Asian Powder Metallurgy Association

Newsletter

2020

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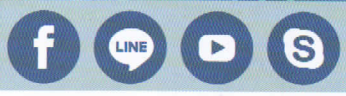


Jun 2020

Mr. Isamu Kikuchi

President

June, 2008 - September, 2018

Kazunori Arai

Secretariat

June, 2008 - May, 2014

Takashi Saito

Executive Director

May, 2014 - May, 2019

About APMA

Establishment June 11, 2008

❍ Purpose

The purpose of this association will be to seek the sound development of powder metallurgy through closer cooperation among business organizations and academic societies in the field of powder metallurgy in Asia.

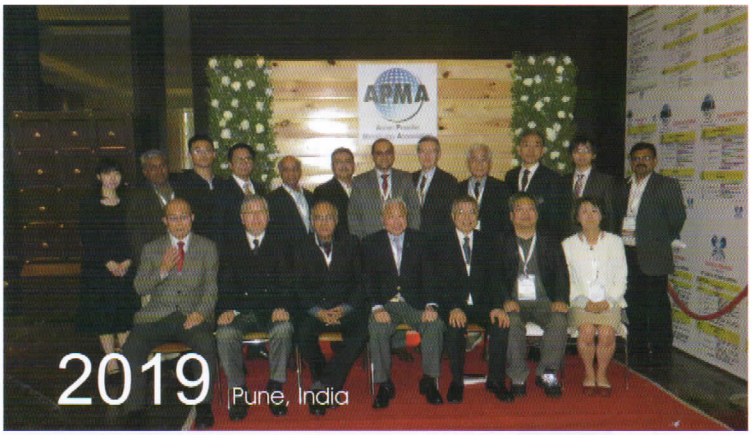
❍ Membership

Business organizations and academic societies in Asia may become members of this Association.

❍ Main Works

1. Establishment of a venue for the PM World Congress in Asia and for the APMA Conference.
2. Communications among powder metallurgy organizations and societies in Asia.
3. Collection and preparation of statistics in Asia.
4. Exchange of information on standardization.
5. Other activities.

2008 Washington, USA



2008 Founding Conference (Washington, USA)
2009 APMA Board Meeting (Florence, Italy)
2010 APMA Board Meeting (Tokyo, Japan)
2011 APMA 1st Biennial Meeting (Jeju, Korea)
2013 APMA 2nd Biennial Meeting (Xiamen, China)
2015 APMA 3rd Biennial Meeting (Kyoto, Japan)
2017 APMA 4th Biennial Meeting (Hsinchu, Taiwan)
2019 APMA 5th Biennial Meeting (Pune, India)

Chu, Chiu-Lung

Current Occupation

Porite Corporation	Director
Porite Taiwan Co., Ltd.	General Manager
Asia Powder Metallurgy Association	President
Materials Research Society Taiwan	Director
Taiwan Transportation Vehicle Manufactures Association	Director
Taiwan Metal Industry Association	Director
International Journal of Powder Metallurgy (USA)	Editorial Committee of International Liaison Committee
The Chinese Institute of Mining & Metallurgical Engineers	Honorary Director
Taiwan Powders and Powder Metallurgy Association	Honorary Director
The SOFC Industrial Alliance	Convener

Past Experiences

1986-1988	Taiwan Powders and Powder Metallurgy Association	Vice President
1988-1992	Taiwan Powders and Powder Metallurgy Association	President
2001-2002	2002 World PM Conference	Technical Program Chairman
2004	European Powder Metallurgy Association PM2004	International Liaison Committee
2010-2013	The Chinese Institute of Mining & Metallurgical Engineers	President
2013-2017	Taiwan Powders and Powder Metallurgy Association	President

Emily D. Tsai

Secretary

While I was engaged in administrative work at a powder metallurgy company, I would often hear General Manager Chu talk about powder metallurgy associations in Asia and other parts of the world. I always thought that powder metallurgy was irrelevant to me because it was different from my job. It was not until Mr. Uetsuki, Executive Director of the Asia Powder Metallurgy Association (APMA), visited Taiwan in August 2019 that my view of the powder metallurgy industry changed. Although powder metallurgy products are intangible in daily life, they are indispensable.

To promote the association business more smoothly and according to the resolution made by all members in 2019, the country of origin of the President will take charge of the Office of APMA. It's an honor to serve all members. It has been nearly 12 years since the APMA was established. I thank every member for their support and look forward to their continuous support and guidance in the future.

I was fortunate enough to attend the 2008 World Congress on Powder Metallurgy held in Washington D.C. During my stay in the States, I took part in various seminars held by the Metal Powder Industries Federation (MPIF) and it struck me that an integrated organization for powder metallurgy in Asia has yet to be established, despite the numerous countries and cultures in the region. After discussing this with Mr. Isamu Kikuchi (then President of Japan Powder Metallurgy Association) along with other Asian representatives (from Japan, Taiwan, Korea and India) who also attended the event, we came to the unanimous decision to establish the Asia Powder Metallurgy Association (APMA) and reached a consensus on details, such as the organization of the association and model of its operation.

The Asia Powder Metallurgy Association was founded with the mission to facilitate exchange and collaboration of powder metallurgy industries of member countries and relevant academic institutions, and 12 years have passed since its inception. Under the leadership of Mr. Isamu Kikuchi, the first President of the Association, the Association has since held biennial international conferences in Asia, organized by members, including the "APMA 2011 in Jeju Korea, APMA 2013 in Xiamen China, APMA 2015 in Kyoto Japan, 2017 Taiwan and 2019 in Pune India". At each of the International Conferences, the host nation would welcome experts and elites from various Asian and European/US sectors and academia with proceedings featuring local cultural elements and full agendas to ensure that all participants received proper hospitality and plenty of takeaways from the conference.

Since I accepted the position of APMA President in 2018, the Association now has nine members from Japan, Taiwan, Korea, India and Thailand. As a member of the global village, the Association will continue to contribute to the prosperous development of the metal powder industries in Asia while strengthening our ties with regional organizations of metal powder industries in Europe and U.S. to create more opportunities for exchange.

Chiu-Lung Chu
President, Asia Powder Metallurgy Association

No.1, Zhongpu Street, Zhunan Township, Miaoli County 350028, Taiwan
Secretary General: Ms. Emily D Tsai
E-mail: emilyt@apma.asia
TEL: +886-37-581-121 Ext. 274
FAX: +886-37-581-128
www.apma.asia

Korea KPMI

kpmi
Korean Powder Metallurgy Institute

Korean Powder Metallurgy Institute (KPMI) is a professional academic society consisted of over 1,800 specialists in universities, research institutes and companies on powder metallurgy technology leading the key and future advanced industries. KPMI contributes to industrial reinvigoration, capability improvement and global specialist cultivation in PM industries, with the activities of R&D, technical information exchange between academics and industries, and international cooperative network, since 1993.

Dr. Sung-Tag Oh

President of KPMI

Professor
Department of Materials Science and Engineering
Seoul National University of Science and Technology

My name is Sung-Tag Oh, President of the Korean Powder Metallurgy Institute since 2020. I and the members of the society will cooperate actively for the development of the Asian Powder Metallurgy Association. Next year, APMA 2021 will be held in Jeju Island, Korea. We are looking forward to meeting you in Jeju for the unique opportunity to exchange knowledge and experience with experts and professionals from academia and all branches of the industry.

Korean Powder Metallurgy Institute Spring Conference

2nd International Symposium on Innovation in Materials Processing
Incorporating the Fall Conference of Korean Powder Metallurgy Institute

2019 April 4-5
Yeosu Expo Convention Center, Yeosu, Korea

kpmi

isnnm

Korean Powder Metallurgy Institute
Unit 706, (635-4, Yeoksam-Dong) 22, 7-gil, Teheran-ro, Gangnam-gu, 06130
Seoul, Republic of Korea
E-mail: kpmi@kpmi.or.kr
TEL: +82-2-539-4603 FAX: +82-0303-0947-4603
www.kpmi.or.kr
www.isnnm.org

2019

November 6-8
Phoenix Jeju, Korea

Korean Powder Metallurgy Institute Spring Conference

2020

April 2-3,
Gyeongju Hwabaek Convention Center, Gyeongju , Korea

Powder Metallurgy Technician's School

2019

November 27-28,
Korea Institute of Materials Science, Changwon, Korea

July 5 - July 10, TU Wien, Vienna, Austria

Korean Powder Metallurgy Institute Fall Conference

2020

November 4-6,
Phoenix Jeju, Korea

Korea
KPMA

Mr. Kun Jin Lee

President of KPMA.
Korea Sintered Metal Co., Ltd.

I have been serving as the president of KPMA since March 2017.

Also I am the president of Korea Sintered Metal Co., Ltd., and Samhan Co., Ltd., those Companies are powder metallurgy companies that represent Korea in the powder metallurgy market.

