Overview

• What is EPMA?
• EPMA mission
• Conclusion
Who are the EPMA?

The European Powder Metallurgy Association (EPMA) is a non-profit association formed in Brussels in 1989 with three key missions:

• Promote and Develop PM Technology in Europe
• Represent the European PM Industry within Europe and Internationally
• Develop the Future of PM

EPMA is what its members want it to be

www.epma.com/epma-objectives
Membership Levels of the EPMA

**Full Member**
European PM companies are welcome to join the EPMA as Full Members. Companies must be actively involved in one or more areas of powder metallurgy as listed in the EPMA Bylaws*. Only Full Members have voting rights.

Annual Membership
€3600

**Full Member: Small Company Discount**
Companies eligible for Full Membership, who have annual PM related sales of more than €3 million but less than €10 million, are entitled to a 40% reduction on Full Membership Fee.

Annual Membership
€2215

**Full Member: Micro and Start-up Company Discount**
Companies eligible for Full Membership who have annual PM related sales of up to €3 million are entitled to a 60% reduction on Full Membership Fee.

Annual Membership
€1440

**Affiliate Member**
Membership in this category is open to manufacturing subsidiaries of Full Member holding companies in the same sector. This category also applies to PM Consultants who wish to be listed as a consultant within the EPMA Directory of Members. Affiliate Members do not have any voting rights, but otherwise enjoy all other benefits of Full Membership.

Annual Membership
€930

**Associate Member**
Open to the following organisations:
- European companies with an interest in PM, but not active in manufacturing metal powders, components or production equipment
- Non-European companies active in the manufacture or metal powders, PM products and production equipment
- Research establishments, scientific institutions or societies

Annual Membership
€1800

**Individual Member**
‘Individual Membership’ (without voting rights) is open to persons with clear professional interests in the objectives of the Association. Applications from individuals employed by organisations which are eligible for ‘Full’, ‘Affiliate’ or ‘Associate’ membership cannot be accepted as ‘Individual’ members unless their organisation is already a member in one of the above categories. Individual Members also receive a free subscription to the journal Powder Metallurgy. Individual Members’ companies do not receive online promotion.

Annual Membership
€200

**Student Member (Junior)**
‘Junior Membership’ is open to persons under 30 years of age under the same conditions as those for ‘Individual Members’, but not including a subscription to Powder Metallurgy.

Annual Membership
€100

**European Full Fees**
European full members with one Full Member and several Affiliates
Pay two Full Memberships instead of one membership and several affiliates

Annual Membership
€7200

Visit www.epma.com/membership for more details.
Membership

EPMA members: ca. 222 Corporate + ca. 78 Individual Members

By activity
- End User: 6%
- Parts Maker: 36%
- Equipment: 15%
- Research: 14%
- Raw Materials: 24%
- Testing: 2%
- Tooling: 1%
- Consultant: 1%
- Services: 1%

By geographical area
- Germany: 24%
- UK: 10%
- Italy: 8%
- Switzerland: 4%
- Austria: 4%
- Sweden: 6%
- USA: 7%
- France: 7%
- Spain: 8%
- Japan: 3%
- Belgium: 2%

By sectoral group
- Euro MIM: 20%
- Euro HIP: 17%
- Euro AM: 35%
- Euro P&S: 15%
- Euro HM: 13%
- Other Non-European: 6%
- Other European: 6%
- Raw Materials: 24%
- Research: 14%
- Services: 1%
- Equipment: 15%
- Parts Maker: 36%
- End User: 6%
- Testing: 2%
- Tooling: 1%
- Consultant: 1%
- Services: 1%

www.epma.com/membership
PM Processes and Materials covered by the EPMA

Metal Powders
- Chemical Processes
- Water Atomization
- Gas Atomization
- Plasma Atomization
- Crushing/Milling

Powder Shaping and Consolidation
Parts Design and Production
- Press & Sinter
- Hard Materials
- Metal Injection Moulding
- Hot Isostatic Pressing
- Additive Manufacturing

Parts and Components (Examples)
- Automotive Parts
- Cutting Tools
- Consumer Goods
- Semi-Finished Products
- Ultra Complex Parts

Specificially designed equipment and machinery

www.epma.com/powder-metallurgy-process
History of the PM ‘Growing Tree’ as covered by the EPMA

- New Needs (Projects, Lobbying, Networking etc...)
- New Processes
- New Sectors
- New Materials
Representing the European PM Industry

Organisation Chart of the EPMA

- **1 Elected President**
- **1 Elected Treasurer**
  - Elected every 3 years
- **12 Permanent Staff**

