European Powder Metallurgy Association

Annual Report 2005
Dear colleagues,

2005 was a complex and mixed-results year for the European PM industry. The surge of raw materials’ prices and the continued pressure on PM structural parts’ prices drove the margins to dangerously low levels, to the point that some PM parts makers showed financial problems and even some actually went out of business. If we consider in addition the fact that the automobile industry and tier-1 customers’ activity level was rather stable, 2005 resulted in a difficult year for PM parts makers and for equipment makers as a result.

However, PM technology continues to gain applications and credibility among designers, which means that we should have a good future ahead of us; we just need to go through the rough times and maybe the customers will need to consider that squeezing an industry to the end may not be to their best advantage in long term.

Hard metals were the PM sector which showed an excellent year in 2005, both in revenues and in financial results, with expectations to continue on our way up.

On the corporate side, we continue to see mergers and expansions, the most prominent of last year being the merger of Sinterstahl and Mitsubishi into PMG, now the second largest PM parts maker in the world.

EPMA’s activity continued very strongly, serving all of the PM community in a wide variety of fronts: lobbying and coordinating efforts before the EU authorities in subjects of great future impact like the REACH legislation, in promotion of PM technology through trade fairs, the summer school and the increasingly respected Global PM Database in cooperation with MPIF and JPMA, to name a few. The highlight of the year was the Congress in Prague which was a great success in all aspects: technologically, attendance-wise and last, but not least, financially, which helped bring EPMA’s financial situation very close to the goal that we set years ago, when EPMA was founded.

The different Working Groups represent also a key aspect of EPMA’s activities and after some reorganisation to best suit the needs of our members, we continue to see a high level of involvement from our members. I would like to encourage you to step in and join one of the working groups: this is one excellent way to make sure that EPMA is catering to the real needs of our members and in turn, it means that those volunteering members are represented at the maximum level in our industry in Europe. In saying this, I want to thank all those who are already bringing their efforts, as we are managing to offer excellent services for a very reasonable cost.

A sincere word of thanks is also due to the team at the secretariat for their continued efforts and excellent results. We should also underline that in 2005 we moved from our previous offices to a new site which offers better accommodation for our organisation.

As we start the new year 2006, we must continue to work to further expand the presence of our industry and to improve our technology in the hope that Europe’s economy becomes also more vigorous and that European legislators become aware of the fact that industry in general and PM among many other industries are the backbone to a healthy economy.

Cesar Molins
After the efforts and success of the World Congress in 2004 there was always a danger that 2005 would be some form of an anticlimax. Thankfully this proved not to be the case as it turned out to be another busy year with a wide range of activities and projects being undertaken.

From EPMA’s viewpoint the success of the EuroPM2005 Congress and exhibition was accompanied by a record number of full and total members. Indeed, Prague provided the delightful highlight of the year with an attendance of nearly 900 delegates/visitors plus a sold out exhibition with over 80 stands. Overall the event was a success from both a technical and financial point of view. Thus vindicating the decision to hold Europe’s premier PM event in Central Europe for the first time.

The threat of EU environmental legislation in the form of the REACH remained and our efforts, along with members and other major European trade associations, to lobby and amend these proposals has led to some amelioration of the worst elements. The final passing of this legislation in 2006 will lead to a more general realisation of the impacts it will have on competitiveness and employment in industry.

The Global PM Property Database activity continued with work starting on the extension of the database to include MIM materials. There remains much to do in developing and promoting this unique resource for our industry and we need the support of all members in order to achieve this.

EPMA continues to attend exhibitions and conferences to promote PM and this year we visited the successful Vehicle Testing Expo 05 in Stuttgart where a large number of new end-user contacts were made and their details distributed to members. The EPMA’s own web site remains a key resource for promotion and an increasing amount of our commercial transactions for events are now web based. In total we had over 215,000 separate visitors to the site during the year an increase of some 7.5% on 2004 which is interesting given that there was no World Congress and the consequent surge of web traffic that it produced.

2005 saw the completion of our major thematic network DIENET and it included successful workshops in Freiberg and Prague. We are still actively seeking ways to continue the network and an application for a smaller follow on project will take place in 2006. The first of four PM Training programmes took place, which was hosted by RWTH Aachen and thanks to support from both industry and academia enabled us to train some 66 young graduates. Feedback from the event has been highly positive and we anticipate that the 2006 event to be held in Grenoble will be fully subscribed. The Winterev programme of seminars on Measurement in Hard Materials saw a successful second event in Barcelona and a third event will take place in February 2006.

We are also now looking ahead to October when we will be holding EuroPM2006 in Ghent. This year we are focussing on Hard Materials, Diamond Tools and MIM and it is pleasing to report we have already attracted over 200 papers plus some 40 exhibition stands and we hope that members will make it a success by turning out in force.

The year of 2005 saw changes in both personnel and activities here at EPMA and we intend that we shall continue the momentum and positive contributions during 2006. We will also continue to work hard in the coming year to maintain and improve the standards of service for our members.