I hope to continue all of our growth and development through close cooperation and offer assistance to those who serve powder metallurgy industry.

KPMA gathered for the first time in 2000 in support of the 2006 World PM Congress and has since remained its operation; it currently has 30 member firms including PM manufacturers, Powder suppliers, and Equipment companies.

Details of the members:
PM sector include Korea Sintered Metal, Halla Stackpole, Sinteron, Korea Powder Metallurgy plus 13 more members that cover more than 95% of the entire PM Market share.
Powder production companies are: Chang Sung Corp, Poongsan Holdings, Höganäs Korea+Powder sales representatives followed by Metek (QMP), Woolim (Kobe steel) etc. Equipment companies include Dae Hwa Press, Jung Wha Press, Korea Tamakawa. + Equipment sales office Naewai Commercial (Yoshisuga), Yangwoo (Fluidtherm). KPMA gathering is scheduled 4 times per year and one of them is the Annual General Meeting.

KPMA president and directors serve a 2-year term with possible extension.

KPMA has been a center that helps exchange market information, introduce new technology and keep a mutual relationship among members. It also helps members to obtain reliable statistical data about the industry by continuingly collecting data such as Korean Iron powder shipments which provide the best barometer for the health of PM industry.

On behalf of its members, KPMA speaks with a single voice to deliver its demand to the State Ministry.

However, it is still a young organization and more technical programs need to be planned. KPMA has begun to organize technical sessions at the joint technical symposium with KPMI and will also partake in biennial technical education programs.

Over the years, the PM industry has increasingly grown in parallel with the growth of affiliated industries it serves by welcoming and embracing new metal powder based technologies and solutions.

In the future, KPMA needs to work together with the members and continues to encourage them to participate in the development of new PM parts and technologies by promoting and sharing the industry's success stories.

Korean Powder Metallurgy Institute Sinkwan
908-ho, 22, Teheran-ro 7-gil, Gangnam-gu,
Seoul, Republic of Korea
E-mail: kunlee1224@hanmail.net
TEL: +82-2-539-4603
FAX: +82-0505-115-4603
www.kpmi.or.kr

Mr. Joon Park

General secretary of KPMA.
President of JPC Company

I am the general secretary at KPMA. My first work with Powder industry was back in 1988 with Hoganas Korea company. After 23 years of service, I started up my own company, JPC, importing and distributing iron copper, nickel powder to PM industry. I am honored to have witnessed the development of Korean PM industry with my own eyes since the 1980s when it was really small; then it began to grow and take off from the early 2000s.

Now Korean PM market is estimated to be 70,000 ton in terms of Iron powder demand. The growth of PM is, of course, dependent on the growth of the end user market, in the press and sintering business and in the automotive sector. Traditional markets for PM are being threatened across the globe, as the automotive industry is forced to move away from large internal combustion engines to smaller power units and alternative energy sources. Some said already in early 1990s that it would happen in 10-15 years time. Others say now in 2020 that will be a norm in 5-10 years. It looks likely to happen sooner. Do you really feel discouraged? Why don't you try to look at the bright side?

Development is the key we must go through, and it is most important during periods of significant changes in the markets and members it serves, especially where the core of the industry find itself at risk. The changing automotive landscape, shaped by growing demand for hybrid and electric vehicles, is of concern to many in the field of Powder Metallurgy. However, with this threat, opportunities also arise.

Looking back in early 1990s, the size of Korean market compared to that of 2020, Korean market has grown about three times bigger.

What could have happened if we were all just discouraged when we first heard about the shift of industrial trends? New PM parts have emerged year after year around the globe, and they also took over markets that were making parts with other technologies. A lot of effort on new PM parts have been made but have never been produced yet by PM technologies, for instance, the PM transmission gear that's being developed. I would like to see the trends continue. I also believe and trust it is the way the PM industry should undergo and it will greatly benefit to all the supply chains.

Members meet 4 times, including One annual General meeting per year.

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Japan JPMA

JPMA Association introduction

The Japan Powder Metallurgy Association was founded to promote Powder Metallurgy Industries of Japan in 1956, and is going to celebrate the 64th anniversary of the establishment, in April, 2020. During these years, the PM fields have been developing steadily, and they laid a stable foundation for the PM business to be established.

The Association Members are composed of 62 companies, including 4 overseas companies, and 2 Associations (MPIF and EPMA). The members of this Association focus on manufacturing PM products, metal powder products, PM machines, and sales. The JPMA activities are carried out by 12 working groups, such as 10 committees and 2 sections supported by about 100 staff belonged to various association members, and more than 50 meetings are held annually.

The members of Automobiles and Automobile Parts Manufacturers also participate in JPMA activities as PM consumers. Recently, MIM related members are increasing their activities such as holding MIM product booths in exhibitions under the cooperation of the JPMA. We are promoting new projects and recruiting technology companies such as the state of the art 3D laminate shaping business. The JPMA is considering to make activities more substantial and active to further promote PM industries.

The JPMA Secretariat members are Mr. Yusuke Watanuki, Manager in charge of Technology (hobby: running, bike maintenance), Ms. Tokie Sakamoto, Chief in charge of Accounting (hobby: walking and gourmet tour, her favorite is chocolate), Ms. Aoi Yamanaka, Chief in charge of planning and statistics (hobby: aquarium tour, her favorite is shark), and myself Yoshio Uetsuki, Executive Director.

Your cooperation would be much appreciated.

Mr. Nobuhiro Hashimoto

President of JPMA
Sumitomo Electric Industries, Ltd

To Our APMA members:
I would like to introduce myself as the new chairman of JPMA from May this year. My name is Nobuhiro Hashimoto. I appreciate that you give me this great opportunity to offer my greetings in the APMA newsletter. Japan Powder Metallurgy Association (JPMA) was founded in 1956 to conduct research on the powder metallurgy industry, to improve its development and to promote the welfare of customers. Currently, 62 companies are JPMA's members including product manufacturers, raw material manufacturers and equipment manufacturers.

I am also the general manager of Powder Metal Products Division in Sumitomo Electric Industries, Ltd. I would like to introduce our sintering business: the powder metal products business operates in 10 countries around the world, and there are 15 affiliated companies worldwide (1 in Japan, 3 in North America, 3 in China, 3 in ASEAN, 3 in Europe, and 2 in Korea) and 18 manufacturing bases. We will continue to provide a stable supply of high-performance materials and unique powder metal products to our customers around the world.

Looking at the world economy this year, the decline in the growth rate has become remarkable, and the environment surrounding the powder metallurgy industry in Asia is predicted to remain gloomy. In addition, the trend of electrification of automobiles is accelerating, which means our main market, the automotive industry, is undergoing a once-in-a-century revolution resulting in the elimination of many engines and transmission parts. In order to address these difficult issues, it will be important for APMA participating in organizations to interact with each other and share information on how to extend the use of sintered products.

In 2021, an international conference hosted by APMA will be held in Korea. We (JPMA) will continue to support APMA activities in the future, including dispatching a delegation team to Korea. In 2024, WORLD PM2024 will be held in Yokohama. We would be most grateful if you could join us at the event.

I would like to thank everyone in advance and am looking forward to meeting APMA members in the near future.

Mr. Yoshio Uetsuki

Executive Director of JPMA
Japan Powder Metallurgy Association,
Executive Director

Dear Friends,
This is Yoshio Uetsuki, Executive Director of JPMA, and let me introduce myself.

I worked at Sumitomo Electric Industries, Ltd., for 38 years, and retired in July 2019. Now I work for JPMA. Please call me "Yoshi" as the shortened name. My home is in Setagaya-ku, Tokyo, and my family includes my wife and a daughter.

My hobbies are driving, playing golf and power-spot tours, especially the last one, I have enjoyed the tours for a long time since such tours are fascinating to me.

The "Power Spot" is Japanese English, and may be translated to "an Energy Vortex" or a place believed to give visitors some special energy, a spiritual force that heals or refreshes. Well known Power Spots are generally thought to have historical or religious backgrounds; for example, the Imperial Palace and Meiji Jingu Shrine. When visiting such a spiritual place, it is thought to have dialogues with invisible existence, it may refresh my soul and body, and I can think myself as a part of the nature or the universe and feel eternal energy.

