Annual Report 2020

A comprehensive report on EPMA’s activities throughout the year
EPMA Government and Management

EPMA Annual Report 2020

EPMA Government and Management

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Introduction from the President

Dear Members, PM Colleagues and Partners,

2020 has affected us all from both a business as well as social perspective. Our Association, members, colleagues and relatives have experienced something beyond our imagination. EPMA was able to run the last live event in March before borders in Europe started to close down. The HIP seminar in the beginning of March in Oslo was well attended. No one leaving the event after two days of intensive presentations and exchange of information could imagine that this was the last opportunity for face-to-face meetings during 2020.

Business life transformed tremendously during last year including both EPMA and the PM industry. Suddenly many of us had to start working from home sharing desks with the rest of the family, being locked out from offices or schools. Despite struggling with unstable internet connections, we showed high adaptation to the new situation, thinking it could be much worse and hoping would be back to normal soon. Now, close to a year after the last EPMA live event most of us are still at home longing for live meetings. But we have experienced that well arranged virtual events can be a relevant forum for the European PM community.

EPMA decided as late as possible to cancel the live event in Lisbon, trying to minimise financial losses for the association; the yearly PM conference is an important source of income for EPMA. The decision to arrange a virtual event came later after benchmarking of available software capable of handling an event with several parallel sessions was carried out. When the relevant software finally was confirmed only a couple of months remained for the EPMA organisation to prepare the event. Despite the time constraint EPMA managed to arrange a world class virtual event, that was very well received by the participants.

The EPMA organisation has been very creative during last year. Despite furlough limiting available time for handling of normal matters, successful well attended free webinars have been arranged during 2020 as a facilitation for the Powder Metallurgy community to be stay informed, as well as in contact.

The end-user market was severely influenced during 2020. Most segments important for our members showed seriously low activity quite soon after covid struck us. For instance the automotive and the aerospace industry were heavily hit during last year. However, automotive sales recovered dramatically during the second half of last year creating positive constraints for our members serving this sector. Aerospace on the other hand had showed very little recovery during last year and there is much debate about how many years it will take before business will be back on 2019 level.

EPMA finances are mainly dependent upon membership fees and income from the yearly conference & exhibition, but also activities like seminars arranged by our focus groups, club projects, training, EU financed external projects count.

The cost situation has been thoroughly reviewed during last year. Concentration of EPMA organisation to one location will enable reduced costs and improved work efficiency going forward. Extraordinary costs generated due to the closure of the UK office, will not affect EPMA during next year.

Despite measures taken, financial reserves have decreased during 2020. Most members have stayed with EPMA during last year and some new have joined the association recently. Despite a successful virtual event with 250 participants, it is not comparable with last years live events with 1000+ participant, in general paying a considerable higher fee.

I would like to end my review of last year by expressing my sincere appreciation for the EPMA organisation and their commitment during last year; the volunteers involved in the sectorial groups and the technical committee as well as session chairs contributing to a successful conference. Finally, I would like to thank all EPMA members for your continuous support of the association and hope that you and your colleagues will join the events that will be arranged during 2021.

Yours faithfully,

Ralf Carlström
EPMA President
2020 has been a very hectic year for all of us. Despite the range of challenges it faced, the EPMA kept its service to its members in terms of events, education and training, lobbying, fostering synergies and promotion of PM. Networking has been reduced, but the live Q&A sessions organised in the virtual events have still been a way to exchange views between participants.

The Euro PM2020 Virtual Congress was successfully held as a first ever large virtual congress. With over 250 attendees from all over the world. 40 technical sessions took place where 103 scientific and technological lectures were presented, and 38 posters were presented. 13 Special Interest Seminars also took place. This year again, thanks to the high participation of the AM community, the event ended up being the biggest technical event for AM in Europe. EPMA would like to thank its Members for their assistance, the members of the Steering Committee and also the members of the Technical Programme Committee who provided such useful support.

The sectoral groups and working groups EuroAM, EuroFM, EuroHM, EuroHIP, EuroMIM, EuroPress&Sinter and EHQS are a very important link towards EPMA Members fostering discussions and synergy in each sector according to their specific needs and development areas. The EPMA wishes to express its gratitude to all those Members who have participated in the virtual meetings, and especially to the steering committees and chairperson of all sectoral groups for their support in the preparation and chairing of the events, either during Euro PM2020 Congress or during any of the seminars.

To follow the trend of going virtual, each sectoral group organized some free webinars that were very well attended. EPMA members have access to the replay of any event, some being free of charge like the free webinars, some having reduced fees.

Among the EPMA trainings only the virtual Young Engineer’s Day could be organised and was well attended even from as far away as Brazil. The Summer School and the PM Life had to be cancelled but will come back in 2021.

EPMA’s club projects continued to be successful with sectoral groups undertaking work on industry specified short term research.

EU supported projects ran with the European projects SAM and SUPREME. SUPREME had its last meeting in 2020 and for 2021 only the SAM project is running.

EU specific legislation is continuously covered through EPMA membership with Eurometaux and other EU institutions by providing continuous support and information for members on REACH and other EU environmental legal specific legislations, such as Energy and Carbon Taxes, Brexit and Sustainability.

EPMA 2020 finances were strongly impacted as you will see in the financial report. Thanks to several drastic actions, to its cash reserve, to the governmental support and to some companies who did sponsor the events, EPMA managed to mitigate the impact of the crisis and will keep running in 2021. If you want to support your association and ensure it will keep working for our industry in the long-term, I can only recommend you join our events. Do not hesitate to advertise to your network about your association and all the work that is done for the PM community. Be an EPMA ambassador and help your association stay active.

You will find in the following pages more information on the different events which happened in 2020 and an overview of the forthcoming programme for 2021.

Finally, I would like to thank all EPMA Members for their continuous support!

Lionel Aboussouan, EPMA Executive Director
Government and Management

Structure of the EPMA

Authority of the General Assembly
Under the Statutes, authority is vested in the General Assembly of Members, which meets annually. The Council, directly or through its Executive Board, implements policies and decisions of the General Assembly and ensures effective operation between Assemblies.

General Assembly
Due to the exceptional international Covid crisis, the General Assembly initially planned in Brussels, Belgium as in previous years, had to change its format and was finally held online. Mr Aboussouan, Executive Director, and Mr Carlström, EPMA President, hosted this special General Assembly on April 2nd, 2020 to which 25 to 30 participants were connected throughout the day.

After the different reviews of activities from all Sectoral & Working groups, attendees could also follow the financial reports from EPMA’s newly elected Treasurer Mr Christoph Laumen, from Linde. In the afternoon, the General Assembly’s participants enjoyed the presentation of some very interesting topics from the following keynotes speakers; Mrs Adelaide Almeida, from EWF on SAM project, Mr Karsten Heuser, on AM industrialization at Siemens and Mr Thierry Baffie, from CEA-Liten on the SUPREME project. Mr Guy Thiran, from Eurometaux, and some of his co-workers concluded the day with some relevant update on the health crisis situation regarding the economic impact for the Metallurgy business, as well as some presentation on Brexit and Chemical Managements.

