only before VAT	45						250	✓		
From 15/10 to 22/10	Full package (fees+proceedings) before VAT	1,240						✓	✓	✓	✓
	Registration Fees before VAT	990						250	✓	✓	✓
	Exhibition entrance only before VAT	50						250	✓		

French VAT (20%) may be reclaimed via the official method within your country.

Payments: Credit card and bank transfer
Please note bank transfer will not be possible after 08 October 2021

From 15 October 2021 and until the end of the event: only Non EPMA Member fees will be applied.
*End users are defined as: Original Equipment Makers (OEMs), Tier 1, Tier 2 and system supplier supply chain compagnies and personnel, who select the PM process to produce the components for their applications (automotive, aerospace, medical, energy, machinery, etc...) but do not produce PM parts themselves.

Registration

Registration for Euro PM2021 can only be done online via our website www.europm2021.com. The table on the previous page outlines the different delegate types and the fees applicable. The tick indicates what is included in each type of admission package.

Terms and conditions

EPMA reserves the right to alter the programme, speakers, and dates at any time, without notice. Should for any reason the event change or the event be cancelled due to an act of terrorism, extreme weather, disease control, industrial action or any eventuality beyond the control of the EPMA, we shall endeavour to reschedule, but the delegate hereby indemnifies the EPMA and holds the EPMA harmless from and against any costs, damages and expenses, incurred by the delegate.

Payment

Your place is not guaranteed at the Euro PM2021 Virtual Congress & Exhibition until payment in full is received by the organisers.

Cancellation Policy

Cancellation on or after 31st August 2021 will result in a 100% cancellation charge. Any cancellation must be notified to the organisers in written form to pm2021@epma.com (or registration-epma@shocklogic.com)

End Users

(Defined as companies who sell directly to the open market not further down the supply chain.)

Please note that all End User Registrations will be checked to ensure your company activities are End User related, with incorrect registrations being charged at the higher Full or Daily Delegate rates.

If you require assistance with choosing the correct fee, please email Euro PM2021 Registrations pm2021@epma.com with a brief company description and current website link to assist with registration.

General Information

Congress Language

The congress will be conducted in English.

Congress Proceedings

The congress proceedings are included in the registration package for delegates and are provided in the form of a downloadable file. If proceedings are not included in your registration type, they can be purchased on EPMA website.

Online Presence and Referencing

EPMA has agreements with ProQuest LLC, Cambridge Scientific Abstracts, EBSCO and Scopus to enable the wider circulation of papers presented at EPMA conferences and to enhance their standing in the academic community. The papers from Euro PM2021 will subsequently be made available to the subscribers of these products after October 2022.

Proceedings are also available on www.epma.com/publications including Proceedings more than 4 years old available to download free of charge.

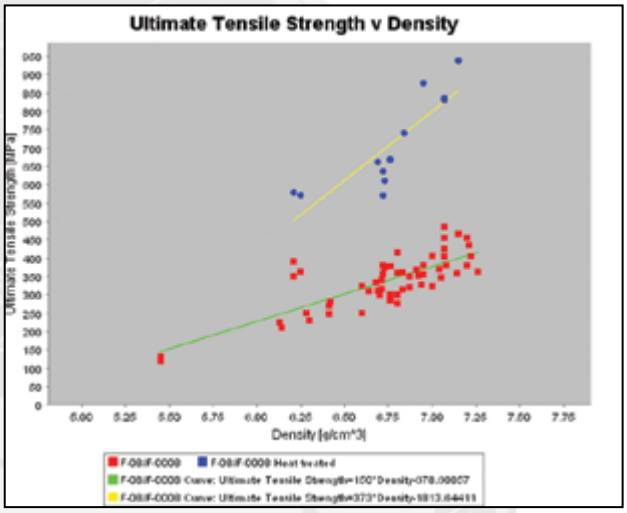
Global Powder Metallurgy Property Database

Introducing the latest material database development for Designers and Engineers worldwide

The Global Powder Metallurgy Property Database – a special online resource

The Global Powder Metallurgy Database (GPMD) was created in response to the absence of a readily accessible source of design data which was acting as a significant impediment to the wider application of PM products.The database was the result of a global collaboration between the three major regional trade associations: EPMA (Europe), MPIF (North America) and JPMA (Japan). Since its launch in 2004 the content has been steadily increased to a total of nearly 4000 lines of high quality data.

The GPMD provides physical, mechanical and fatigue data for a range of commercially available PM materials. Originally covering the mechanical and physical properties of PM Steels and Stainless Steels from 6.4 gm/cc upwards, Powder Forged Steels, non ferrous materials and bearing alloys over one thousand new lines of data have been added since the launch. These now additionally cover ferrous and non ferrous MIM materials, fatigue endurance limits and SN curves.



A well tested system of data collection and validation means that the maximum amount of technical information can be displayed without compromising the source and confidentiality of donating organisations. Current areas to be further developed include expanding the available MIM data, obtaining and verifying data from the PM HIP sector and additional data for fatigue properties. With over 9000 registered users from all parts of the world the database provides a significant resource to a very wide range of designers and engineers who may not be familiar with PM technology.

The free to access database allows detailed searches on physical and mechanical properties to be made and results downloaded as either spreadsheets or into well-known FEA packages such as Abacus or MSC. The associated website at www.pmdatabase.com also provides background data on the PM process and designing for PM. Users can also view a list of contributing PM parts makers with contact details. For more first class data please visit:

www.pmdatabase.com

Visit the website for more information on:

- How it can benefit you
- How to access it
- How it works

Join the conversation:
@Euro_PM #EuroPM2021 www.europm2021.com

EPMA
european powder metallurgy association

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