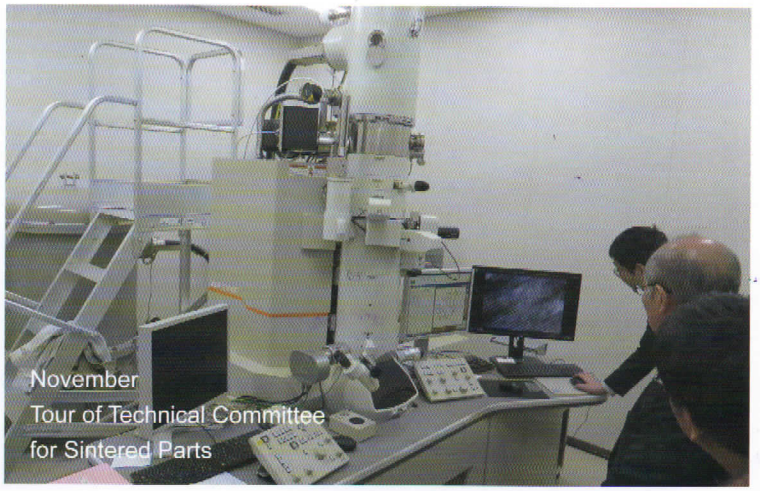
The recommended overseas power spot is the Holy place of Hawaii "Summit of Mt. Mauna Kea (4,205m above sea level), where we can observe the sun dynamically set in a sea of cloud that changes , and a never experienced sky full of stars from the nearby astronomy observatory.

According to one theory, our visible world is said to be about 5% of the whole world. When we experience a mystery of an invisible world, a new "awareness" could be obtained.

I think my position in the PM world assigns me a mission to further progress the PM industries. Under the notion of such mission, I would like to do my best, together with my APMA Friends. APMA Friends, for the sake of promoting Asian PM industries, let's work together in the future like we always have.

At last, I would like to describe my favorite word. This is the quote of the great Greek philosopher Socrates. "The only thing I know is that I know nothing."

2-16 Iwamoto-cho 2-chome, Chiyoda-Ku,
Tokyo 101-0032, Japan
E-mail: info@jpma.gr.jp
E-mail: y-uetsuki@jpma.gr.jp
TEL: +81-3-3862-6646 FAX: +81-3-5687-0599
www.jpma.gr.jp



Japan
JSPM

c/o Research Institute for Production Development, 15 Morimoto-cho, Shimogamo, Sakyo-ku, Kyoto 606-0805, Japan
E-mail: inoue@jspm.or.jp
E-mail: y-uetsuki@jpma.gr.jp
TEL: +81+75-721-3650 FAX: +81+75-721-3653
www.jspm.or.jp

JSPM is a learned society that supports scientific and technological inquiries and innovations in the field of the powder and powder metallurgy. We were founded in May 1958 and currently have more than 1,000 regular members, 140 student members and about 120 corporate members.

We hold annual meetings twice a year covering the complete field of powder and powder metallurgy, each with 200 presentations and 500 participants generally. Tutorial short courses and also lecture meetings on today's and tomorrow's challenges are also held regularly. Experimental studies on the development of technical skills are conducted on request.

Every year we hold 3 seminars to learn from the basics to the applied technologies of Powder and Powder Metallurgy. They have more than 100 attendees respectively, and they are very practical and useful for attendees.

We publish a scholarly journal entitled "Journal of the Japan Society of Powder and Powder Metallurgy" [Funtai oyobi Funmatsu Yakin] every month of each year as well as scientific and technological books occasionally. It is uploaded to the public web site of J-STAGE as soon as it is printed every month. Our online-journal URL is https://www.jstage.jst.go.jp/browse/jjspm/-char/en.

We award excellent scientific and technological achievements and also services, which are divided into 9 categories in the field of the Powder and Powder Metallurgy. 9 categories are: Award for Distinguished Service, Award for Distinguished Achievements in Research, Award for Distinguished Achievements in Development, Award for Innovatory Research, Award for Innovatory Development, Distinguished Paper

Prof. Kazuyoshi Yoshimura

President of JSPM
Professor

My major works in research are on transition-metal alloys and compounds: syntheses and chemical/physical characterizations (magnetism and superconductivity). I will do my best to manage JSPM well. All the best, KY

Ms. Yoko Inoue

Executive Director
Secretary General Association, Executive Director

I have been working at JSPM for more than 27 years. From this year, I'm going to attend to my work faithfully as an executive director. I did not major in PM technology. Instead, I did a lot of support works for members and APMA.

My first participation in the international conference was the 2006 World PM held in Jeju, Korea. I'm very glad to have some opportunities to attend many conferences and to meet a lot of people.

Here, I introduce myself. I like getting together with my friends and family. I always spend a happy time with pleasant talks, good cuisine and good drinks. There was a big news in March in my private life: my first granddaughter was born just in this month.

My hobbies are traveling, reading books and sewing. So I'm making some things for her. It's my current pleasant time.

I would like to make more communication and more to keep good friendships with my colleagues.

Award, Award for New Technology & New Products, Award for Distinguished Technical Skill, Award for Best Presentation by Student. Every member has the right to be given the award.

We have 7 technical divisions including 19 committees that discuss the scientific researches and technologies respectively. They aim to trial research studies on technical skills in the field of the powder and powder metallurgy. 7 technical divisions are: Fundamental of Powder Metallurgy, Hard Materials, Magnetic Materials, Fundamental of Powders, Powder Forming, New Functional Materials, Sintered Parts for Automobile.

2019
JSPM AWARD

Party
Spring Meeting

Fall Meeting

We will hold annual meetings in spring and fall (twice per one year in general).
The spring meeting this year will be held from 26th to 27th in May at the Nishiwaseda Campus, Waseda University.
There are 2 sessions of special interests and 4 special issues as follows:

Sessions of special interests

1. Simulation Technology for Materials and Process Using Powder as a Starting Material
2. Leading Edge of Environmental and Energy Materials 2020

Special Sessions

1. New Developments in Powder Metallurgical Technology and Product Evaluation
2. Control and Manipulation of Microstructure in Magnetic Materials for Functional Devices
3. Challenges and Further Development of Metal Injection Molding
4. New Development in Preparation of Nanomaterials and Technology for Their Use in Fabrication of Composites.

We have about 130 papers (oral presentations) and some exhibitions. We expect many interesting presentations and enthusiastic discussion with more than 450 participants.

In October, 2020, we will hold the fall meeting at Kyushu University in Fukuoka (12 years have passed since it was last held at Kyushu University).

We will also have some special topics there, for instance, "Additive Manufacturing" and "Hard Materials".

We will also hold the PM seminar every year, which consists of three courses: beginners (in July), basic and applied courses (in November). Participants can choose any of these courses they hope to take respectively.We hope the knowledge of Powder & Powder Metallurgy will be expanded through these courses.

Taiwan TPMA

TPMA

The Taiwan Powder Metallurgy Association (TPMA), founded in 1980, currently has 172 personal members and 82 industrial members. The aim of the TPMA is to promote technical and industrial development in the fields of powders and powder metallurgy in Taiwan. TPMA also provides a platform for knowledge exchange and cooperation.

Each year, the TPMA holds an annual member congress, several academic/technical seminars, and practice courses. The TPMA publishes numerous handbooks and the Bulletin of Powders and Powder Metallurgy Association (four volumes per year).

The association also contributes to international PM activities and conferences. Recently, TPMA members attended several international PM conferences, including APMA2019 in India, WorldPM2018 in China, APMA2017 in Taiwan, WorldPM2016 in Germany, and APMA2015 in Japan. The APMA2017 conference was organized by TPMA and held in Hsinchu, Taiwan. Furthermore, cross-strait PM conferences are held once every two years.

Rm. 404, Bldg. 52, No. 195, Sec. 4, Zhongxing Road,
Zhudong Township, Hsinchu County, Taiwan
E-mail: sfwang@ntut.edu.tw
E-mail: mwwu@ntut.edu.tw
TEL.: +886-3-5827091 FAX: +886-3-5822336
www.pmaroc.com.tw

Dr. Sea-Fue Wang

President

Distinguished Professor (Lifetime) and President
Department of Materials & Mineral Resources Engineering
National Taipei University of Technology

Sea-Fue Wang is a Professor of Materials Science and Engineering and the President of National Taipei University of Technology, Taiwan. He graduated from National Taipei Institute of Technology, Taiwan, in 1979. He received his M.S. in Metallurgical Engineering from South Dakota School of Mines and Technology in 1985 and his Ph.D. in Ceramic Science from Pennsylvania State University in 1991. From 1991 to 1993, he was a Research Associate at Materials Research Laboratory, Pennsylvania State University. Before joining Taipei Tech in 1997, he was a Senior Research and Development Engineer at Vitramon Incorporated, a company of Vishay. He had served as Department Head for 6 years, Dean of Engineering College for 3 years, and Vice-President of the University for 4 years. He was elected as the 14th President and inaugurated on February 1st, 2018.