**General Assembly**
- Executive Board
- Council
- Secretariat

**Working Groups**
- Environmental, Health and Quality
- Research, Education and Training
- Research & Development Group (EPMIs)
- Electronic Communication Group (eCom)

**Sectoral Groups**
- Additive Manufacturing (EuroAM)
- Hard Materials (EuroHM)
- Hot Isostatic Pressing (EuroHIP)
- Metal Injection Moulding (EuroMIM)
- Structural Parts (EuroPress&Sinter)
- Functional Materials (EuroFM)

All Corporate Members meet once a year
- 20 Elected Representatives from the PM Industry

www.epma.com/about-us

EPMA Structure 8
Some figures

- EPMA budget ca 1.2 M€
  - Euro PM Conferences: ca 0.5 M€ to 1.5 M€
  - R&D projects: ca 200 k€
  - Trainings: ca 60 k€
EPMA Executive Board

**President**
Ralf Carlström (DigitalMetal, Sweden)

**Treasurer**
Pierre Blanchard (Erasteel, Sweden)

**Vice Presidents**
Dipl.-Ing Ingo Cremer (Cremer Thermoprozessanlagen GmbH, Germany)
Guido Degen (GKN Sinter Metals, United Kingdom)
Philippe Gundermann (Eramet, France)
Thomas Lambrecht (Dorst Technologies, Germany)
Dr Cèsar Molins (AMES SA, Spain)
Dr Harald Neubert (Miba Sinter GmbH, Germany)

www.epma.com/epmacouncil
EPMA Council

Representing the Additive Manufacturing Sector
Ralf Carlström (Höganäs AB, Sweden)

Representing the Applications Sector
Dr Steven Moseley (Hilti AG, Liechtenstein)

Representing the Hard Materials/refractory Metals Sector
Dr Heinrich Kestler (Plansee SE, Austria)

Representing the Hot Isostatic Pressing Sector
Martin Brear (Bodycote Hot Isostatic Pressing AB, Sweden)

Representing the Metal Injection Moulding Sector
Dr Georg Breitenmoser (Parmaco, Switzerland)

Representing the Metal Powders Sector
Michael Rehnig (Höganäs Sweden AB, Sweden)

Representing the Plant & Equipment Sector
Dipl Ing Ingo Cremer (Cremer Thermoprozessanlagen GmbH, Germany)

Representing the PM Semis Sector
Philippe Gundermann (Eramet, France)

Representing the PM Based Parts Sector
Dr César Molins (AMES SA, Spain)

General Representatives
Dr Pierre Blanchard (Erasteel Kloster, Sweden)
Dr Sven Fleischmann (BASF SE, Germany)
Guido Degen (GKN Sinter Metals, United Kingdom)
Magnus Ekelund (Sandvik Coromant AB, Sweden)
Dr Ing Matteo Federici (Sacmi Imola SC, Italy)
Peter Kjeldsteen (Sintex a/s, Denmark)
Izabela Kulszewicz (Polmo Lomianki SA, Poland)
Christoph Laumen (Linde Gases Division, Germany)
Thomas Lambrecht (Dorst Technologies, Germany)
Dr Harald Neubert (Miba Sinter GmbH, Germany)
Carlo Sgarbossa (Pometon SpA, Italy)
+ Prof Alberto Molinari (Univ Trento) as guest from PM Academia

www.epma.com/epmacouncil
Working and Sectoral Groups Chairs

**Sectoral Groups**

**European Press & Sinter Group (EuroP&S)**
Dr César Molins (AMES SA) / Caroline Larsson (Höganäs AB)

**European Metal Injection Moulding Group (EuroMIM)**
Dr Frank Petzoldt (Fraunhofer IFAM) / Dr Georg Breitenmoser (Parmaco)

**European Hard Materials Group (EuroHM)**
Dr Steven Moseley (Hilti) / Prof Luis Lanes (UPC)

**European Hot Isostatic Pressing Group (EuroHIP)**
Dr Susan Davies (Bodycote Hot Isostatic Pressing AB) / Jim Shipley (Quintus Technologies AB)

**European Additive Manufacturing Group (EuroAM):**
Claus Aumund-Kopp (Fraunhofer IFAM) / Adeline Riou (Erasteel)

**European Functional Materials Group (EuroFM):**
Peter Kjeldsteen (Sintex a/s) / Dr Sebastian Hein (Fraunhofer IFAM)

**Working Groups**

**Research Education and Training (RET)**
Prof José Torralba (University Carlos III of Madrid) / Dr Pierre Blanchard (Erasteel)

**EPMI (Academic Network)**
Prof Alberto Molinari (Trento University) / Prof Elena Gordo (University Carlos III of Madrid)
Vision 2025: What are our objectives?