Jonathan Wroe
The EuroPM2005 International Congress, organised in Prague in October by EPMA, was highly successful with over 800 people attending and the largest related exhibition ever held at a EuroPM event. Scheduling of various working and sectoral open meetings ensured that the participants were also able to get to know more about and support the work of EPMA. As a truly international event it was an ideal opportunity for the promotion of the Global PM Property database and other EPMA promotional activities, including the 'Innovation in PM' Awards.

In addition to these highly visible items, resources were also deployed during 2005 over a broad front of activity, as is evident from this Report. The first of our four PM Training Courses supported by the Marie Curie Programme was successfully completed in Aachen, Germany and we are optimistic for the following event in Grenoble in 2006.

Research and development activities, however, presented a mixed picture. The DIENET project reached a successful conclusion, but our resubmitted application for Collaborative funding for the MIM sector was narrowly unsuccessful. Widespread disappointment is therefore justified about the lack of balance and clarity in FP6, which resulted in the low overall success rates (around 5% of all applications!).

The picture for FP7 due in late 2006 is not yet fully clarified but some lessons may, we hope, have been learned by the Commission.

Efforts to introduce scientific and technological realities into the structuring of EU environmental legislation (REACH) have continued with good support from members. A considerable amount of effort on contacts and coordination of the response to the Commission across Europe has been undertaken with some significant success.

In 2005, EPMA’s efforts to punch “above its weight” continue to be recognised by both members and outside agencies.

Membership Structure

The membership totals by category at year-end are shown in [membership panel]. New members joining in 2005 are listed on the following page.
Membership Subscription Rates

At the 2004 General Assembly it was agreed that, once the level of reserves reached roughly one year’s fixed costs future changes in membership fees would be linked, on an annual basis, to the OECD consumer price index for the EU. In this way the intention would be to reduce the impact of any changes in the level of fees whilst retaining their effective value.

Therefore, as reserves are at the required levels the membership rates for 2006 will show an increase of 2.5% over those of 2005.

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New members in 2005

EPMA was pleased to welcome the following into membership during the year:

**FULL MEMBERS**

- Avure Technologies AB, Sweden
- CM Chemiemetall GmbH, Germany
- Elino Industrie-Offenbau, Germany
- Erowa Ltd, Switzerland
- Kanthal AB, Sweden
- Linn High Therm GmbH, Germany
- Osram Bruntal spol s.r.o., Czech Republic

**ASSOCIATE**

- Ametek Specialty Metal Products, Belgium
- Schott Glaswerke, Germany
- Skoda Auto as, Czech Republic

**INDIVIDUAL**

- Dr Richard Brown, UK
- Richard Obara, USA
EPMA has, through a process of ongoing lobbying and positive contributions to debate, been able to position itself to participate in and influence, the EU's formulation of regulations and legislation. While EPMA naturally supports the general notion that industry has a central role to play in improved human health and environmental conservation, there is a widespread conviction that there is a parallel need for all such legislation to avoid exerting a negative effect on the competitiveness of European manufacturing capability, which many feel is steadily being eroded by critical and often insufficiently informed social and environmental legislation.

**REACH**

The most prominent case in point at present, which has occupied significant effort on the part of EPMA and its members, is REACH (Registration, Evaluation and Authorisation of Chemicals) The EPMA (a Trade Association member of Eurometaux) has been working both independently and to attempt to modify the procedures proposed under this hotly debated legislation. Also, on behalf of all EPMA members, the Secretariat has continued to monitor developments as the REACH legislation, which is now expected to become law in 2007.

Broad agreement on draft legislation between the European Parliament and the Member States has been achieved, with the important exception of Authorisation. A Conciliation process is now in progress, which is expected to be completed by April 2006, the Second Reading in the Parliament in the autumn and final implementation in Spring 2007.

We are planning a major workshop for Ghent, at EuroPM2006 in October, after which decisions will be taken about the role of the EPMA secretariat relating to this issue. We continue to cooperate closely with Brussels’ lobbying organisation Eurometaux as well as several other industry trade associations. The EPMA is also contributing to the REACH Technical Guidance activities. Metals and Materials has recently published the EPMA REACH News Flash, and a longer article is in preparation.
EPMA has performed very satisfactorily over recent years in its participation in, and initiation of, EU funded projects. These have included the MODNET, MIMNET, Comett and Leonardo programmes which have brought over €5 million of government funding into the European PM sector.

**Education and Training Projects**

Marie Curie programme:

The successful application under the Marie Curie programme resulted in an award of €570,000 for a four-year series of PMTraining Courses taking the novel form of linked summer schools and short courses. The first of these Training Courses took place in Aachen, Germany, in 2005 and was attended by some 66 young graduate engineers and scientists. Sincere thanks are given to the University of Aachen and in particular, Prof Paul Beiss and Dr Ivo Sauermann for their assistance in organising the event. The next events are scheduled in, Grenoble, Kosice and Alessandria from 2006-2008. The price for students has been set at a nominal €195 per person. Students also get free accommodation and subsistence, as well as a substantial grant towards travel costs. Full details of the courses are available on the EPMA website.