His research interests include processing, characterization, and theoretical understanding of electronic, magnetic, and optical ceramics. Professor Wang has been recognized worldwide for his contribution in the development of low-fire microwave ceramics, formulations for multilayer ceramic capacitors (MLCCs) and inductors (MLCIs), solid oxide fuel cells (SOFCs), and ceramic films for resistive random access memories (RRAMs). These outstanding results have been published in SCI journal papers and transferred as technical patents. He is currently the Chairperson of Asian Electroceramics Association (AECA) and Powders and Powder Metallurgy Association of the Republic of China, Vice President of the Materials Research Society, Taiwan and the former Chairperson of Taiwan Ceramic Society. He was the chairman of organizing Committee for the 4th International Conference on Powder Metallurgy in Asia (APMA-2017), the general chairs of 10th Asian Meeting on Electroceramics (AMEC-2016), International Union of Materials Research Societies-International Conference on Electronic Materials 2014 (IUMRS-ICEM 2014) and 2013 International Thin Films Conference. To date, he holds more than 65 national and international patents and 283 scientific journal publications. Due to his great contribution to Materials, he has won many awards including Distinguished Engineering Professor Award granted by Chinese Institute of Engineers, Taiwan, Outstanding Service Award granted by Materials Research Society, Taiwan, 15th National Standardization Achievement Award granted by Bureau of Standards, Metrology & Inspection, M.O.E.A, R.O.C. and Ceramic Indus. Award granted by Taiwan Ceramic Society.

Dr. Ming-Wei Wu

Secretary General

Professor
Department of Materials & Mineral Resources Engineering
National Taipei University of Technology

Prof. Ming-Wei Wu is a professor in the Department of Materials and Mineral Resources Engineering, National Taipei University of Technology, Taiwan. He also serves as the secretary-general of Taiwan Powder Metallurgy Association (TPMA). Prof. Wu earned his PhD in Materials Science and Engineering at National Taiwan University in 2007. He was a visiting PhD student at the Institute of Materials Science and Technology, Technical University of Berlin, Germany, in 2006. Prof. Wu was previously an R&D engineer at Solar Applied Materials Technology Corporation in 2008 and 2009. He held an academic position at National Formosa University between 2010 and 2013 before joining National Taipei University of Technology in 2014.

His research fields are the sintering and processing of metallic and ceramic powders. Within these fields, he mainly focuses on three topics: (1) Sintering and the mechanical properties of various powder metallurgy steels, (2) anisotropies in the microstructure and mechanical properties of selective laser melted Ti alloys, and (3) sintering and the electrical properties of ZnO-based and TiO2-based sputtering targets for transparent conductive films. His areas of expertise include powder metallurgy, sintering theory, microstructural characterization, mechanical properties, and fracture analysis.

Prof. Wu has published more than 50 articles (journals, conferences, and proceedings), including 6 papers in Metallurgical and Materials Transactions A, 5 papers in Materials Science and Engineering A, 3 papers in Journal of the European Ceramic Society, 2 papers in Materials and Design, 2 papers in Ceramics International, and 1 paper each in Journal of Alloys and Compounds, Journal of the American Ceramic Society, Materials Characterization, and Metals and Materials International. He was the first author on the previous 22 SCI articles. Furthermore, Prof. Wu was awarded the Marcus A. Grossmann Young Author Award by ASM International in 2016.

India
PMAI

The Powder Metallurgy Association of India was founded in 1973. Its aim and objective is to serve as a National Organization to promote, encourage and develop the growth of Metal Powder and Powder Metallurgy Industries and stimulate interest in the science and technology and allied techniques and applications thereof.

The Powder Metallurgy Association of India acts as an interface and facilitator to Powder Metallurgy Industry, Academic institutions and Government of India, and furthers the development of Powder Metallurgy in India through structured initiatives. The Powder Metallurgy Association of India hosts one annual International Powder Metallurgy Conference, in addition to hosting Powder Metal Short courses for industry and students.

Mr. Aniket Gore

President of PMAI

Mr. Aniket Gore is a Chemistry Graduate from Mumbai University. After a couple of years of pharmaceutical marketing, he learnt paint technology and co-established a specialty coating company, Harlequin Coatings, which continues to be a niche supplier of high quality coatings. In 1997, Mr. Gore joined the family business and focused on expansion and diversification of the flagship company Ceramet Consultants Pvt. Ltd. Today, Ceramet Consultants has evolved into a business strategy and execution house, and supplies critical capital equipment and niche raw materials to a number of industries in India.

Ceramet has established market leadership concerning supply of niche solutions to the powder metallurgy, Ceramic, Magnetic and Graphite Industries in India. Mr. Gore has been working with PMAI since 1997, and had served as the Joint-Secretary and Vice-President. Mr. Gore is also a known name among the niche investor circle in microcap and small cap Indian Equities. He also participates as an angel investor in the startup ecosystem in India. He is also a mentor and board member of a fast scaling consumer beverage and snack business based out of South India.

APMA 2019

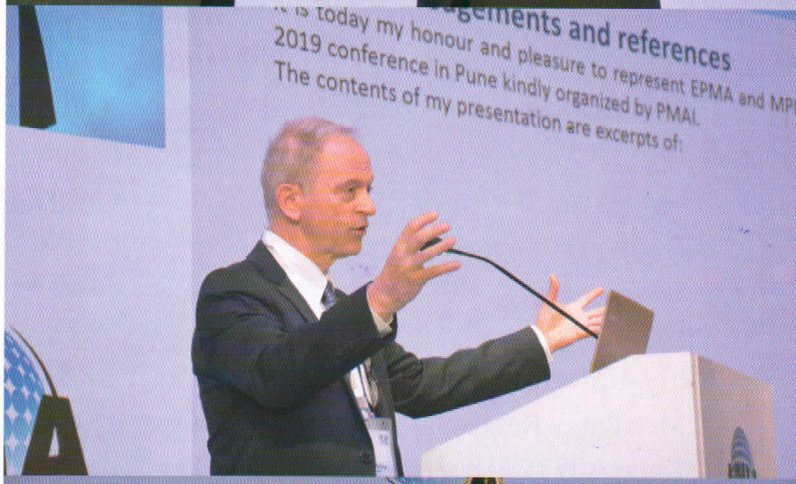
Mr. K.S. Samant

Director of PMAI

Mr. Keshav Samant has worked with IIT Mumbai as a technical officer in the area of Powder Metallurgy. He had the privilege to collaborate with eminent Indian P/M personalities like Prof. G.S .Tendolkar and Prof. P Ramakrishnan. His specialized area has been heavy duty contact materials and diamond tools. He has been associated with many projects undertaken by IIT Mumbai in the area of P/M.

Mr. Samant has been associated with PMAI since 2002, and was the Honorary Treasurer for 8 years, before taking over the responsibility as the Director PMAI. Mr. Samant is also an international Bridge player of repute. He has represented India in several World Championships and has taken many responsible positions in Indian Federation such as Chief of Technical Management, Chief of Junior Development. Presently, Mr. Samant is Honorary Secretary and Chief Coach of the Bridge Federation of India.

102, Anandi, 1st Floor, M.B. Raut Road,
Shivaji Park, Dadar,
Mumbai - 400028, India
E-mail: president@pmai.in
director@pmai.in
TEL: +91-2224-441052
www.pmai.in



APMA
Asian Powder Metallurgy Association

APMA 2019

China CPMS

China Powder Metallurgy Society is a joint committee of different powder metallurgy-related branches of 7 societies or associations, including China Nonferrous Metals Society, China Materials Society, China Mechanical Engineering Society, China Metals Society, China Steel Structure Association, China General Machine Components Industry Association, and China Nonferrous Metal Fabrication Industry Association. It was founded in 2000 with 5 PM society (associations) branches and expanded to 7 society (association) branches in 2012. The headquarters of CPMS is located in Powder Metallurgy Research Institute (PMRI), Central South University (CSU), and is managed by The State Key Laboratory of Powder Metallurgy. CPMS is responsible for academic gathering of professors, scientists, and engineers, for PM education to college students and industry technicians, for popularization of PM knowledge to the society and for constructive policy advice to state and local governments. Powder Metallurgy Research institute in CSU was the originating place of powder metallurgy in China, and had supported china's powder metallurgy with more than 5000 alumni in universities, institutes and industries. Now PMRI has more than 210 staff, 2000 undergraduate and postgraduate students, and is one of the world-largest centers for R&D and education of powder metallurgy. Based on CPMS, PMRI will aim to provide a solid platform for technology communication and information exchange on powder metallurgy, to establish close relationship in between PM universities and industries, to promote academic impact internationally, technological competitiveness, and to accelerate the progress of science and technology of PM in China.

Prof. Baiyun Huang

President
Member of Chinese Academy of Engineering

Prof. Huang earned his Bachelor's degree in Metallurgy in 1969 from Central South University of Mining and Metallurgy (now Central South University), and his Ph.D. degree in Materials Science from Iowa State University in 1986. Then, he worked for The University of Tennessee and Oak Ridge National Laboratory until 1988, when he came back to Powder Metallurgy Research institute of Central South University of Technology (also now Central South University), as a Professor and Director. Prof. Huang has long been working in advanced composites, including friction materials, high temperature carbon composites and near net shaping techniques, and invented a series of high-performance brakes and friction materials for airplanes, heavy vehicles and advanced machinery. He founded and led The State Key Laboratory of Powder Metallurgy, The National Engineering Research Center of Powder Metallurgy, National Collaborative Innovation Center for Advanced Nonferrous Structural Materials and Manufacturing, and made Central South University the largest R&D center for powder metallurgy and nonferrous materials in the world.