Although the 2020 General Assembly was a success both technically and regarding participation and quality of the speakers, the EPMA does hope to be able to meet its members in Brussels in the future in order to enjoy more networking, which was the missing aspect of the year’s meeting.
Council

The EPMA Statutes requires the Council to be composed of a maximum of twenty individuals with voting power and appointed by the General Assembly. Seats on Council are allocated as below.

Current Council Members for the 2019-2022 Period:

Representing the following sectors:

Additive Manufacturing
Mr Ralf Carlström (Höganäs AB, Sweden)

Applications
Dr Steven Moseley (Hilti AG, Liechtenstein)

Hard Materials/Refactory Metals
Dr Heinrich Kestler (Plansee SE, Austria)

Hot Isostatic Pressing
Mr Per Ingo (Carpenter Powder Products AB, Sweden)

Metal Injection Moulding
Mr Georg Breitenmoser (Parmaco Metal Injection Molding AG, Switzerland)

Metal Powders
Mr Shashi S Shukla (Höganäs Sweden AB, Sweden)

Plant & Equipment
Dipl-Ing Ingo Cremer (Cremer Thermoprozessanlagen GmbH, Germany)

PM Semi-Finished Products
Mr Philippe Gundermann (Eramet, France)

PM-Based Parts
Dr César Molins (AMES SA, Spain)

General Representatives:
Dr Sven Fleischmann (BASF AG, Germany)
Ms Adeline Riou (Erasteel, France)
Mr Guido Degen (GKN Sinter Metals, United Kingdom)
Mr Magnus Ekelund (Sandvik Coromant AB, Sweden)
Dr Ing Matteo Federici (Sacmi Imola SC, Italy)
Mr Peter Kjeldsteen (Sintex A/S, Denmark)
Ms Izabela Kulszewicz (Polmo Lomianki SA, Poland)
Mr Thomas Lambrecht (Dorst Technologies, Germany)
Mr Christoph Laumen (Linde Gases Division, Germany)
Dr Harald Neubert (Miba Sinter GmbH, Austria)
Mr Caro Sgarbossa (Pometon SpA, Italy)

Contact details for current Council Members can be found on the EPMA website.

Executive Board Members for the 2019-2022 Term

Seven current members of Council Executive Board:

President
Mr Ralf Carlström (Höganäs AB, Sweden)

Vice Presidents
Dipl-Ing Ingo Cremer (Cremer Thermoprozessanlagen GmbH, Germany)
Mr Guido Degen (GKN Sinter Metals, United Kingdom)
Mr Philippe Gundermann (Eramet, France)
Mr Thomas Lambrecht (Dorst Technologies, Germany)
Dr César Molins (AMES SA, Spain)
Dr Bernd Badurek (Miba Sinter GmbH, Austria)

Treasurer
Mr Christoph Laumen (Linde Gases Division, Germany)
EPMA Secretariat

Day-to-day management is in the hands of the Executive Director and his staff.

Lionel Aboussouan
Executive Director

Kenan Boz
Technical Manager

Andy Cormack
Marketing And Communication Manager

Sabine Hazoumé
Congress and Events Manager

Maéva Juillet-Gagneux
Events and Administration Assistant

Delphine Nicolas
Event & Project Co-ordinator

Romain Rayez
Graphic and web designer

Bruno Vicenzi
Technical Manager

EPMA New Organisation 2021

Andy Cormack
Membership & External Partnership Manager

Romain Rayez
Marketing and Communication Manager

Pierre Mignot
Marketing and Communication Assistant
**Outlook for 2021**

In 2021, EPMA looks forward to hosting a high number of events to help develop knowledge of PM to both members and potential users of our technology.

Most of the events will be virtual as it is difficult to know when travelling will return to normal. EPMA must plan all events well in advance and even if one could consider second half of 2021 to be the beginning of a “post COVID Era” the uncertainty is too great at the time the events are organised to take any risk.

**Euro PM2021 Virtual Congress & Exhibition**

The Euro PM2021 Congress & Exhibition will be a virtual event running over the full week to allow free time in the afternoon. Technical Sessions will be available to rewatch anytime for participants until the end of October, allowing them to virtually join the sessions they missed during the event. There will 177 technical papers presented in 52 sessions, 38 posters and 11 SIS. All first ever virtual exhibition will take place and be broadly open, not only to the participants but also to the external world. As in 2020 sponsors are helping EPMA to run this virtual event, and will receive excellent exposure for their brand in return.

More details will be released via the Euro PM2021 Congress & Exhibition website: europm2021.com. Join us for the last virtual event before the in-person World PM 2022.

**EPMA Seminars**

There will be 4 EPMA seminars in 2021: starting in February with HIP on “Powder Net Shaping in Comparison to Casting and Forging”, AM in May on “Smart Parts and Digital Innovations in AM”, Functional Materials in June on “Functional Materials for Energy”, and finally MIM in October on “Success stories and continuous improvement in MIM”. Further information, dates and online bookings can be found on [www.epma.com/seminars](http://www.epma.com/seminars).

**EPMA Training and Education**

The 20th Annual EPMA Summer School has to be canceled again as the sanitary situation is not clear enough at the time we have to book hotels and rooms. It will be again in Spain in 2022. Further information and dates can be found on [www.epma.com/summerschool](http://www.epma.com/summerschool).

The lifelong learning program PM Life has been fully reorganised. This training is now fully sponsored by EPMA. In a way of reducing the fees for participants and the time spent abroad the program is split into virtual sessions and laboratory work. These courses are a great opportunity for individuals to learn, but also for companies to send their staff to be trained on specific PM processes to deepen their knowledge. More information and registration forms can be found here: [www.pmlifetraining.com](http://www.pmlifetraining.com).

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**Consultancy activity**

The two EPMA technical Managers can dedicate some times to follow specific technical activities for the benefit of the members. Those activities will be charged. Do not hesitate to contact us for further information.
Representing the European PM Industry

EPMA Membership 2020

Working Groups
Sectoral Groups

EPMA Membership 2020

Membership Subscription Rates
It was agreed at the Council meeting that the decision from the 2016 Council Meeting will be held and the membership fees for 2020 will increase by 5% (except for individuals and students). This reflects the additional activities at EPMA with an increase at a lower rate than inflation.

Large companies with more than three subsidiaries willing to simplify the way they pay membership can contact us.