EPMA again records its gratitude to the Research Education Training Group in general and to Dr Bob Moon in particular for their efforts in running this project.

**Research and Development Projects**

As research and development work is concerned, the year could be divided cleanly in two. Those projects where funding has been coordinated on a private basis by the Secretariat and using members’ direct funding, has produced a number of smaller scale, but successful projects. These include the DIENET extension, bioavailability and nano technology projects. However, with the notable exception of the Marie Curie funding mentioned above, success in the acquisition of European Union funding programmes has been disappointing.

During the year two EPMA led proposals were submitted, the first, an SME based collaborative project for the MIM industry was rejected and the second, a Leonardo project to develop e-learning materials for PM end users has passed through to stage two, with a final result due in May 2006. However, with a success rate across Framework 6 (FP6) being in the region of only 5% it is perhaps not surprising that we have not been more successful over the last three years. It is clear the thinking behind FP6 (especially with regard to the so-called ‘instruments’ (Networks of Excellence and Integrated Projects)) has led to funds been channeled into a number of very large programmes managed by favoured national champions. Given the history of failure of such large programmes there is disappointment about their planned retention in FP7 and the continuation of the apparent ‘top-down’ attitude to devising the thematic priorities and work programmes.

The EPMA has been active in lobbying the Commission in Brussels to implement changes in FP7 that would make it easier for the PM industry as a whole to submit projects with a realistic chance of success into industry relevant activities and although the situation as yet is not finalised we are hopeful that at least some changes will be made in this direction.
The historic city of Prague was the home of the EuroPM2005 International Congress organised and hosted by the EPMA. PM's premier international event of the year included delegates from some 42 countries in all regions including the Far East, Africa and the Americas. Its appeal meant that it attracted well over 220 Oral and Poster presentations and over 800 participants. The event also included a sell out exhibition with over 60 exhibitors representing companies from all parts of the PM supply chain.

During the Congress plenary session EPMA President Dr. Cesar Molins presented the EPMA Distinguished Service Awards for 2005 to Dr Colette Allibert and Mr Per Lindskog. The recipient of the Ivor Jenkins Award, presented by Dr John Dunkley on behalf of the Institute of Materials, was Dr Bryan Roebuck.

In addition, The EPMA's 'Innovation in Powder Metallurgy' showcase, contained entries from the EuroPM 2005 Innovation in PM Awards, as well as winners from both the JPMA and MPIF competitions. There were also continuous demonstrations of the newly launched Global PM Property Database.

The Congress Gala Dinner at the Velká Klášterni provided a typical Czech evening at the end of a dynamic and productive Conference and Exhibition. Work is already underway for EuroPM 2006 to be held in Ghent, Belgium from the 22-25th October 2006.

The EPMA extends its heartfelt thanks to the many people who worked on the organisation of EuroPM2005. Special gratitude is due to the Congress Co-Chairmen, Mr. Ludek Sarman from Osram Bruntal spol s.r.o. and Dr Jan Tengzelius from Höganäs AB as well as Dr Pavel Dufek, members of the technical programme committee and last but not least the Session Chairmen who helped to make the technical sessions run with their usual efficiency.

The Congress Proceedings again represent a major addition to the literature. The 3-volume set of proceedings contains the text and key figures of the papers presented, both oral and poster, along with author details and references. Volumes can be purchased separately, or as a complete set. A CD-ROM version is available free to buyers of two or more printed volumes. Details are available on the EPMA website in the Publications section.

**EPMA Awards for Innovation in PM**

The EPMA Awards system is an open competition. Winners are selected by a multinational panel of expert judges from entries submitted by EPMA corporate members. The scheme's popularity was once again confirmed by the 2005 ceremony. At a special Awards Lunch held at the Prague Congress Centre as part of EuroPM2005, around 600 people were able to witness the presentation of four EPMA Innovation Awards presented to OBE GmbH (components category), INCO Europe Ltd (materials), SMS Meer (equipment) and Advanced Materials Technologies PTE Ltd (international) details of these awards can be found on the EPMA website.
International Award
Award of Merit: Advanced Materials Technologies, PTE Ltd
Highly Commended: Höganäs AB

Components
Award of Merit: OBE GmbH
Highly Commended: AMES and PMG Füssen

Materials
Award of Merit: INCO Europe Ltd
Highly Commended: Höganäs AB

Process Equipment
Award of Merit: SMS Meer
Highly Commended: Dorst Technologies

For 2006 in order to try and broaden the number of entries the competition will become the EPMA Awards for Excellence in PM and the judging criteria will be changed accordingly.

EPMA warmly acknowledges the Sponsorship of this event by the international trade journal Metal Powder Report.