He has published more than 300 papers in peer-reviewed scientific journals and 60 patents, and received numerous high-level science and technological awards, including the highest National Science and Technology Innovation Award. Prof. Huang was elected as a member of Chinese Academy of Engineering in 1999, and a member of The World Academy of Science in 2007. He was the President of Central South University, the President of Chinese Materials Society and vice Chairman of China Association for Science and Technology.

Powder Metallurgy Research Institute,
Central South University,
No. 932, Lushan South Road,
Changsha Hunan Province 410083, P.R. China
E-mail: yonliu@csu.edu.cn
TEL: +86-731-88830417 FAX: +86-731-88830417
Under construction, or tentatively visit SKLPM
www.sklpm.csu.edu.cn

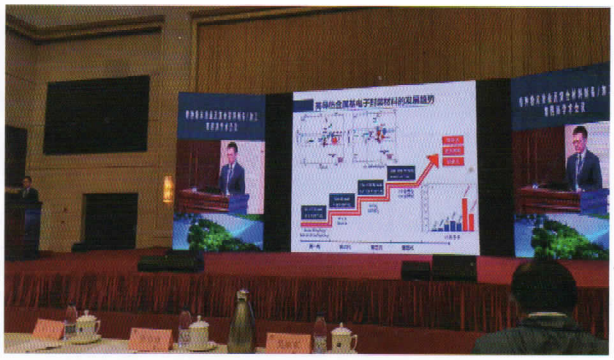
Prof. Yong Liu

Secretary General
Dean of Powder Metallurgy Research institute, Central South University

Prof. Liu earned his Bachelor's degree in Powder Metallurgy from Central South University of Technology (now Central South University) in 1993, and his Ph.D. degree in Materials Science from the same university in 1999, where he also worked as a lecturer, associated Professor and Professor. He was a visiting scientist in Oak Ridge National Laboratory and The University of Tennessee from 2005 to 2006, and as an experienced visiting scientist in RWTH Aachen from 2009-2011, awarded by Alxander von Humboldt Foundation, Germany. He was the vice Dean of Powder Metallurgy Research Institute of Central South University from 2016-2014, and the Dean of the institute since 2014. Prof. Liu has long been involved in powder metallurgical materials and techniques, including cemented carbides, Ti alloys and TiAl intermetallics, high entropy alloys and additive manufacturing. He successfully developed functional graded cemented carbides for mining and machining, and low-cost Ti alloys for advanced applications. He has published over 200 scientific journal papers and 2 books, applied for 44 patents, and has won the highest Science and Technological Progress Award of China for cemented carbides. He has also won several important prizes in China, including the Outstanding Young Scholar Project of National Natural Science Foundation of China. Now he is a member of the international editorial board of journals of Intermetallics and Materials Characterization.

September 18-21
Chongqing, Advanced PM Materials and Technology Session in 12th Annual Conference of China Nonferrous Metals Society

July 11-13, 2019
Chengdu, PM Materials Session in 2019 Annual Conference of China Materials Society



October 10-12
Yinchuan, 2019, 4th Conference on Manufacturing of Special Powder Metallurgy and Composites

2019

November 13-15
Changsha, Summit Meeting of China PM in 2nd Advanced Materials Industry Conference

China CPMA

CPMA
粉末冶金产业技术创新战略联盟
China Powder Metallurgy Alliance

Mr. Shaoming Zhang

President

Mr. Zhang Shaoming, doctoral adviser and professor, holds the positions of chairman of China Iron & Steel Research Institute Group, president of CPMA, vice-president of China Iron and Steel Industry Association, vice-president of the Chinese Society for Metals and the member of the National Committee of CPPCC. Engaged in the research on metallic materials and the advanced preparation and processing technologies for a long time, Professor Zhang endeavors to study and develop the metallic solidification control technology, metal powder materials and the preparation technology. He has been in charge of and participated in several national science and technology projects and international cooperation projects, won 1 second prize for National Prize for Progress in Science and Technology and 3 first prizes for provincial and ministerial prize for progress in science and technology, published more than 40 pieces of academic papers and applied for 25 patents.

CPMA was initiated and formed in August 2013, by 33 organizations and companies, including China Iron & Steel Research Institute Group, Central South University, Anshan Steel, Wuhan Iron and Steel, Laiwu Steel, Beijing Nonferrous Metal Research Institute, Guangzhou Nonferrous Metal Research Institute, TONGMUO New Materials Group Co., Ltd., Shanghai Automotive Powder Metallurgy Co., Ltd. and Wuhu Chery Technology Co., Ltd. It connects with domestic universities, research institutes and manufacturers in PM new materials, machinery and automotive applications. In 2011, CPMA officially joined the Asian Powder Metallurgy Association (APMA) as China's sole representative of the PM industry. In October 2013, CPMA officially became a national pilot union as publicized on the official website of the Ministry of Science and Technology of China.

In the past years since its establishment, CPMA formed a sound organization and a secretariat to develop the management system, built a website, actively carried out technological innovation activities, and achieved remarkable results. Its influence in PM and related industries has been increasing both domestically and internationally. CPMA also drafted the "12th Five-Year Plan" of Technological Innovation in PM industry, designed the PM technology roadmap, established standard committees, carried out the key technology joint research and formed a sustainable operation mechanism.

CPMA successfully organized series of conferences and parties, including the Annual National Powder Metallurgy Industry Development Forum, several technical and new product development seminars, the National Powder Metallurgy Powder Metallurgy Conference and Cross-Strait Seminar, APMA2013 and WORLDPM2018, etc. For the next step, the CPMA will focus on the key PM new materials and products required by the national economic construction, national defense and strategic development of new industries. It will organize the members to integrate production and research, actively carry out joint scientific and technological research, provide a series of high-quality products and technology solutions, develop the applications of new PM products in the emerging field of national economy, and achieve the overall development of powder metallurgy industry.

No.76, Xueyuan South Road, Haidian District, Beijing 100081, China
E-mail: shmzhang@cisri.com | hanw@cisri.com.cn
TEL: +86-106-2182168 / +86-106-2182468
FAX: +86106-2188076
www.cpma.com.cn

Prof. Wei Han

Secretary General

Ms. Han Wei is a professor, doctoral adviser, and director of China Iron & Steel Research Institute Group. She has been engaged in the research, development and scientific research management of metallic functional materials and powder metallurgy technology. She has also been responsible for several national scientific research projects, achieved 1 second prize for National Prize for Progress in Science and Technology and applied for 5 national patents. Professor Han has been the Executive Director and Secretary General of CPMA since 2010, responsible for the comprehensive work of routine business of secretariat of the union and the routine businesses. Furthermore, she is also the Secretary General of WORLDPM2018 World Powder Metallurgy Convention (Beijing).

1. In March, 2020 (the scheduled time, which has been postponed), the Alliance will serve as a supporting organization to hold the "Annual Meeting of Powder Metallurgical Industry Technology Innovation Strategic Alliance and 2020 Shanghai International Powder Metallurgy Industry Technology Forum" in Shanghai.
2. In July 2020, the Alliance will co-host the Fifth Conference on New Multiple-Use Materials for Military and Civilian
3. The Alliance will hold the Powder Metallurgy Technology Business Forum
4. In February, the Alliance began to organize domestic personnel to register for the Canadian World Powder Metallurgy Conference 2020.
5. The Alliance plans to organize a special committee to compile and release the "Blue Book on the Development of China's Powder Metallurgy Industry in 2020".
6. The Alliance will hold MIM and iron powder meetings in Guangzhou in the first half of the year and the MIM and Material Adding Manufacturing Forum in Shenzhen in the second half of the year.
7. Planning for the Establishment of the National Powder Metallurgy Industry Innovation Center.