Contact us at: membership@epma.com

EPMA Corporate Members 2020

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<tr>
<th>Type</th>
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<tr>
<td>Associate Members</td>
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<tr>
<td>Individual Members</td>
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<tr>
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New members in 2020

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</tr>
<tr>
<td>Individual</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
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</tbody>
</table>

Countries Represented 8

EPMA Membership by Type 2020

EPMA Membership by Sector 2020

EPMA Membership by Country 2020 (Corporate Members only)
EPMA Membership 2020

New Members in 2020
EPMA was pleased to welcome the following companies into membership during the year:

Full Members

ICD
Nöp
incus
W

VALE
Fluidtherm Technology

Individual Members

Francisco Castro
Ljerka Slokar Benic
Representing the European PM Industry

EPMA Membership 2020

Working Groups

Sectoral Groups

Working Groups

Environment, Health, Quality & Safety (EHQS)

EPMA has combined all its activities in Environment, Health, Quality and Safety in the working Group of EHQS in 2019 for monitoring European legislation and informing members, providing manuals and other reference data for both internal and external use, carrying out collaborative technical projects and maintaining liaison with trade associations and other relevant bodies.

There are three subgroups in EHQS. These are ISO (Standardization and related topics), Chemical Management (Regulations and Legislative issues such as REACH, etc.) and LCA (Life Cycle Analysis Assessment of Environmental Impacts).

ISO & Standardization

EPMA participated in TC1 19/SC5 meeting organized as online on 2nd September 2020. The Secretariat (Francisco Luis Arribas Martin) made a presentation of the current work programme for two headings:


• ISO 5755: 2012, Sintered metal materials — Specifications

It is decided to propose a new working item for a revision in ISO 5755, where the experts of the sub-committee have already been working on:

1. Inclusion of an annex of metallography of sintered materials.

2. Inclusion of an annex of properties of sintered materials with surface hardening treatments.

3. Inclusion of a table of equivalences of the materials of the standard with the materials of other international standards of habitual use

EHQS working group has participated in development of several projects and working items in TC261 (Technical committee of Additive Manufacturing) and submitted its comments with respect to the feedbacks from members. These items are:

• ISO/ASTM NP 52908 : New project on Additive manufacturing of metals — Post-processing methods — Quality assurance and post processing of powder bed fusion of metallic parts.


A meeting will be organized in April within the ISO subgroup of EHQS working group to evaluate the impacts of the comments from EPMA to the related Technical Committees of ISO.

Chemical Management

Chemicals Management subgroup has been following new regulations and legislative issues mainly announced by ECHA, through its partner association Eurometaux. The topics followed in 2020 are:

• REACH 2.0 – the revision of EU chemicals strategy for sustainability (CSS)

• Cobalt oral carcinogenicity studies and testing proposal

• EU BOELVs (Binding Occupational Exposure Limit Value) for Nickel compounds

• New Guidelines related to manufacture of nano-materials concerning the aquatic and sediment toxicity testing.

• Changing Limit-Values for Lead(Pb) Exposure

• IED (Industrial Emissions Directive) Revisions of EU with respect to Green Deal and the Zero Pollution Action Plan

Regular flow of information on these topics is being done through EHQS bi-monthly newsletter, together with other issues on ISO and LCA subgroups.

Life Cycle Analysis

The sustainability subgroup of EHQS is mainly working in the attempt of activating the LCA-LAPS Club Project: the requests from PM customers are becoming more and more stringent, so that European PM producers are being asked to deliver actual environmental impact data together with technical and price information. For further details, please refer to the section on Club Projects.

In addition to that, and in liaison with the EuroFM group that is the natural home for these topics, the sustainability subgroup started a monitoring activity of a new initiative, the European Raw Materials Alliance (ERMA). Launched in October 2020 and led by the EIT Raw Materials, it will be following the steps of the similar one on batteries that proved successful in last years. Many raw materials will be critical in the transition process that will lead to the European Green Deal goals. For instance, more than 90% of the Rare Earth materials used in hard magnets like Nd-Fe-B or Sm-Co (applied in electrical motors, batteries, renewable energy plants like windmills, hydrogen, etc.) are coming from China and anyway 100% of them are not coming from Europe. Cobalt, nickel, lithium, graphite, and vanadium are of high concern as well. Europe is trying to secure their supply chain. Mining and recycling (very much impacting sustainability) are the steps where a strong improvement in Europe is needed. ERMA will foster the creation of sustainable innovation and infrastructures, implement circular economy, support EU capabilities in extraction, design, manufacturing and recycling, and foster innovation, production, and strategic investments.

The first “cluster” launched in last December is “RE Magnets and Motors”, an important sector with hundreds of critical applications, the driving force nowadays being regulations that have forced innovation and in particular introduction of better motors by using advanced materials, containing for instance RE in magnets. A second cluster, “Materials for Energy Storage and Conversion”, that will be also concerning powder metallurgy Functional Materials, was launched in early 2021.

European Powder Metallurgy Institute (EPMI)

The European Powder Metallurgy Institutes Working Group, led by Prof. Alberto Molinari (University of Trento) and Prof. Elena Gordo (University Carlos III Madrid) had one physical meeting in 2020, together with the Technical Programme Committee meeting of EuroPM2020 in Lisbon in February, and several other virtual meetings. The most important work done was the reorganisation of the strands for the EuroPM congress, that has been used for the EPMI members at the end of 2020, first time in the Call for Abstract for Euro PM2021. Furthermore, the group endorsed the organisation of the Summer School and of the 2020 edition of PM Life trainings, that had all to be cancelled unfortunately and collaborated to plan the new PM Life Technology Courses for 2021. The work will continue in 2021 and after to reorganise the EPMA training framework with a strategic approach, including a refresh of an older tool, the Design for PM remote learning website.
Representing the European PM Industry

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Sectoral Groups

**EUROAM**

**Chairs:** Dipl.-Ing Claus Aumund-Kopp (Fraunhofer IFAM)  
Mrs Adeline Riou (Aubert&Duval)

The EuroAM sectoral group started the year 2020 with the collection of data on the statistics, trends, and benchmarking in AM. The results achieved were not as optimistic as Wohlers data, where later on the EPMA results came out to be more accurate. The AM seminar planned for 2020 initially in Augsburg-Germany in May has first been postponed to December, and then decided to be organized online. Thanks to majority of the speakers who accepted to participate in the online seminar, despite a few cancellations. The topics of the online seminar was: “EHS in powder based Additive Manufacturing, Multi-Material Additive Manufacturing, Process Chain and Standardisation”. EPMA had a successful online AM Seminar for the first time on 2-3 December 2020. More than 20 speakers presented outstanding technological developments and latest achievements of the AM Industry mainly on two topics: EHS in AM and Multi-materials in AM. The event was co-hosted by Fraunhofer-IGCV.

Two SIS seminars were organized by EuroAM during the EuroPM2020 virtual congress. Six speakers within two sessions have given presentation on the topics of ‘Metal based multi-material AM - more degrees of freedom’ and ‘AM connecting to Industry 4.0 and other digitalisation approaches’.