PM Thesis Competition 2006

After the success of the EPMA Powder Metallurgy Thesis Competition in 2004, which attracted an exceptional and very high-quality response in both Diploma/Masters and Doctorate/PhD categories, the competition will be held again in 2006. This popular competition is designed to promote and develop an interest in powder metallurgy among young scientists at European academic establishments and to encourage research at undergraduate and postgraduate levels.

Entries are judged by an expert panel from academia and industry who match academic excellence with immediate industrial relevance, using a range of criteria:
- thesis objectives
- industrial significance
- scientific interest
- stimulation of further research
- presentation standard

The winners for 2006 will receive their prizes from EPMA President César Molins as part of the Opening Plenary Session of the EuroPM2006 in Ghent.

Short presentations on their theses will then be given by the prizewinners, who will also be invited to contribute an article for Powder Metallurgy, the official EPMA science and technology journal. EPMA is grateful to Höganäs AB, Sweden, for their sponsorship of the Prizes for the Competition.
Working Groups

EPMA Working Groups meet regularly to discuss and organise trade association response to industry-wide issues. Typically, therefore, they concentrate on matters best handled on an industry-wide basis, rather than those that are more appropriately addressed at individual member company level. The Groups are, in general, permanent and have a regular membership, but temporary committees or groups can be set up to handle single issues.

There continues to be strong support for the ‘Open Meeting’ principle in which all interested can mix with the permanent membership of the Groups, understand what they are doing and offer ideas. This concept will be developed alongside more traditional working meetings with attendance restricted to EPMA members.

This year saw the first meetings under the revised working and sectoral group structure.

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Research Education Training Group (RET)

Two meetings were held of the newly merged group: the first in April at the General assembly in Potsdam, was a closed meeting where objectives of the new group were agreed and plans made for the event in Prague.

The Prague meeting in October was the first open meeting of the new Group with some 34 attendees. As its prime responsibility is the EPMA roadmaps, presentations were invited on "Industry Research Requirements" from the 3 Sectoral Groups (Hard Materials by Dr Roebuck (NPL), Structural Parts by Dr Blanchard (FMO), and MIM by Dr Vicenzi (Mimitalia). These have given the RET group a large amount of raw material for publicising and for relaying to PMRADNET.

Dr Moon reported on the first Summer School (Aachen, 3-11 September) of the newly launched PMTrainingCourse series. The 3 conference workshops (PM Titanium, Nanotechnology, Compaction Modelling) were mentioned, an objective of which was to establish the level of support for EPMA continuing activities in one or more of these areas; in each case questionnaires were circulated pre-conference and were reported on at each workshop.

• In the case of PM Titanium the new "low cost" UK FFC process has generated considerable new interest, but it is clear that this has been over hyped.

• The Nanotechnology workshop showed that nano particles are currently produced in surprisingly large quantities for a variety of markets, but mostly for pastes and films. Other than hardmetals (which hardly qualify) research on sintered materials is at an early stage.

• The Modelling workshop confirmed there was sufficient interest to proceed with a COST application to Brussels.

We conclude that there is sufficient interest in both Ti and Nano to justify establishing new special interest groups within the EPMA, and preparations are underway to form these groups during 2006.

Environment, Health and Quality Group (EHQ)

The role of this newly formed group has been dominated during the year by work on European legislation notably REACH as already mentioned on page 5. Besides REACH the main current activities are:

• Bioavailability tests - following data generated in 2004 on FeCuC a new consortium is now generating data on FeNiC. This data will be important to demonstrate to the authorities that sintered materials containing "hazardous" substances (such as Cu or Ni) are themselves safe.

• Benchmarking - we are in discussion with MPIF about joining their scheme for structural parts producers. Both associations are seeking to increase numbers of participants.
Participants at the Training Courses held in Aachen September 2005

Dr Teng

Delegates at PM2005 in Prague

EPMA showcase PM2005, Prague

Dr Miren Sarasola receiving the 2005 Schunk award

Ludek Sarman

Dr Cesar Molins presents the Award of Merit to Joseph Heckert, OBE GmbH

Delegates at PM2005 in Prague
Sectoral Groups

For the first time three EPMA Sectoral Groups met with the first open meeting of the European Structural parts Group (ESPG) being held in Prague.

Two meetings were held on the 4th October under the chairmanship of Dr Michael Krehl from Sinterstahl. 15 people representing 9 Parts Makers met in the morning, the main purpose of which was to review 6 Priority Topics previously identified. It was clear that there was sufficient support to proceed with the formalisation of this new Sectoral Group. Of special significance:

• The Components section of the Innovation awards should be reformatted to give equal weight to successful commercialisation as to innovation.
• The group would consider participating using the format of the MPIF Annual Benchmarking in preference to the existing EPMA scheme.

The meeting finished with a useful open discussion on escalating energy and raw material costs.