PM Production in Asia

(Source JPMA, PMAI, KPMI, TPMA and CMPMA)

(Metric Tons)

AREA	Item	2017	2018	2019	19/18(%)
Japan	Iron-Base	92,166	92,283	89,239	96.7
	Copper-base	3,059	3,026	2,776	91.7
	Total	95,225	95,309	92,105	96.5
China	Iron-Base	169,636	168,876	162,612	96.3
	Copper-base	15,535	14,831	10,780	72.7
	Total	185,171	183,707	173,392	94.4
Korea	Iron-Base	68,917	65,858	64,531	98.0
	Copper-base	435	639	673	105.3
	Total	69,352	66,497	65,204	98.1
Taiwan	Iron-Base	32,637	34,800	32,630	93.7
	Copper-base	2,070	2,040	2,060	101.0
	Total	34,707	36,840	34,690	94.2
India	Iron-Base	33,600	36,000	40,000	111.1
	Copper-base	7,200	8,900	10,200	114.6
	Total	40,800	44,900	50,200	111.8
Malaysia	Iron-Base	3,744	3,970	3,920	98.7
	Copper-base	85	95	115	121.1
	Total	3,829	4,065	4,035	99.3
Singapore	Iron-Base	1,542	1,655	1,442	87.1
	Copper-base	404	314	384	122.3
	Total	1,946	1,969	1,826	92.7
Thailand	Iron-Base	16,498	19,771	18,434	93.2
	Copper-base	66	67	76	113.4
	Total	16,564	19,838	18,510	93.3
Indonesia	Iron-Base	6,134	6,778	6,588	97.2
	Copper-base	96	104	111	106.7
	Total	6,230	6,882	6,699	97.3
Total	Iron-Base	424,874	429,991	419,396	97.5
	Copper-base	28,950	30,016	27,175	90.5
	Total	453,824	460,007	446,571	97.1

*Included "Others"

Application Field Ratio of PM Production (2019) (%)

AREA	For Transportation Machines	For Industrial Machines	For Electrical Machines	For Others
Japan	94.2	4.0	1.4	0.4
China	57.0	1.0	28.0	14.0
Korea	95.9	0.0	2.3	1.8
Taiwan	44.0	26.0	8.0	22
India	80.0	7.0	8.0	5.0
Malaysia	67.8	1.7	30.2	0.2
Singapore	47.5	3.3	49.1	1.0
Thailand	92.8	3.6	3.6	0.0
Indonesia	100.0	0.0	0.0	0.0

Executive Director Report

Yoshio Uetsuki, Executive Director

Dear Friends,
Thank you very much for your kind cooperation with our JPMA activities in the last year.
At the beginning I would like introduce myself, my name is Yoshio Uetsuki assumed the JMPA Executive Director at July, 2019. I have made this annual report with thinking your continuous cooperation and reviewing events occurred during 2019. In the last year, Japanese PM industries may be said to have faced a turning point that their production turned to decrease than before in conjunction of car industries as PM's main user, that also faced reduction of production after 3 year favorable production.

<Topics of 2019>
The New Year Party was held in January, when various commendations were awarded. The PM Grand Prizes after a lapse of ten years were awarded to FINE SINTERCO., LTD. and TOYOTA MOTOR CORPORATION. The distinguished contribution prize was awarded to Mr. Isamu Kikuchi of PORITE CO., LTD for his contribution to strengthen PM industry foundation during long years including JPMA Presidency and APMA Presidency, and to Takashi Saito for his service as the executive Director of JPMA.

The Environmental Prizes were awarded to PORITE CO., LTD. HEAD OFFICE FACTORY, for the biggest reduction rate of emitted CO_2, and NAPAC CO., LTD. for the biggest reduction rate of industrial wastes. In order to promote the Environmental Protection, the JPMA enacted the Environmental Protection Campaign Logo Mark, and accordingly is continuously progressing the Environmental Protection activities for reduction of CO_2 and industrial wastes.

In February, a JPMA mission consisted by 14 members under the chief of Mr. Sonoda, JPMA Permanent Director participated in the APMA2019 Pune, India. Then, APMA Directors Meeting chaired by APMA President Mr. C. L. Chu was attended by 9 parties from 6 districts of China, India, Japan, Korea, Taiwan and Thailand.

The Conference Tour arranged by PMAI was held at Mercedes-Benz factory, which was of wonderful experience.

The conference of APMA2019 Pune impressed us so much with their arrangement of papers and their smooth conference administration. Taking this opportunity, we would like to thank you very much, PMAI President Mr. Aniket Gore, Former President Mr. Gopinath N. and PMAI members for their services such as sincere hospitality, nice Indian meals, and pleasant entertainments.

In December, four MIM makers joint-exhibited their products at the 6th high functional metal exhibition at Makuhari Messe with JPMA's support and the Technical Seminar about MIM held there was a great success with full of audiences.

"2019 Japanese PM production"
The Japanese economy became dull in response to the declining world economy and also due to low level of plant investigations, a sluggish exportation of important industrial products,

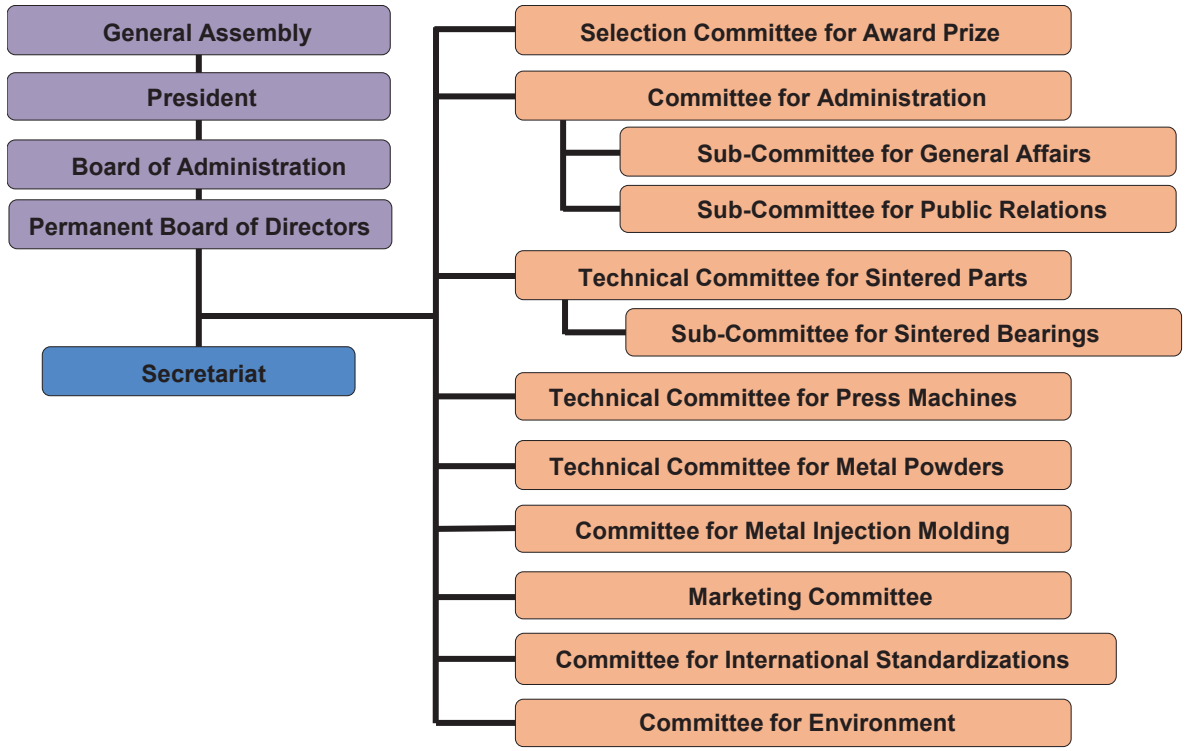
and heavy damages by several typhoons. Under these economic circumstances, the main industrial Automobile products were 9.68 million resulting 0.5% less than of 2018, according to Japanese Automobile Industries Association Statistics. The number of locally sold automobiles in the last year was more than 5million, but it was 1.5% less than the previous result after 3 years increasing.

The PM machine parts production whose over 90% is used in automobile industries was 86.2 kilo tons, which is about 2.7% less at comparison of previous year.

JPMA will continue progressing and widening activities to promote relationship among PM enterprises for supporting their efforts to make realistic products, PM technology progress, human resource development and relationship with overseas PM industries.

Taking this opportunity, I would like to express my sincere thanks to all of JPMA、JSPM、APMA、EPMA and MPIF. Hoping your heartful supports to extend for JPMA activities in the future.

Organization of JPMA



Board Members

President

❒Mr. Yoichi Inoue

President

FINE SINTER CO., LTD.

Executive Director

❒Mr. Yoshio Uetsuki

Japan Powder Metallurgy Association

Permanent Board Members

❒Mr. Nobuhiro Hashimoto

SUMITOMO ELECTRIC INDUSTRIES LTD.

❒Mr. Fumio Tsurumaki

DIAMET CORPORATION

❒Dr. Shigeki Katogi

Hitachi Chemical Co., Ltd.

❒Mr. Shigeo Aoki

PORITE CORPORATION

❒Mr. Ryosuke Horie

JFE Steel Corporation

❒Mr. Syuzo Sonoda

FUKUDA METAL FOIL & POWDER CO., LTD.

Board Members

❒Mr. Junichi Takahashi

IWAKI DIECAST Co., Ltd.

❒Mr. Masayoshi Nishimura

Fukuisinter Co., Ltd.