• By 2025 PM is recognised as a resource-efficient industrial process
• PM is the preferred net shape metal forming process
• The European PM industry is recognised as the world leader in technology application and productivity leading to enhanced growth and profitability
• PM is seen as a source of constant innovation for European industry
Promoting and Developing PM Technology

- End User Seminars
- Spotlight on PM
- Design for PM e-learning Website
- Global PM Property Database
- Website and Guides for End Users
- Events
EPMA Website: epma.com

A range of information at your fingertips:

EPMA.com is one of the information sources for powder metallurgy information and related sectors on the internet today!

Over 80,000 people visit the website annually to find out more about what PM process and components can do for their applications. Information includes:

- Information about EPMA, Powder Metallurgy processes and case studies.
- EPMA Members Directory
- Online searchable database
- PM Case Studies ‘Spotlight on PM’ that showcase PM products and applications
- Information on the EPMA’s various Sectoral & Working groups
EPMA Microsites and Event Websites

- Euro PM2019 Congress & Exhibition Website - www.europm2019.com
- Summer School Microsite - www.epma.com/summerschool
- Seminar Microsites – www.epma.com/seminars
- PM Life – www.pmlifetraining.com
- Component Awards - www.epma.com/componentawards
- PM Database - www.pmdatabase.com
- E-learning - www.designforpm.net
Developing the Powder Metallurgy Future

Congress and Exhibition
- Euro PM Annual Event / World PM every 2 years: Europe, Asia, US
- Euro PM2019 Maastricht

Sectoral Groups

Working Groups

Education and Training
- Summer Schools
- Seminars
- Workshops
- Young Engineers Day
- PM Life

Technical work
- Benchmarking
- Statistics
- International Standards

Synergies
- Industry funded R&D programme
- EU Programme

Roadmapping
www.epma.com
**PM Life** is a lifelong training programme to help develop the future of Powder Metallurgy and help provide a comprehensive training course to those looking for a related career.

### 2019 Dates

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Powder and Hard Metal</td>
<td>3-7 June 2019</td>
<td>Chalmers University of Technology, Gothenburg, Sweden</td>
</tr>
<tr>
<td>Press and Sinter</td>
<td>17-21 June 2019</td>
<td>Grenoble, INP, Grenoble, France</td>
</tr>
<tr>
<td>Hot Isostatic Pressing</td>
<td>1-5 July 2019</td>
<td>The Manufacturing Technology Centre (MTC), Coventry, UK</td>
</tr>
<tr>
<td>Additive Manufacturing</td>
<td>26-30 August 2019</td>
<td>IFAM Dresden, Dresden, Germany</td>
</tr>
<tr>
<td>Metal Injection Moulding</td>
<td>9-13 September 2019</td>
<td>Universidad Carlos III de Madrid, Madrid, Spain</td>
</tr>
</tbody>
</table>

Registration NOW Open
2019 Promotional Events Schedule

Based on consultation and feedback from the ECOM Group, EPMA’s proposed 2019 Promotional Strategy included the following events, seminars and exhibitions:

EPMA Promotional Events 2019

- Advanced Engineering Sweden
- Develop 3D, UK
- AP&M Europe, Germany
- Automechanika, UK
- Titanium Europe, Austria
- Autonomous Vehicle, UK
- Advanced Engineering UK 2019, UK
- Formnext 2019, Germany
- Transmission Expo 2019, Germany

These 9 industry related exhibitions covering the main end user markets:

- Medical – Titanium Europe / Advanced Engineering UK
- Aerospace – Titanium Europe / AP&M Europe
- Consumer Goods – Develop3D Live
- Advanced Engineering Sectors – Automotive/Materials /Advanced Engineering UK
- AM orientated – Formnext 2019

www.epma.com
Seminars and Training 2019

Hot Isostatic Pressing Seminar | 11 - 12 February | Sint-Niklaas, Belgium

Functional Materials Seminar | 3 - 4 April | Bremen, Germany

AM Seminar Seminar | 13 – 15 May | Gothenburg, Sweden

PM Life – Powder and Hard Materials | 3 - 7 June | Gothenburg, Sweden

MIM Seminar | 4 – 5 June | Fischingen, Switzerland

PM Life – Press & Sinter | 17 – 21 June | Grenoble, France

PM Life - Hot Isostatic Pressing | 1 - 5 July | Coventry, UK

EPMA Powder Metallurgy Summer School 2017 | 15 - 19 July | Trento, Italy

PM Life - Additive Manufacturing | 26 - 30 August | Dresden, Germany

PM Life – Metal Injection Moulding | 9 – 13 September | Madrid, Spain

Press & Sinter Showcase | 3 – 4 December | Hary, France

www.epma.com/seminars
Euro PM2019 Congress & Exhibition: Ensuring the Cohesion of the PM Community