An Open Meeting was held in the afternoon, attended by some 26 people. To minimise duplication David Whittaker reported on the conclusions from his review of the PM Database data gaps, and Peter Brewin presented the ways in which REACH could affect the components sector. The exact format of future meetings has to be developed, but it is clear that the core group of parts makers needs to be extended and a new format adopted for the next open meeting.

European Hard Materials Group (EHMG)

No special meeting was held in Prague. Since the last council an open meeting was held at the Plansee Seminar in May 2005. Additionally Hard Material powder makers met to discuss REACH and the EHMG response to the request from ITIA toxicity consultants BBL for further information. It is clear that the likely reclassification of Hardmetal particulates and the more stringent requirements of REACH could have a severely adverse effect on European HM manufacture for at least 2 reasons: a) Registration will be highly complex b) Hardmetals will almost certainly be treated as Hazardous and come under Authorisation.

At the Plansee meeting the next stage of the EHMG Nano Project was presented; this is likely to take the form of a 'round robin' comparison of different characterisation techniques and to be co-ordinated by NPL; further Centres of Excellence were presented; Winterev 05 details were reported on; the EPMA Roadmap reviewed; ISO TC119 SC4 Hardmetals committee reported.

The EHMG will contribute to the EuroPM 2006 Conference Technical Committee.

EuroMIM

The Prague EuroMIM Open Meeting was well attended given that it was at the very end of the conference with a total of 40 people present. Papers were presented by Dr David Ford of the European Investment Casting Association, Paul Davies of Sandvik Osprey, David Whittaker on the GPMD and Peter Brewin on REACH.

A short overview of the situation regarding the draft MIM ISO standard was given by Lars Nyborg and this will be followed up at a meeting to be held at BASF in conjunction with MIMA, JPMA and the German expertenkreis. Unfortunately as reported elsewhere negative decisions were received on the applications to Brussels for research funding under SME programmes

EuroPMRADNET

A first open meeting took place in Prague and was attended by 10 centres representing at least 70% of known active researchers. These centres agreed that they would form a core group of research activity and they would sign a memorandum of understanding to this effect. This MOU would cover the formation of the group comprising the twelve key PM research centres and would allow interchange of researchers on a temporary basis as well as sharing of equipment.
Projects

Global PM Property Database

The Global PM Property Database went online in October 2004. Backed by EPMA, MPIF, and JPMA, it provides a common, permanently available, database for PM materials worldwide covering at present some 2000 lines of data on several hundred different grades.

The database itself is based upon the 'Iceflow' system developed by nCode International Ltd a software company with experience in fatigue analysis and testing. It is mounted on its own registered website (www.pmdatabase.com) where users can register and access the database free of charge.

Registered users enter the database via a Windows-style interface and in a very user-friendly format are offered search options for the type and level of properties. Tabulated data and automatically plotted graphs relate variables such as UTS, yield strength, fatigue endurance limit to density for example.

Graphs are downloadable in the form of graphics for insertion, for example into a MS Word document. Specific properties (e.g. Young’s modulus, density, coefficient of linear thermal expansion) are available for export to popular Finite Element Analysis system materials databases such as NASTRAN, ANSYS, and Abaqus.

Data supplied takes the form of typical and statistical ranges and not guaranteed minimum properties. Considerable effort has been expended on input data quality, but the database alone cannot be a substitute for direct contact with manufacturers. Therefore, information is included on the member companies who produce parts from the specific grades the user has identified.

The database first phase covers: PM steels and stainless steels from 6.4 gm/cc upward, powder forged steels and bearing alloys.

This whole process is seen as a major contribution to user understanding of PM materials and their capabilities. Therefore a fundamental principle underlying the database is that it provides information to a designer on optimum use of PM for existing and new applications.

During 2005 the Global PM database reached a world-wide audience of over 2800 individuals across the PM supply chain. This is can be broken down as follows: of those users whose sector can be identified 35% are from end user companies, a proportion that has been stable during the period.

Its role as a provider of independent advice and information on both trade association members and their products has been established. Positive feedback was obtained from key users and quality improvements were made to both the data and the software. Significantly increased response was noted after the presentation at the SAE Congress and the need for increased promotional activity both by the trade associations and their members is seen as critical for future success.
DieNet Thematic Network

A considerable acceleration of DieNet work was evident during the year as the end of funding (in February 2005) approached. The main objectives of the final year were to complete case studies on effects of die filling on ferrous materials, and density predictions on hardmetals, magnets and structural ceramics. A further essential issue was the matter of ensuring sustainability beyond the ending of EU funding and an external moderator conducted a Technological Implementation Plan seminar.

Work to date has shown that, given the correct input data, compaction models can predict density distributions and pressing loads to a good degree of accuracy. Simulations, however, rely heavily on the starting conditions including knowledge of the correct fill density and the effect of any powder transfer operations. They must also be given press frame tooling elasticity. The conclusions from the DieNet project therefore are that compaction modelling needs, at the very least, good practice guidelines on powder fill and transfer, and ideally predictive capability on these two key operations.