❒Mr. Hiroyasu Narukawa

KOBE STEEL, LTD.

❒Mr. Hirotaka Yoshinaga

Daido Steel Co., Ltd.

❒Mr. Atsushi Nagano

Dowa Electronics Materials Co., Ltd.

❒Mr. Michifumi Watanabe

Nippon Atomized Metal Powders Corporation

❒Mr. Carl-Gustav Eklund

Höganäs Japan K.K.

❒Mr. Katsuhiko Nomura

Mitsubishi Materials Techno Corporation

Auditor

❒Mr. Toshiharu Takahashi

Dowa Electronics Materials Co., Ltd.

❒Mr. Yuichi Miyagawa

Mitsubishi Materials Techno Corporation

JPMA Secretariat

❒Mr. Yusuke Watanuki (Manager)
General Assembly, Technical Committees, Events, Web, Publication
❒Ms. Tokie Sakamoto (Supervisor)
Accountant and General affairs
❒Ms. Aoi Yamanaka (Superbisor)
Statistics, Events, General affairs, Web

Activities of Committees

Selection Committee for Award Prize

Number of Committee Members: 14 persons

Chairman: Mr. Fumio Tsurumaki
(DIAMET CORPORATION)
New Chairman

*Selection Committee for JPMA Award (Development Prize)

GRAND PRIX
Sintering of disconnect parts
FINE SINTER Co., LTD.
TOYOTA MOTOR CORPORATION

Committee for Administration

Number of Committee Members: 20 persons

Sub-Committee for General Affairs

Number of Committee Members: 7 persons

Chairman: Mr. Motonobu Isaka
(DIAMET CORPORATION)
Commission from 2018

*Planning and operating of the PR meeting “JPMA Awards Special Session” at JSPM Spring Meeting in May
*Planning and operating of “the tour of Committee for Administration”.
*Publication of the report “Analysis of investigation results of sintered parts demand structure 2018” in June.
*Edition of the Brochure “2018 JPMA Annual Report (English)” in May and “2018 JPMA Annual Report (Japanese)” in July.

*Planning and operating of “22th Metal Powder and Equipment PR Meeting” and “37th Case Studies on Improving Production Efficiency Meeting” in November.
*Planning and operating of “PM information Exchange Meeting”.
*Support of the APMA2019 Pune.

Sub-Committee for Public Relations

Number of Committee Members: 8 persons

Chairman: Mr. Kazunori Kato
(FINE SHINTER CO., LTD.)
Commission from 2018

*Planning of operating of “7th Human resources development seminar”.
*Publication of JPMA News “Funmatsu Yakin” (No397-400).

Technical Committee for Sintered Parts

Number of Committee Members: 9 persons

Chairman: Mr. Toru Moriya
(FINE SHINTER CO., LTD.)
Commission from 2018

*Discussion of the matter for ISO/TC119 and SC3.
*Deliberation of Measurement of surface roughness.
*Planning and operating of the Plant tour for new markets.

Sub-Committee for Sintered Bearings

Number of Committee Members: 3 persons

Chairman: Mr. Yoshinari Ishii
(DIAMET CORPORATION)
Commission from 2014

*Deliberation of standardization of the PV value.
*Deliberation of the appropriate inter laboratory tests of the PV value.
*Deliberation of update of Bearings Website.

Technical Committee for Press Machines

Number of Committee Members: 6 persons

Chairman: Mr. Hideo Sato
(Mitsubishi Materials Techno Corporation)
Commission from 2016

*Exchange on Information for defect cases of Press.
*Exchange on Information for newfangled Press Machines.
*Planning and operating of “Joint Meeting by the three technical committees”.

Technical Committee for Metal Powders

Number of Committee Members: 15 persons

Chairman: Mr. Masashi Fujinaga
(JFE Steel Corporation)
Commission from 2016

*Discussion of matters for ISO/TC119/SC2.
*Revise of JPMA standard.
*Introduction of topics about “Metal Powder” by the Committee members and exchange of views mutually.
*Planning and operating of “Joint Meeting by the three technical committees”.

Committee for Metal Injection Molding

Number of Committee Members: 13 persons

Chairman: Dr. Hideki Nakayama
(CASTEM CO., LTD.)
Commission from 2018

*Investigation of the Japanese MIM market.
*Planning and operating of MIM PR (6th Highly-functional Metal EXPO).
*Planning and operating of “MIM Lecture Meeting for Users” and “Opinion Exchange Meeting among Young Workers of MIM Companies”.
*Deliberation of standardization of MIM – Specifications.

Marketing Committee

Number of Committee Members: 14 persons

Chairman: Mr. Toshihiko Nagata
(SUMITOMO ELECTRIC SINTERED ALLOY LTD.)
Commission from 2017

*Deliberation of update of the P/M Roadmap.

Committee for International Standardizations

Number of Committee Members: 7 persons

Chairman: Mr. Noboru Shimada
(PORITE CORPORATION)
Commission from 2017

*Attendance of 2019 ISO/TC119 Meeting in Stockholm, Sweden.
*Discussion of related matters for TC119/WG2, WG3, SC2 and SC3.

Committee for Environment

Number of Committee Members: 5 persons

Chairman: Mr. Kazunori Hattori
(SUMITOMO ELECTRIC SINTERED ALLOY LTD.)
Commission from 2018

*Investigation of 2018 follow-up survey for “Voluntary Action Plan for Environment of PM Industry”.
*Introduction of Case Studies of “CO_2 Emissions Reduction”, “Waste Product Reduction” and “KANKYO HIYARI”.
*Selection of the “Environment Awards”.
*Discussion of public relations of the Environment Logo Mark.

JPMA Events and International Communications

21, January

Gathering of 2019 New Year Greeting and Ceremony of Awarding Various Honors in 2018.

15, February

Joint Meeting by the three technical committees

19-21, February

5th International Conference on Powder Metallurgy in Asia (APMA2019 Pune)

20, February

APMA 11th Board Meeting

15, March

The 14th PM Information Exchange Meeting.

27, May

2019 JPMA General Assembly.

The 2019 Activity Plans and Budget of JPMA.

4, June

JPMA Special Session at the JSPM Spring Meeting.

13, June

Tour of Committee for Administration.

SUWADA Blacksmith Works, Inc.

TOJIRO CO., Ltd.

5, July

7th Human resources development seminar.

29, August

Meeting of APMA secretariat (TAIWAN)

10-11, October

ISO/TC119 Meeting at Stockholm, Sweden

24, October

2019 JPMA Fall General Assembly.

Announcement of 2019 JPMA Awards.

14-15, November

Tour of Technical Committee for Sintered Parts.

Kyushu University, Kumamoto University

22, November

The 37th Case Studies of Production Efficiency Improvement Meeting and the 22th Metal Powder and Equipment PR Meeting.

4-6, November

6th Highly-functional Metal EXPO.

MIM PR Seminar.

JPMA Publications

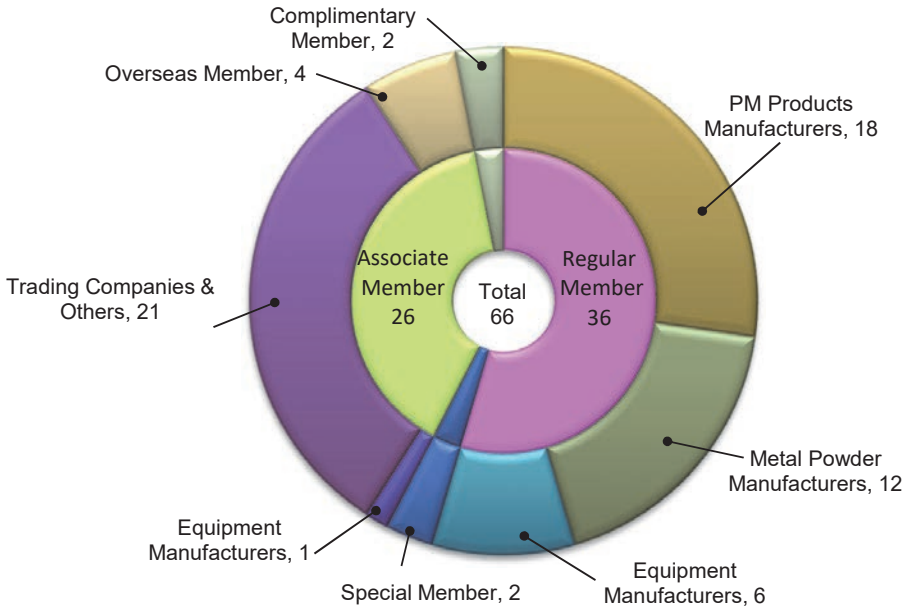
JPMA Standard “Determination of oxygen content by reduction methods – Part4: Total oxygen by reduction-extraction”.

The 40th Investigation Collection Results of Sintered Parts Demand Structure.