- The EPMA organise an annual Congress and Exhibition in Europe
- In 2019, EPMA will be organising the Euro PM2019 Congress and Exhibition: the place for the European PM supply chain to meet and discuss new and innovative industry trends
Euro PM2019 Congress & Exhibition

Highlights

• Congress with PM Specialist Plenary Speakers
• Three Day Exhibition featuring over 150 Exhibitors
• End User Days and Industry Tours
• Thesis Competition 2019
• Spotlight on PM Showcase
• Distinguished Service Award 2019
• Fellowship Award 2019
• Young Engineers Workshops
• Special Interest Seminars

www.europm2019.com
EPMA Sectoral Groups

- 6 sectoral groups
  - Euro Press&Sinter
  - Euro MIM
  - Euro HIP
  - Euro AM
  - Euro HM
  - Euro FM

- What do they do:
  - Sectoral group meetings during Euro PM
  - Statistical Surveys
  - Benchmarking Surveys
  - Trend surveys
  - Seminars

- Publications:
  - Brochures
  - Flyers
  - Yearly Statistics
Synergies Activities: EPMA Club Projects

Industry-defined Projects open to EPMA Members and Co-ordinated by the EPMA

- Budget: Between €10k and €100k
- Time frame: Between 6 and 18 months
- 19 Projects so far: www.epma.com/projects
- €650k collected in total

Club Projects Webpage:
www.epma.com/projects
EPMA Club Projects 2019

• Additive Manufacturing
  • Environmental Health and Safety Issues in Laser-based Powder Bed Fusion
  • Quality Test for Laser Beam Powder Bed Fusion

• Hard Metal
  • Micro-mechanical testing: a quantitative method for measuring local mechanical properties in hardmetals
  • Ultrasonic Fatigue Testing of Hardmetals in the gicacycle regime
  • Simulation of Fatigue Crack Growth in Hardmetal at a Mesoscopic Scale

• HIP & AM: Combination of Additive Manufacturing and HIP

• Press & Sinter
  • High Temperature Sintering
  • Design for Sintering – Improving the reliability of the design procedure accounting for anisotropic dimensional changes
EPMA Club Projects

The EPMA is active in many types of project either as a partner or as project manager. These projects are generally either "club" projects which are financed by and restricted to a small number of members or Government funded projects which tend to be larger and of longer duration.

In EPMA "Club" Projects a subject of importance to EPMA Members is identified (typically by an EPMA Committee); a specification is prepared and quotations are obtained from specialist organisations or experienced consultants; the most appropriate offer is then circulated to relevant EPMA members with an invitation to participate in a consortium. Providing sufficient members express commitment, a Consortium Agreement is normally drafted, agreed by the members, and the project commences.