Another important subject is crack prediction, especially warnings of kinematics, which could give rise to shear cracks. Although outside the scope of the present network, the DieNet project intends to give pointers to future work in this area including the production of constitutive data at low compaction pressures.

The Network agreed to accept the invitation of Springer Verlag to produce a textbook 'Powder die compaction modelling' detailing the work of the whole Project.

The final DieNet Workshop was held in Freiberg in February 2005, which was attended by 27 people.

COST Proposal - UWSwansea has drafted an application for a COST proposal to be submitted to the Brussels secretariat. If successful this could provide low level funding to assist in continuation of network activities.

PowdermatriX

EPMA continued as a partner in a UK Department of Trade and Industry funded programme PowdermatriX. PowdermatriX is a network in particulate engineering, focussed initially in the advanced ceramic, powder metal, hard metal and magnetics industries. The core partners of the organisation in addition to EPMA are CERAM, Birmingham, Loughborough and Manchester Universities, the British Hardmetals Association, the National Physical Laboratory, and the Institute of Materials, Minerals and Mining (IOM3).

The Partnership aims to promote effective interaction between the science and engineering base and industry. Over 130 companies and 25 UK universities form the network. Activities include industrially relevant research and training programmes, individual company support through a team of eight Technology Translators, and a wide programme of meetings and networking events. A revised version of Powdermatrix is planned for 2006 under the management of the IOM3.
The beautiful and historic city of Potsdam near Berlin hosted the 2005 EPMA General Assembly on 29th April. Over forty representatives of some 34 companies attended the two-day event that included the EPMA Annual Dinner.

As well as the EPMA Board, Council and a series of Steering Group meetings, the delegates heard papers on both the local German PM industry (given by Dirk Hoelscheid of the VPD) and applications for PM in the Glass industry, the latter given by Dr Joachim Disam of Schott Glaswerke.

The EPMA Annual Dinner was held in the ‘Restaurant Juliette’ in the centre of Potsdam and was attended by some fifty people.

Authority of the General Assembly

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

EPMA Secretariat

Day-to-day management is in the hands of the Executive Director and his staff. During 2005 the Secretariat was joined by Andrew Almond, who replaced David Wiggin as Marketing Manager. We welcome Andrew and wish him well in his new post. At the same time we would like to thank David for his contribution during the past four years.

The general structure of the EPMA and its various components is shown below.
The EPMA Constitution requires the Council to be composed of a minimum of seven individuals with voting power and appointed by the General Assembly. At least one Council member must be of Belgian nationality. In practice, the Council has always been larger than its permitted minimum. Initially, it was constituted with 12 members. In line with increases in the range and number of members it has subsequently been increased to the present 16.

Seats on Council are allocated according to the number of Full Members in each of the sectors making up the EPMA's spectrum of interest; at the same time, consideration is given to ensuring an equitable geographical spread of Council members around Europe. Members in 2004 represented 25 countries in Europe (and 10 outside Europe).


**Representing PM Parts Sector**
- Dr Volker Arnhold (GKN Sinter Metals, Germany)
- Mr Kelvyn Williams (Federal Mogul Sintered Products, UK)
- Dr Michael Krehl (PMG Füssen, Germany)
- Dr César Molins (AMES SA, Spain)
- Hannes Moser (Sinter Austria GmbH, Austria)

**Representing Powder Sector**
- Mr John Boyle (QMP Metal Powders Ltd, Germany)
- Mr Philippe Gundermann (Eurotungstène Poudres, France)
- Mr Per Lindskog (Hoeganaes Corp Europe GmbH, Germany)

**Representing Equipment Sector**
- Mr Jan Tengzelius (Höganäs AB, Sweden)
- Mr Thomas Lambrecht (Dorst Technologies, Germany)
- M. Ingo Cremer (seconded as the replacement for Mr Daniel Pfister in November 2005) (Cremer Thermoprozessanlagen GmbH)
- Dr Günter Kneringer (Plansee SE, Austria)

**Representing Refractory and Hard Material Sectors**
- Dr Gérard Raisson (Aubert et Duval Holding, France)

**MIM Producers**
- Dr Martin Blömacher (BASF AG, Germany)
- Dr Bruno Vicenzi (MIMItalia, Italy) (seconded as Italian representative in May 2005)

**Statutory Member for Belgium**
- Mr Jan Walraevens (Wood Appleton Oliver, Belgium)

Contact details for Council Members can be found on the EPMA website www.epma.com

**Executive Board (2004-2007)**

Five Council members have been elected to the EPMA Executive Board for the period.
- Dr César Molins, President (re-elected)
- Dr Volker Arnhold, Vice-President (re-elected)
- Dr Thomas Lambrecht, Vice-President (2004 election; served as Treasurer 1998-2004)
- Dr Hannes Moser, Vice-President (2004 election; served as Treasurer 1998-2004)
- Mr John Boyle, Treasurer (2004 election)
The impact of increases in fuel and raw materials costs have been felt across all sectors and a static European car production has meant a year of little or no growth in the structural parts sector. For parts makers, as ever, business will be driven by the automotive industry as component manufacture and assembly bases shift in global terms. However at the same time some sectors such as Hard Materials and Diamond Tools are expected to continue the significant growth in their markets shown during 2005.