**EUROFM**

**Chairs:** Dr Sebastian Hein (Fraunhofer IFAM)  
Mr Peter Kjeldsteen (Sintex a/s)

The activity in the EuroFM had an unwanted stop with the postponement of the seminar “Applications of Powder Based Functional Materials” originally organised for March 24-25 in CEIT-IK4 (San Sebastián, Spain). The COVID-19 pandemic and the associated bans left no other choice than finding a new date later in the year. With the help of the friends at CEIT-IK4 a new opportunity had been booked, so the seminar was rescheduled on November 17-18 with the same location. More recently, EPMA, the EuroFM Steering Committee and the seminar host convened that the present conditions still do not allow to run an in-person event safely in November: to give the speakers and the expected participants the chance to have the event programmed, the decision was thus to transform the seminar into an online event. Hosted on the LiveWebinar platform, the seminar covered a large range of applications, with 12 speakers and a total of 23 participants. Even with the virtual format, with the experience of the virtual congress, the seminar worked smoothly; the technical contents were correctly delivered without issues, and even Q&A could be satisfactory for the participants. Most of the presentations are accessible again for the participants on the EPMA website: additionally, it is still possible to buy access to them on the EPMA seminar website.

The missed appointment with the seminar in the first part of the year was an occasion to start working on the writing of the foreseen “Introduction to Functional Materials” booklet, as many of the involved people were supposed to meet in San Sebastián. The booklet will be ready in next weeks, and we hope that it will be a useful promotion tool to distribute to end-users and to raise the awareness about the capabilities of powder metallurgy in the field of Functional Materials.

The group also organised two Special Interest Seminars in Euro PM 2020: “Functional Materials for HighTemperature Applications” and “Electrical Functional Materials”; in addition, one of the SIS organised by the EuroMIM group was devoted to “PIM of Functional Materials”.

Another important date for the FM group was the 29th October, when the free webinar on Functional Materials took place, attended by more than 80 participants, and dedicated to the topic of Soft Magnetic Composites”. It included three presentations: a short introduction on the activities of EPMA for the FM sector by Bruno Vicenzi, a talk by Stefan Tiller of GKN Sinter Metals Engineering GmbH on “Special motor applications based on SMCs”, and one from Flemming Buus Bendixen of Sintex a/s on “Linearizing loudspeakers using SMCs”. The talks were focusing on examples of use of Soft Magnetic Composites in applications that are not only the usual automotive ones, and worked as a starter for a discussion on the creation of a specific stable discussion group within EuroFM to promote these materials, the SMC Forum. Unfortunately, its start is now on hold due to the persisting travel limitations as it is imagined needing an in-person format.

Finally, the Sectoral Group meeting, that did not happen in the virtual Euro PM2020 congress, was organised on Microsoft Teams, as a meeting restricted to EPMA members (16 attendees). After the usual introduction from the relevant EPMA Technical Manager, there were some presentations: B. Grieb of Magequench reported on the new European Raw Materials Alliance (ERMA), that will follow a strong effort in the next years (probably supported by significant money for R&D by the EU) to establish a European alternative to the present China-dominated raw materials market. Then, a further discussion on the SMC Forum and one on the process of production of the “Introduction to Functional Materials” booklet, that will hopefully be ready for download in the next weeks and later available in a printed version, completed the agenda.

The group also scheduled the next event in 2021: the seminar on “Functional Materials for Energy” will take place on 1-2 June 2021 again as an online event, due to the still uncertain situation, with the collaboration of the original host,
CEIT of San Sebastián (Spain). The technical programme is organised and registration starts in March 2021.

The group will also organise 2 Special Interest Seminars for Euro PM2021: the topics are “Functional Materials for Thermal Management” and “Advances and Challenges in Hard Magnets”. Speakers will be announced later.

Chairs: Dr Steve Moseley (Hilti AG)
Prof Luis Llanes (UPC)

Hard Materials Sectoral Group has organized a webinar that has been registered by more than 250 participants. In parallel to webinar series of EPMA during 2020, the main intention was to raise awareness about EPMA and its Sectoral Groups. The session opened with an introductory presentation from Kenan Boz about EPMA and its activities in Hard Materials. The second presentation was given by DrJose García from Sandvik Coromant on microstructure of Cemented Carbides, and the last presentation was given by Dr. Steven Moseley from Hilti, on applications of Hard Materials.

The postponed event of Summerer from 2020 has been planned to be held on 8-9 June 2021 in Aachen in cooperation with RWTH Aachen University. This will be a meeting of experts in Hard Materials community to discuss the topic of “Binder phases in Composite Hard Materials”.

Trends survey and data collection was quite successful for HIP community that has been performed in February, regarding the year of 2019. The results were shared with EPMA members and participants of the survey and has been presented during the General assembly of EPMA, conducted online this year in April.

A Special Interest Seminar (SIS) was organized by EuroHIP group during EuroPM 2020 Virtual Congress. The title of the SIS was The opportunities of HIP in Powder Metallurgy and in Additive Manufacturing. Eric Wysick from AMPower, Tomas Berglund from MTC Powder Solutions and Gary Jones from Rolls Royce have given interesting presentations during the seminar.

Chairs: Mr Georg Breitenmoser (Parmaco Metal Injection Moulding AG)
Prof Dr Frank Petzoldt (Fraunhofer IFAM)

During the first months of 2020 EPMA conducted the usual data collection on the statistics, trends, and benchmarking, including the MIM sector. The collection was numerically satisfactory, with a significant increase in coverage of the European market that is adding reliability to the results. These have been distributed to the participants and some summary data have been shown during the General Assembly held online on April 2. The data showed a growth of about 3.5% from 2018 to 2019, a reduced rate compared to previous years, and also the evaluation of the state of business and its trend for 2020 indicated a degradation of the market. This was before the big COVID-19 wave started, so the forecast was still based on pre-COVID-19 conditions. After an initial presentation at the EPMA Virtual General Assembly on 1st April, a more detailed presentation was given during the EuroMIM sectoral group meeting that was held on 23rd October as an online meeting. This event was normally included in the yearly congress, but the virtual EuroPM2020 programme density advised to run it separately, profiting of the online accessibility. The meeting, restricted to EPMA members, hosted presentations on the status of the industry, on the activity of the group, and on a possible Club Project, AddiMold.

A successful free MIM webinar was held on 28th August. Hosted on Microsoft Teams, the webinar was an introductory presentation of Metal Injection Moulding, with the two EuroMIM chairs Frank Petzoldt (IFAM Bremen) and Georg Breitenmoser (Parmaco) addressing the fundamentals of MIM and some MIM case studies, respectively, while Bruno Vicenzi summarised some of the MIM-related activities within EPMA.

The event had an audience of more than a hundred attendees from all over the world, many of the participants not even being EPMA members.

The group organised two Special Interest Seminars in Euro PM 2020: “PIM of Functional Materials” and “Enabling Technologies for MIM”.