Club Projects Webpage:  
www.epma.com/projects

<table>
<thead>
<tr>
<th>Topic</th>
<th>Sectoral Group</th>
<th>Contractors</th>
<th>Overall Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toughness of PM HIP Steel - Stage 2</td>
<td>EuroHIP</td>
<td>IWM RWTH, Aachen</td>
<td>€ 45,000</td>
</tr>
<tr>
<td>Anisotropy of Dimensional Change on Sintering of Uniaxially Cold Compacted Parts</td>
<td>EuroPress&amp;Sinter</td>
<td>Univ. Trento</td>
<td>€3390 per part</td>
</tr>
<tr>
<td>Correlation Study of Mechanical Properties/ Microstructure/ Fracture Behaviour of Industrial Parts and Standardized Tensile Specimens</td>
<td>EuroPress&amp;Sinter</td>
<td>IMDEA, Madrid</td>
<td>€ 40,000</td>
</tr>
<tr>
<td>Resistivity of Hardmetals – Part Two</td>
<td>EuroHM</td>
<td>NPL London, CEIT San Sebastian</td>
<td>€ 55,800</td>
</tr>
<tr>
<td>Quality test for Selective Laser Melting (SLM) Powder</td>
<td>EuroAM</td>
<td>Fraunhofer IFAM Bremen</td>
<td>€ 33,000</td>
</tr>
<tr>
<td>Simulation of Fatigue Crack Growth in Hardmetal at a Mesoscopic Scale: SIMU-CRACK Phase III</td>
<td>EuroHM</td>
<td>IWM RWTH, Aachen, CIFMA UPC Barcelona, NPL London</td>
<td>€ 71,678</td>
</tr>
<tr>
<td>Ultrasonic Fatigue Testing of Hardmetals in the gigacycle regime Project UFTH Stage 3</td>
<td>EuroHM</td>
<td>Tech. Univ. Vienna, CEIT San Sebastian</td>
<td>€ 25,800</td>
</tr>
<tr>
<td>Kinetics of Multiphase Materials: Atomic Mobility in the Liquid Phase, Simulations and Experiments</td>
<td>EuroHM</td>
<td>Innomat, the KTH Royal Institute of Technology</td>
<td>€ 50,500</td>
</tr>
<tr>
<td>AM&amp;HIP 18</td>
<td>EuroHIP</td>
<td>IWM RWTH, Aachen</td>
<td>€ 63,716</td>
</tr>
<tr>
<td>Analysis of Damage in PM Steel Components</td>
<td>EuroPress&amp;Sinter</td>
<td>IMDEA, Madrid</td>
<td>€ 60,000</td>
</tr>
</tbody>
</table>
Synergies Activities: EU Funded Projects

Dissemination / Exploitation support:

• DIRA-GREEN (2011 – 2015)
• EFFIPRO (2013 – 2017)
• AM-Motion (2016 – 2018)
• Supreme (2017 – 2020)
• SAM (2019 – 2021)

Support/Participation in Member Proposals

• Horizon 2020
• Marie Curie Initial Training Network
• EURAMET
• Knowledge Innovation Community (KIC)

www.epma.com/projects
EU Project – SUPREME

• SUPREME ("Sustainable and flexible powder metallurgy processes optimization by a holistic reduction of raw material resources and energy consumption") is an H2020 funded project started in September 2017

• Coordinator: CEA (France). 17 partners (8 countries), 11 companies (6 SMEs).

• Optimizing powder metallurgy processes throughout the supply chain.

• 5 applications sectors: automotive, aeronautics, cutting tools, moulding tools and medical

• Involves: powder production, AM, MIM, diamond tools, HIP

• Duration: 3 years (presently M19)

• Total budget: 7.6 M€ (946 person.months)

• EPMA involved in dissemination (ca. 250k€, 30.5 pm)
EU Project – SAM

- Sectors Skills Strategy in Additive Manufacturing (SAM) is an Erasmus+ funded project that was started in January 2019
- Coordinator: EWF (Portugal). 16 partners.
- The aim is to deliver a shared vision and collaborative skills solutions capable to foster and support the growth, the innovation and competitiveness of the AM sector.
- Tasks include: assessment of current and future skills in AM, revising professional profiles, “Raise the Awareness” Campaign for AM, dissemination.
- Total ca. 16500 person days
- EPMA involved in all tasks (incl. dissemination), about 1000 pd, coordinating WP7 (‘Awareness Campaign’ – 200 pd)
Representing: Involvement of the EPMA at European and International Levels

- Links at European and International Levels
- Inputs and Support for Members on Legislative Issues
- Work with External Bodies for the benefit of industry standardisation (e.g. ISO Standards)
- Represent the European PM Industry in environmental matters (e.g. REACH)
EPMA Lobbying Activities and Overview

The Lobbying Activities cover the Environmental Health & Safety, the Energy and Climate Change and the Research and Development areas at a European level.

The EPMA lobbying activities intend to fulfil the key mission(s) of the EPMA that are to Represent, Promote, Develop (and sometime Defend) the European PM Industry outside the PM community.

Therefore we have joined other Associations to rely on their Expertise and Network:

- **EPMA "Vision 2025 Future Developments for the European PM Industry" Roadmap**: Useful tool for external communication

- **Developing new Standards:**
  
The EPMA liaises between the ISO committee and the PM community.

www.epma.com
Summary and Conclusions

- European PM community: small but strong because united at a European level
- EPMA creates synergy by increases visibility of the PM process and its applications
- Efficiency due to the large involvement of the PM community in EPMA activities

PM has a great development potential as it is:

- Fast
- Lean
- Innovative
- Sustainable
- Cost-efficient

We need each of you to help all of us enforce the Future of PM!
Thank you for your time

Dr Lionel Aboussouan Executive Director
la@epma.com | www.epma.com | +33 (0)344 58 15 24