Prospects for EuroPM 2006, which is focusing on Diamond Tooling, Hard Materials and PIM are good.

The expansion of the Global PM Property Database to include MIM data will give a further opportunity to promote its use to end users. This promotion will increasingly need to be undertaken not only by the three trade associations supporting it but also by EPMA members. An introductory pack for potential users is available and it is hoped that members will take positive action and recommend it.

The new series of PMTrainingCourses continues to offer a tremendous, bargain-price opportunity for training promising younger people. Increased support of the programme by EPMA member companies through encouraging and subscribing will bring real improvements to the understanding, capabilities and commitment levels of their younger scientific and technical staff.

Reservations for all of the first batch of the available Exhibition Stand space have been confirmed and a second area is now open for bookings.

Open meetings at Prague have led to the formation of two new working groups covering Titanium and Nano technology - these received a high level of support and EPMA will continue to include them in future events wherever appropriate.

The EPMA continues working with most European metals industries in continuing to call for metals and alloys to receive more appropriate treatment under the REACH legislation. The EPMA’s ability to speak as a genuine ‘single industry voice’ has been critical to the impacts we have made. The importance of coordination at a European level will be shown once again as we move into the formation of consortia for data generation.

EuroPM 2006 will be held in Ghent at the Conference Centre
## Income

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Membership fees</td>
<td>£354,007</td>
<td>£361,395</td>
</tr>
<tr>
<td>Publications and promotions</td>
<td>£9,215</td>
<td>£10,558</td>
</tr>
<tr>
<td>Conferences, seminars and courses</td>
<td>£430,175</td>
<td>£1,249,716</td>
</tr>
<tr>
<td>EU and other projects</td>
<td>£281,494</td>
<td>£444,225</td>
</tr>
<tr>
<td>Miscellaneous income</td>
<td>£14,096</td>
<td>£5,777</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>£1,088,987</strong></td>
<td><strong>£2,071,671</strong></td>
</tr>
</tbody>
</table>

## Expenditure

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries social charges and pensions</td>
<td>£318,759</td>
<td>£315,533</td>
</tr>
<tr>
<td>Office overheads</td>
<td>£44,217</td>
<td>£40,866</td>
</tr>
<tr>
<td>Subsistence and travel</td>
<td>£23,773</td>
<td>£16,228</td>
</tr>
<tr>
<td>Publication costs</td>
<td>£3,524</td>
<td>£5,698</td>
</tr>
<tr>
<td>Conferences, seminars and courses</td>
<td>£280,379</td>
<td>£924,775</td>
</tr>
<tr>
<td>Professional and membership fees</td>
<td>£28,182</td>
<td>£23,439</td>
</tr>
<tr>
<td>Council and meetings expenses</td>
<td>£11,002</td>
<td>£10,077</td>
</tr>
<tr>
<td>Annual report</td>
<td>£3,316</td>
<td>£3,214</td>
</tr>
<tr>
<td>Competitions and awards</td>
<td>£10,996</td>
<td>£34,552</td>
</tr>
<tr>
<td>Promotions and internet</td>
<td>£16,471</td>
<td>£18,217</td>
</tr>
<tr>
<td>Newsletter &amp; PM journal</td>
<td>£9,504</td>
<td>£8,768</td>
</tr>
<tr>
<td>Working group support expenses</td>
<td>-</td>
<td>£4,969</td>
</tr>
<tr>
<td>Bank and credit card charges</td>
<td>£10,889</td>
<td>£5,565</td>
</tr>
<tr>
<td>Taxation</td>
<td>£2,326</td>
<td>£953</td>
</tr>
<tr>
<td>Exchange rate differences (note 4)</td>
<td>£3,082</td>
<td>(£3,670)</td>
</tr>
<tr>
<td>Printing, stationery, postage and sundries</td>
<td>£23,133</td>
<td>£27,535</td>
</tr>
<tr>
<td>EU and other projects</td>
<td>£275,633</td>
<td>£465,032</td>
</tr>
<tr>
<td>Depreciation</td>
<td>£6,102</td>
<td>£4,880</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>£1,071,288</strong></td>
<td><strong>£1,906,631</strong></td>
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</tbody>
</table>

**Surplus of income over expenditure**

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>£17,699</td>
<td>£165,040</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>£1,088,987</strong></td>
<td><strong>£2,071,671</strong></td>
</tr>
</tbody>
</table>

**SURPLUS/DEFICIT AFTER ADJUSTMENT FOR 2004/2005 EXPENSES**

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expenditure relating to 2005</td>
<td>-</td>
<td>£34,571</td>
</tr>
<tr>
<td>Expenses relating to 2006/2007/2010</td>
<td>£78,092</td>
<td>-</td>
</tr>
<tr>
<td><strong>Surplus of income over expenditure</strong></td>
<td>-</td>
<td>£130,469</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>£1,149,380</strong></td>
<td><strong>£2,071,671</strong></td>
</tr>
</tbody>
</table>

EPMA is governed by Belgian Law of 25 October 1919, as amended by that of 6 December 1954. The Association, *un Association internationale poursuivant un but scientifique*, is therefore exempt from Belgian income tax. The Secretariat, situated in the UK, registered for UK VAT on 1st December 1993, in order to regularize the situation with regard to new Single Market regulations.