In 2020 EuroMIM did not organise standalone seminars, but an event is under preparation for 2021, a Workshop in Lollburg, Germany (27-28 October 2021) titled “Success stories and continuous improvement in MIM”. Lecturers coming...
from some of the leading MIM companies in Europe will give an introduction by showing case studies of successful improvements in their parts, then the participants will be taking part in interactive sessions, being divided into groups, etcetera. For this reason, the event would hardly work as a virtual one, and as EPMA and the host Arburg were monitoring the situation of travel limitations the workshop was moved to a later date in the year (it was 1-2 June originally), rather than changing the format to virtual.

Furthermore, the MIM group discussed the content of the Special Interest Seminars for Euro PM2021: there will be one session whose topic is “Sustainability of Metal Injection Moulding”, further information will be given later.

Data collection on MIM business in 2020 is being undertaken right now and will be available at the next EPMA General Assembly. With the pandemic effect to evaluate, these data are particularly important and awaited, and maximum collaboration from all MIM producers with sales in Europe is warmly requested.

**Representing the European PM Industry**

**EPMA Membership 2020**

**Working Groups**

**Sectoral Groups**

**Chairs: Dr Cesar Molins (AMES)**

**Mrs Caroline Larsson (Höganäs AB)**

The first event of the year for EPMA was the Press&Sinter Showcase “The benefit of using Powder Metallurgy in the automotive sector”, held on 15 January 2020 (A2MAC1-Hary, France). For details, read the specific chapter in this newsletter.

EPMA’s usual data collection on the statistics, trends, and benchmarking included of course also the Press&Sinter sector. In 2020, maybe also because of the large drop in market experienced in 2019, the collection was numerically not satisfactory, with a significant decrease of the number of participants, although the coverage of the European market still stays at around 50%. The results have been distributed to the participants and some summary data have been shown during the General Assembly held online on April 2. The data showed a drop of about 10.7% from 2018 to 2019 (with higher drop in the ferrous P&S) and also the evaluation of the state of business and its trend for 2020 indicated a low trust in the market. This was before the big COVID-19 wave started, so the forecast was based on pre-COVID-19 conditions. After some data was disclosed at the EPMA Virtual General Assembly on 1st April, a detailed presentation was given during the EuroPress&Sinter sectoral group meeting that was held on 4th November as an online meeting. This event was normally included in the yearly congress, but the virtual EuroPM2020 programme density advised to run it separately, profiting of the online accessibility. 23 participants, all EPMA members, went through the agenda, including a review of EPMA activities, presentations about the running Club Projects HTS2 and DS2 from A. Molinari and I. Cristofolini, respectively, and on the standing Club Project proposals, LCA-LAPS (presented by V. Arnhold and dealing with measuring sustainability of press & sinter of low alloy water atomised steel) and MoSC (presented by D. Bouvard and concerning modelling of springback after compaction). Please refer to the Club Project news in this newsletter for details.

Even if due to a low number of participants the Press&Sinter benchmarking survey had to be relaunched after the first deadline, it has been completed, and distributed to the participating companies. If you are from a parts maker, please make sure that your company enters the exercise in 2021, concerning the properties of P&S parts, and A. Steiner of GKN Sinter Metals showed design guidelines and case studies of real parts. The audience was impressive, with more than 110 attendees. Many of them were not EPMA members and the programme was appreciated, demonstrating that these initiatives can be a good way to increase the awareness on powder metallurgy.

The COVID-19 travel limitations forced EPMA to move also the Press&Sinter seminar “Opportunities for PM due to Electrification” that had been organised in Brussels on April 1. The seminar has in a first instance been rescheduled for 8th December in Chantilly, at the EPMA French office, but as the COVID-19 travel limitations still hold at the moment, EPMA decided first to transform it into a hybrid event, with the possibility to join in person and to join online, but it finally had to be carried out only online on 8th December. The programme included speeches from F. Schlehuber from CLEPA on the Electrification scenario, F. Langer from Fraunhofer IFAM on solid state battery development, of S. Tiller of GKN Sinter Metals on PM electromagnetic applications, and of F. Cazenave of Bosch France on the automobile of the future. The attendance was not huge (18 in total) and the limited programme just came short on the objective of showing the opportunities; nevertheless, the speakers gave a clear view of the trend towards electrification and some examples of PM materials that will have increasing application in the next years. The topic will probably require to be analysed again in future events.
Seminars for Euro PM2021: there will be one session whose topic is “Sustainability of Metal Injection Moulding”, further information will be given later.

Data collection on MIM business in 2020 is being undertaken right now and will be available at the next EPMA General Assembly. With the pandemic effect to evaluate, these data are particularly important and awaited, and maximum collaboration from all MIM producers with sales in Europe is warmly requested.
Developing the Powder Metallurgy Future

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PM Life

PM Life, the framework of professional training courses that EPMA organised at a few hosting sites in Europe in the last years, is having a fresh start in 2021. With the end of the funded project, the approach and the structure of the courses has been adapted, and hopefully will appear more attractive than before. The New PM Life Technology Courses will still be divided in courses specific to a group of key technologies, but in addition they will be further split in “Fundamentals” parts, that will be delivered online over 2-3 days, and “Practice” parts, still delivered on-site in order to maintain the useful “hands on” experience and the networking but shortened to 2-3 days as well. Other changes have been introduced in the topics, offering again some that were missing in the past or delivered in combination with other topics. In the following table you can find the new courses, with the defined dates. For reasons linked to the persisting COVID-related uncertainties, all onsite activities will happen starting from end of the summer.

A certain care has been taken to maintain the fees accessible even without the previous support from a co-funding project, and although in some cases it was not possible to keep them lower than in previous editions, the quality to cost ratio of this training tool is absolutely high.

All details on the new courses and the relevant fees will be available on the website, please check www.pmlifetraining.com.

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Young Engineers Day

Normally hosted in the physical EuroPM congress, the Young Engineers Day had to go virtual on 4th September 2020. About 35 Young Engineers (some of them even connected in a night effort from Brasil) followed four volunteer speakers, namely Prof Marco Actis Grande of Politecnico di Torino, Luke Harris from Sandvik Osprey, Dr José Manuel Torralba of Universidad Carlos II of Madrid and IMDEA Materials, and Dr Steven Moseley of Hilti AG, in a series of introductory presentations covering all aspects of powder metallurgy.

As a fresh new side activity, a (not very serious) quiz was presented to students after each presentation, and a winner was announced at the end. The feedback from trainees was positive and the experience will be repeated in 2021, possibly with more interactive moments.
Club Projects

The EPMA continues to coordinate several Club Projects in order to improve the synergy of the PM community. Since 2009, over €800,000 were collected for pre-competitive PM R&D activities. More detailed information on all EPMA Club Projects is available at www.epma.com/projects

Here are the Club projects launched or finalised per Sectoral Groups:

AM & HIP

Due to Covid-19 measures, the final meeting of AM&HIP project has been conducted online on 27 October. Siyuan Qin from Aachen University made a presentation as the contractor. He reviewed results of IN718 in production of specimens by LPBF, post densification by HIP, heat treatment and characterization of density and microstructure. He also presented the new results regarding of fatigue tests. Additionally, he showed the results of ASP2023 and summarized the work out of this project. At the end, these results have been discussed by the project partners. It is concluded by the project consortium that open questions to be answered and new research ideas will be included in the second stage of this project.

MicroMech II

The final meeting of the project “Micro-mechanical testing: A quantitative method for measuring local mechanical properties in Hard Materials”, shortly Micromech Stage II, was held online on 16th of December, due to Covid-19 measures. The contractors of the project were: CEIT Research Center and UPC-Technical University of Catalunya from Spain, and NPL from United Kingdom. Some new ideas for possible next steps in the project has also been presented. These are revisiting all tests to work on repeatability, the effect of microsample geometry, effect of Carbon content on interfacial properties, Cobalt ligaments behaviour, coatings behaviour, and coating/substrate interface.

AddiHM

A New club project on additive manufacturing of hardmetals by non-laser processes has been proposed by the EuroHM Sectoral Group. The aim of this project is to establish a comparison/benchmarking of three AM processes for the production of homogeneous WC-12Co hardmetal blanks. Three contractors will be working on the project to assess the three AM processes as: Fused Filament Fabrication (by Fraunhofer-IKTS), Metal Binder Jetting (by Tecnalia) and Direct Ink Writing (by KU Leuven). The project duration will be 12 months. Consortium is still open to industrial partners for joining until the end of February. For more details, please contact Kenan Boz from EPMA.

Design for Sintering 2 (DfS2)

The Design for Sintering 2 project is a 3-years project, concerning anisotropy of shrinkage in Press&Sinter; that started in March 2019 and is currently under way. Like for other projects, also this consortium encountered problems with the Coronavirus lockdown blocking the activity, so a conference call was held in September 2020 to update the schedule for the next months, as the deadline of month 18 could not be achieved in time. The partners agreed on a rescheduling of the activities, and in March 2021 the measurement and characterization of green and sintered parts should be completed: an abstract has been submitted for Euro PM2021’s Call for Abstracts. The contractor University of Trento will be ready to communicate the mid project results to partners in a specific online meeting in spring 2021. The rescheduling should lead to a recovery of most if not all of the delay in the project in order to finalise the activity close to the original date of March 2022.

SimuCRACK IV

The project on Simulation of Fatigue Crack Growth in Hardmetal at a Mesoscopic Scale, shortly SimuCRACK, had its interim meeting on 10th December 2020 as online due to extended pandemic measures. The three contractors of the project (IWM-Aachen University, UPC-Technical University of Catalonia, NPL-National Physics Lab) presented their progress up to this time, within the fourth stage of the project. The first stage of the project was conducted between 2011-2013. The final meeting of the project will be held in June 2021 in Aachen. In case the pandemic measures do not allow, the final meeting of the project will be held online.
Developing the Powder Metallurgy Future

Education & Training Projects
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Developing the Powder Metallurgy Future

The expected duration is 12 months, the budget is 32k€ and at least 4 industrial funding partners are required.

All interested parties can contact Bruno Vicenzi (bv@epma.com), Didier Bouvard (didier.bouvard@grenoble-inp.fr) or Alberto Molinari (alberto.molinari@unitn.it).

LCA-LAPS

Using the expertise of one of the leaders in LCA software, Sphera Solutions GmbH (formerly Thinkstep), and concentrating on one of the main materials used in Press&Sinter, The Life Cycle Assessment of Low Alloy PM Steels, or LCA-LAPS, is a new Club Project on sustainability that EPMA is trying to launch since early 2020. The project will allow EPMA to assess quantitatively the sustainability of the PM route, and will give participating companies confidential reports that will be very useful tools to assess their sustainability to customers and to compare the environmental performance of their different sites.

There was a first deadline of 15 May 2020, where we asked all interested EPMA Full Members, that are producing low alloy water atomised steel powders or pressed and sintered parts with those materials, to send an E-Mail to EPMA to state their expression of interest, including the number of sites they wanted to include in the project (the significance of results will certainly increase, and the cost per site will be decreasing with the actual total number of sites involved). Unfortunately, the uncertainties linked to the COVID-19 pandemics hindered the reaction from most of the companies, and it was clear that running the project in 2020, with almost no chance of getting to a data collection with some meaning because of the reduced activity, was close to its conclusion. The University of Trento is ready to deliver the results and a paper has been submitted to the Euro PM2021 Technical Programme. The final meeting could be organised in spring, so the total duration of the project had to be extended of more than 6 months on top of the 12 already allocated.

AddiMold

A new project proposal was presented in the last Open Meeting of EuroMIM: AddiMold. The idea is to to use AddiFab 3D printing machines to produce low-cost single use resin mould, out of a dissolvable UV-hardening liquid acrylic resin, that can be used to inject MIM prototype parts. The moulds are then dissolved and MIM parts can be sintered, obtaining AM-like freedom of shapes, and anyway using MIM technology so that the prototypes are more representative of the quality of the production parts if finally produced by MIM in large numbers. The project could include a basic evaluation (what features and on what material, e.g. Catamold316L), the development of the model geometry with other materials, the demonstration on technical parts. It could also develop guidelines, based on the “learned lessons”, and assess opportunities and challenges based on experimental and analytical results.

For more details you can consult the EPMA website relevant page, contact our relevant Technical Manager (Bruno Vicenzi, bv@epma.com), or Sebastian Hein of Fraunhofer IFAM (sebastian.boris.hein@ifam.fraunhofer.de), or Axel Müller-Kohn of Fraunhofer IKTS (axelmueller-koehn@ikts.fraunhofer.de).

MoSC

A project named “Modelling of Springback after Cold die compaction – MoSC”, that would include INP Grenoble and University of Trento as contractors and possibly involve Press&Sinter and Hard Materials companies was recently presented at the EuroPress&Sinter Open Meeting on 4th November 2020. It is devoted to study the changes to parts during the ejection phase, starting from simple shapes as a first step. Target materials would be one iron based and one WC-Co based (to be decided, depending on the composition of the consortium). After a literature survey, the geometry of the parts to study will be defined, then compaction tests will be carried out, measuring axial and transversal springbacks (considering and measuring also the press stiffness). Finally, a model will be developed, based both on elemental models and on numerical simulation, that will have to be validated with the data, to derive validated constitutive equations for the two materials, checking their actual predictivity. Thus, the result should be a validated model that will constitute a predictive tool for the springback.

The expected duration is 12 months, the budget is 32k€ and at least 4 industrial funding partners are required.