EPMA works to a calendar year. The Articles of Association require that members contribute towards the expenses of the EPMA through an annual subscription; the generation of funds from other sources and activities compatible with its objectives is permitted.

Belgian law requires that the EPMA Council shall submit the accounts for the past year and the budget for the following year for the approval of the General Assembly. Set out above are the accounts for 2004, with those of 2003 for comparison.

**ACKNOWLEDGEMENTS:**

Accounts prepared and audited by Turner Peachey Chartered Accountants, Shrewsbury, UK.
## BALANCE SHEET AS AT 31 DECEMBER 2005

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2004</th>
<th>€</th>
<th>€</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FIXED ASSETS</strong></td>
<td>1</td>
<td>18,307</td>
<td>14,260</td>
<td></td>
</tr>
<tr>
<td><strong>CURRENT ASSETS</strong></td>
<td>2</td>
<td>495,552</td>
<td>1,063,085</td>
<td></td>
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<tr>
<td>Debtors</td>
<td></td>
<td>567,021</td>
<td>487,083</td>
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</tr>
<tr>
<td><strong>CURRENT LIABILITIES</strong></td>
<td>3</td>
<td>577,981</td>
<td>1,244,378</td>
<td></td>
</tr>
<tr>
<td>Creditors</td>
<td></td>
<td>484,592</td>
<td>305,790</td>
<td></td>
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<tr>
<td><strong>REPRESENTED BY:</strong></td>
<td></td>
<td></td>
<td>502,899</td>
<td>320,050</td>
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<tr>
<td>Accumulated fund at</td>
<td>1</td>
<td>577,981</td>
<td>1,244,378</td>
<td></td>
</tr>
<tr>
<td>1st January 2002</td>
<td></td>
<td>320,050</td>
<td>189,581</td>
<td></td>
</tr>
<tr>
<td>Adjustment re PM2004 expenses</td>
<td>4</td>
<td>243,242</td>
<td>243,242</td>
<td></td>
</tr>
<tr>
<td><strong>Less:</strong> Surplus of expenditure over income</td>
<td>5</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Add:</strong> Surplus of income over expenditure</td>
<td>6</td>
<td>(60,393)</td>
<td>130,469</td>
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<tr>
<td><strong>NET ASSETS</strong></td>
<td>7</td>
<td>18,307</td>
<td>14,260</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL CURRENT ASSETS</strong></td>
<td>8</td>
<td>495,552</td>
<td>1,063,085</td>
<td></td>
</tr>
</tbody>
</table>

### NOTES TO THE FINANCIAL STATEMENTS - YEAR ENDED 31 DECEMBER 2005

**1. FIXED ASSETS**

- Equipment brought forward: 14,260 €, 11,715 €
- Additions during the year: 10,149 €, 7,239 €
- Less: depreciation @ 25%: 6,102 €, 4,694 €
- Net Book Value: 18,307 €, 14,260 €

**2. DEBTORS**

- Sales ledger balances: 336,479 €, 307,574 €
- Other debtors: 9,526 €, 440,262 €
- EU projects: 149,547 €, 315,249 €
- **TOTAL DEBTORS**: 495,552 €, 1,063,085 €

**3. CREDITORS**

- PM conference amounts due: 1,388 €, 247,514 €
- Purchase ledger balances: 24,734 €, 113,539 €
- Membership fees received in advance: 358,252 €, 368,511 €
- Other fees in advance: 44,981 €
- Owed to customs & excise: 312 €
- PAYE owed to inland revenue: 14,621 €, 21,475 €
- Taxation: 8,300 €, 5,974 €
- Professional fees: 4,941 €, 4,878 €
- Other sundry creditors: 351 €
- VAT on Vienna conference: 207,834 €
- EU and other projects: 93,101 €, 274,653 €
- **TOTAL CREDITORS**: 577,981 €, 1,244,378 €

**4. EXCHANGE RATES**

The figures in the Balance Sheet are converted at the closing rate of £1 to €1.4552 (2004 - £1 to €1.4152).

The figures in the Profit & Loss account have been converted at the actual rate of exchange during the month the expenditure was incurred, (2004 figures are converted at the rate of £1 to €1.4528).

The differences arising, due to the use of different exchange rates, is shown in the Income & Expenditure account under ‘exchange rate differences’.

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*European Powder Metallurgy Association*