All interested parties can contact Bruno Vicenzi (bv@epma.com), Didier Bouvard (didier.bouvard@grenoble-inp.fr) or Alberto Molinari (alberto.molinari@unitn.it).
not a good choice anymore. So, it was decided to postpone the effort to 2021 when, hopefully, the capacity utilisation in Press&Sinter plants might be much closer to ideal, so a new deadline will be communicated later (nevertheless, using historical data is also an option).

A presentation on the LCA approach has also been given by J. Gediga of Sphera and V. Arnhold of PM Solution during a Special Interest Seminar in our virtual Euro PM2020 congress, where the chance to join the project was reminded to the participants.

With 2021, the Life Cycle Assessment of Low Alloy PM Steels, or LCA-LAPS, the new Club Project on sustainability that EPMA launched in early 2020, is thus now due to start. The driving force for the project is now even stronger, with pressure from stakeholders towards a clear commitment of powder metallurgy, among all competing fabrication routes, to be transparently working in an increasingly “greener” way. Due to the persistent COVID conditions, it is possible that the data collection will be using data from 2019, in order to avoid detrimental effect caused by the lower production capacity used at the moment. The duration foreseen is 12 months.

All interested EPMA Full Members, that are producing low alloy water atomised steel powders or pressed and sintered parts with those materials, are to send an E-Mail to EPMA to state their expression of interest, including the number of sites they want to include in the project. For more details you can consult the EPMA website relevant page, contact our relevant Technical Manager (Bruno Vicenzi, bv@epma.com), or Volker Arnhold (volker@arnhold-pm.de).
Developing the Powder Metallurgy Future

EU Funded Projects

SUPREME

The SUPREME project, that was completed in December 2020 after 40 months of work, is now in the reporting phase. The final effort of the consortium led to an impressive number of achievements in the optimisation of several PM processes, starting from powder production and development of new powders (for AM and MIM), up to the AM, MIM and HIP processes and to the performance of parts for several sectors (automotive, medical, cutting tools, aeronautics, moulding tools), both in terms of technical properties and of efficient use of resources and energy, and emissions reduction. 16 partners were involved, under the coordination of CEA-Liten (France). The end date was originally August 2020 and the technical work was moving towards the final results, but the pandemic stopped most of the members activities in early 2020. The consortium requested an extension, that the EU quickly accepted, so that the end date was moved to end December 2020. All consortium meetings planned actually became remote meetings, where EPMA participated as leader of Work Package 7, Dissemination and Exploitation. Plans for dissemination in 2020 initially included many external events that have unfortunately been cancelled because of the COVID-19 pandemic, so most of the dissemination happened on magazines and online, especially on LinkedIn.

A good effort from the Consortium led to many papers being accepted and presented during Euro PM2020, 7 as an oral and 1 as a poster:

- Oral: Hot Isostatic Pressing of Inconel 625: Effect of Powder Production Type on Microstructure and Mechanical Properties, R.H.U. Khan, A. Sergi, M.M. Attallah (TWI, NSIRC, IRC)
- Oral: Study on processing nickel alloy Hastelloy C-22 by additive manufacturing technique Plasma Metal Deposition, E. Ariza Galvan, I. Montelearg-Meléndez, E. Pérez-Soriaño, C. Ariávalo, M. Bielik, J. Meuthen E. Neubauer, M. Kitzmantel (RHP, UNI Sevilla)
- Oral: Concept for mass production of automotive parts using Plasma Metal Deposition, M. Bielik, E. Ariza, J. Meuthen, M. Kitzmantel, E. Neubauer, E. Morgano, S. Plato (RHP, CRF)
- Poster: Recyclability of MIM feedstock using 174PH powders produced by Gas or Water atomization, D. Vincent, R. Lacourcnet, T. Baffie (Université Grenoble Alpes – CEA-LITEN)
- Oral: A step towards a robust binder jetting technology; process parameter optimization for 17-4PH steel to increase powder bed homogeneity, N. Azurmendi, A. Lores, C. Guraya, I. Agote and U. Andrés (Tecnalia, Mintech Alfa)
- Oral: Impact of powders reuse in L-PBF processes on the powder characteristics and samples mechanical properties, G. Gaillard, K. Courtois, L. Suárez Ríos, G. Sanchez Parrondo, T. Baffie (Université Grenoble Alpes – CEA-LITEN, WeAre Additive, Idonial)
- Oral: Environmental analysis of the powder metallurgy value chain: a comparison with conventional manufacturing, E. Cor, T. Baffie, E. Monnier (Université Grenoble Alpes – CEA-LITEN)
- Oral: Development of powder injection moulding process of cobalt free diamond composite for cutting tool applications, I. Agote, C. Guraya, A. Colella, E. Nicolis, M. Dai Prè (TECNALIA, MBN, DELLAS)

As the project had the objective of improving the sustainability of PM processes via several technical improvements of the existing PM routes, a specific activity was carried out within SUPREME to assess the actual differences in environmental impact as compared to the benchmark, either previous PM processes or competing technologies. In many cases the improvements were clear, in others the analysis showed where more work is needed in order to overcome the issues. For detailed information on all project results, please refer to the project website www.supreme-project.com, and especially to the latest newsletter, that is available there for free download.

EPMA had originally organised the SUPREME Experts Workshop in Senlis (France) on 9th July, but the pandemic forced its cancellation, and the workshop was rescheduled for 26th November in Hotel Maritim (Bonn, Germany), in conjunction with the project Final Meeting that will be held at GKN Bonn on 24th and 25th November. But the continuing difficulties forced to transform both events into virtual ones, on the same dates. The participants of the SUPREME Workshop could follow the presentations from consortium experts on the following topics, covering many typical PM sectors, like powder production, additive manufacturing, metal injection moulding and hot isostatic pressing:

- Presentation of EPMA, Bruno Vicenzi (EPMA)
- Introduction to the SUPREME project, Dr Thierry Baffie (CEA-LITEN)
- Efficient raw material production, Mr Jani Kaartinen (Outotec)
- Efficient metal powder production process, Dipl. Ing. Dongjuan Zhu (GKN Sinter Metals)
- Optimized 3D manufacturing metal processes, Dipl. Ing. Gilles Gaillard (CEA-LITEN)
- Optimized near-net shape processes, Dr Iñigo Agote (Tecnalia)
- Real-time monitoring for the optimization of industrial processes, Ioannis Kakogiannos (IRIS)
- Use-cases & impact demonstration, Life cycle assessment & eco-innovation, Mr Tarek Sultan (WEARE ADDITIVE) and Mrs Emmanuelle Cor (CEA-LITEN)
- Final discussion and conclusions, Dr Thierry Baffie (CEA-LITEN)
SAM

EPMA organized a series of Webinars in the scope of Raise Awareness in Additive Manufacturing for SAM project. The first webinar has been held on 24 September as online. The title of the webinar was “Pursuing a career in AM”; in accordance with the project goals of explicative workshops/lectures on AM technology, making the AM career appealing by providing an overview for a career in AM, and showing opportunities from a practical point of view to assess difficulties and obstacles.

EPMA conducted two online courses for two competence units within the scope of SAM project. These are CU027: Additive Manufacturing with Steel feedstock (excluding Stainless Steel) and CU030: Additive Manufacturing with Nickel feedstock. The final target is to set up a certification system to tackle the current European need for developing an effective system to identify and anticipate the right skills for the Additive Manufacturing (AM) sector demands in response to the increasing labour market needs. 130 registrations for CU030 and 235 registrations for CU027 has been made. At the end of each course, an assessment was carried out. The participants who scored 60 or more over 100 has been awarded with a certificate.
With the 2020 pandemic impact on business and after EPMA could run successful one-day PM webinars, it became obvious that in 2020, the congress would turn into a virtual event as well for the first time since its existence.

The online platform hosted an active 3-days of presentations and discussions, representing all areas of Powder Metallurgy - Additive Manufacturing, Functional Materials, Hard Material and Diamond tools, Hot Isostatic Pressing, Metal Injection Moulding, New Materials Processes and Applications and Press & Sinter.

Delegates had the opportunity to join technical sessions live, to participate in Q&A sessions with speakers and session chairs, but also to watch presentations and sessions on-demand, allowing them to benefit from the total number of the Congress sessions for the first time ever.

As Lionel Aboussouan, EPMA Executive Director said, “moving to a digital platform was a big challenge, but I am delighted with the event that we were able to deliver. We had such a strong Technical Programme this year that it would have been truly unfair to the speakers not to have the opportunity to present their work. Our Members are always enthusiastic about the latest research in PM, and I think we found a great method of delivering it to them.”

The online event helped attracting an international audience of attendees from over 30 countries, including Eastern countries, Africa and Asia, who could benefit from over 173 oral and Poster presentations during the Congress days.

Mr. Ralf Carlström, EPMA’s President, opened the Plenary Presentations with an ‘Overview of the Status and Trends in the European PM Industry’. This was followed by Mr Jean-Marie Reveille of Automotive Benchmarking company A2MAC1 presenting “Current and new opportunities for PM components in New Mobility”.

Following on from the key speakers was the annual EPMA Thesis Competition, featuring the PhD category winner: Dr Miguel de Dios (Carlos III University & ICV CSIC) - Synthesis, Processing and Mechanical Characterization of Titanium Carbonitride based cermet through the combination of Colloidal and Powder Metallurgy techniques. As well as the Masters category winner: Mr Juan Alfonso Naranjo Simarro (Universidad de Castilla-La Mancha) - Rapid Prototyping Of Metal Parts Based On Fused Filament Fabrication Technology.

The EPMA Board and Council’s Fellowship Award helps to recognise the significant contribution to PM industry development from the scientific/academic community. The EPMA Fellowship Award not only provides a fantastic recognition from the PM community for such tremendous work, but also looks to exemplify the continued involvement in PM science and technologies. The Fellowship Awards 2020 were presented to Prof. Dr Elena Gordo (University Carlos III of Madrid) and Prof. Dr.-Ing. Frank Petzoldt (Fraunhofer IFAM).

The Distinguished Service Award 2020 was presented to: Mr Philippe Gundermann - VP Strategy and Financial Communication (Eramet) and Dr Steven Moseley - Key Expert and Chief Scientist, Business Area Electric Tools and Accessories (Hilti AG).

The feedback gathered after the event was very positive, delegates were pleased with the fact that they could watch all the sessions they wanted anytime on demand and they really enjoyed being able to interact with all the chairs and speakers after each technical sessions.

Quoting Mr Cesar Molins (AMES group), member of EPMA Council: “I want to express my sincere congratulations for an excellent job done. It was not easy, there was a short time to organize something as complex and as new as an international conference fully on-line. We have probably been among the first associations to venture into something like this. And even considering that the system was not always simple to use and that we had a few concerns here and there, all in all, I think the conference worked very well and the delegates enjoyed it. Most of all, the technological interchange took place. Maybe not as close or as active as in a presentational conference, but certainly a good part of the technical contents interchange and communication was indeed transmitted”.

Last but not least, Mr Aboussouan wants to express his gratitude to some EPMA member companies who supported the event in this critical context: “I will be personally thanking all our Sponsors this year for bringing the Congress to fruition, as well the Media Partners who helped us promote the event to industry”.
Euro PM2021 goes Virtual

2021 looks to be another year of uncertainty, with international travel restricted, and large gatherings representing a potential risk to attendees. The decision has therefore been made to take the Euro PM2021 Congress online once again 18-22 October 2021. The Euro PM2020 Congress was a successful first foray into large Virtual Events, and our next Congress will build upon this with improved networking features, break-out rooms for discussion, and increased presence for Sponsors and Media Partners.

2021’s expanded edition will take place over five days, allowing for more time for delegates to network, and catch up with parallel sessions they may have missed.

Technical Programme committee meeting

On 18 February 2021, the TPC meeting was organised online for the first time, to set the programme for the Euro PM2021 Congress. Over 60 PM experts from Industry and academia reviewed around 200 submitted abstracts. This year, the new structure of the strands for the Euro PM Congress Technical Programme was discussed and approved by the EPMI Working Group to reflect a three-dimensional classification of the possible manuscripts: by process, by material and by application.

Papers were dispatched in 5 new categories:

- Powder Production
- Consolidation technologies
- Materials
- Applications
- Tools for improving PM

Full details of the programme will be released in May with the registration opening in parallel at www.europm2021.com

Virtual Exhibition

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. 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. This First Offer is strictly limited to 16 booths, reserved on a first-come-first-served basis. Once this first allocation is reserved, a second, and potentially third exhibition hall will be opened to accommodate.

If you wish to be part of the Euro PM2021 Virtual Exhibition, please contact exhibition@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.

### 2021 Dates

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<td>08 - 09 September</td>
<td>Trento, Italy</td>
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<td>06 - 08 July</td>
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<td>Madrid, Spain</td>
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<td>Dresden, Germany</td>
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<td>FULL DENSITY PROCESS</td>
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[www.pmlifetraining.com](http://www.pmlifetraining.com)

*EPMA*

european powder metallurgy association
Book Your Virtual Exhibition Booth Now

Registration Opening May 2021

Euro PM2021 Virtual Powder Metallurgy Congress & Exhibition

18 – 22 October 2021

europm2021.com
Your guide to

**EPMA Seminars, Events & Training 2021**

**Hot Isostatic Pressing Online Seminar**
Powder Net Shaping in Comparison to Casting and Forging
16 February 2021 | Online

**Additive Manufacturing Seminar**
Smart Parts and Digital Innovations in AM
11-12 May 2021 | Augsburg, Germany

**Functional Materials Seminar**
Functional Materials for Energy
1-2 June 2021 | San Sebastián, Spain

**Hard Materials SUMMEREV**
8-9 June 2021 | Online

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