JPMA Report, 2018 (English and Japanese).

JPMA News “Funmatsu Yakin” (No397-400).

JPMA Membership



2019 New Members

Regular Member

atect corporation

Associate Member

Mitsubishi Corporation Technos

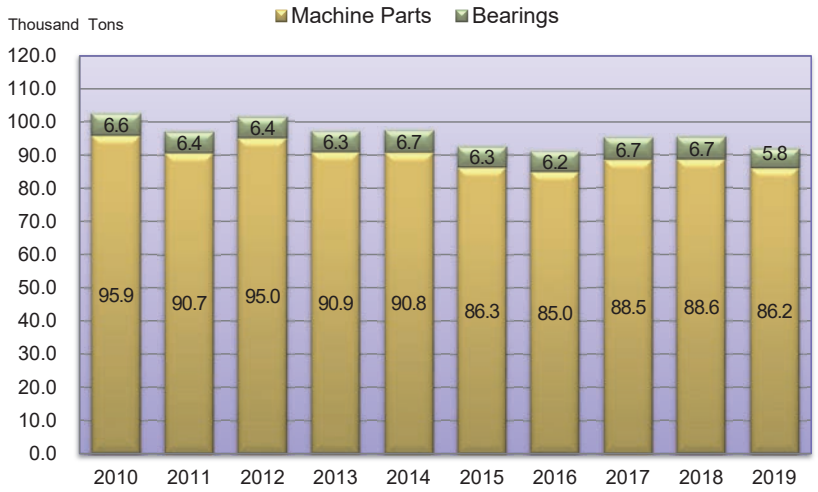
Statistics of Japan

Production of PM Products in Japan

Fig1 shows the production volume change of Machine Parts and Bearings for the period from 2010 through 2019.

In 2019, Machine Parts volume was 86,194 ton, 2.7% decrease from the previous year. Bearings volume was 5,822 ton, 13.2% decrease from the previous year. As the other products, Friction Materials volume was 683 ton, 11.9% decrease from the previous year. Electric Contacts volume was 41 ton, 37.0 % decrease from the previous year.

Fig1. Production of Machine Parts and Bearings (Calendar Year) (Source: METI)



Machine Parts and Bearings

Fig2 shows the analysis of demand for Machine parts and Bearings for the period from 2010 through 2019.

In 2019, Machine Parts Production volume for Vehicles was 81,463 ton, 2.3% decrease from the previous year.

The production amount of Vehicle parts, that is the main user of P/M in Japan, was good condition until the first half of the year, after the second half of the year, because of the trade friction between big countries and the depression of the rising nations, the export was decreased. In Japan, because of the consumption tax increase, nature disaster and the production increase in foreign countries owned by Japanese companies, the production amount was decreased.

Production volume of Bearings for Vehicles was 3,776 ton, 13.3% decrease from the previous year.

Because of the miniaturize of the motor for the transport machine and the decrease of foreign demands, same as Machine Parts, the production amount of Bearings was decreased. In future, the trend of miniaturize and the production increase by the spot in foreign countries are expected. The development to satisfy the customer demands like high accuracy and high efficiency is demanded for Bearing manufacturers.

Fig2. Analysis of Demand for Machine Parts and Bearings (Calendar Year) (Source: METI)

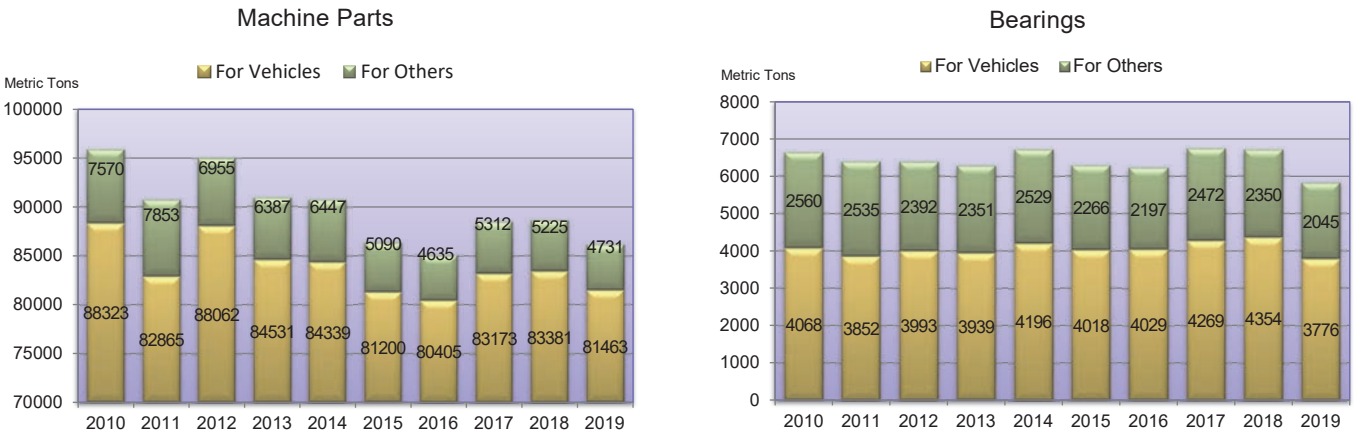


Fig3 shows the use breakdown of Machine Parts and Bearings in vehicle in 2018 based on the demand structure survey by JPMA.

Fig3. Breakdown of Machine Parts and Bearings for Vehicles (2018) (Source: JPMA)

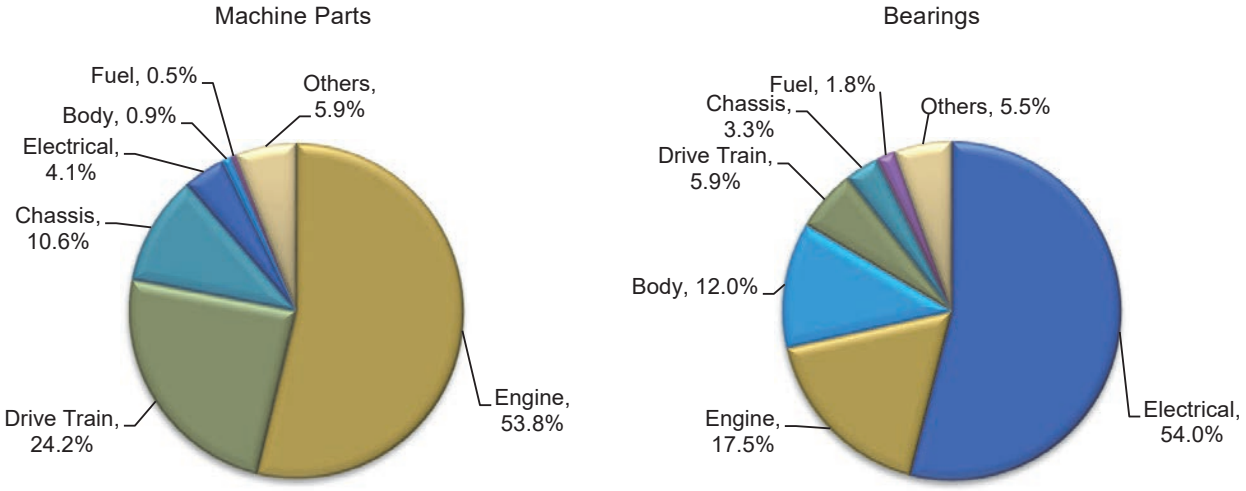


Fig4 shows the weight of sintered parts calculated for one car and the car production in Japan for the period from 2009 through 2018.

The weight of sintered parts calculated for one car in 2018 was 8.7kg in Japan, 19.5kg in U.S. and 8.5kg in Europe.

Fig4. Weight for sintered parts calculated for one motor car (Source JPMA and JAMA)

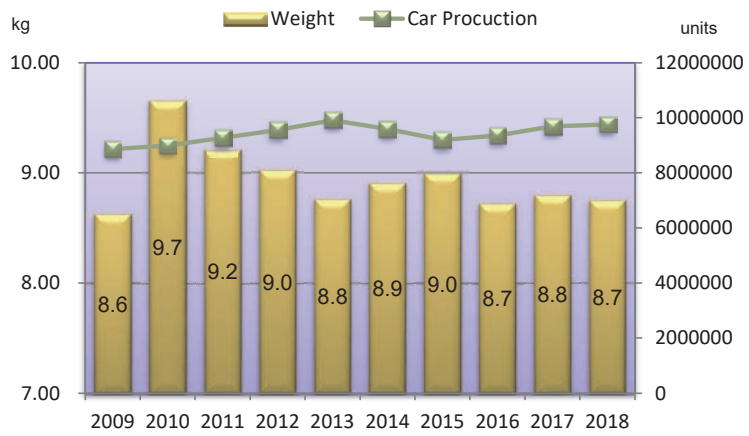
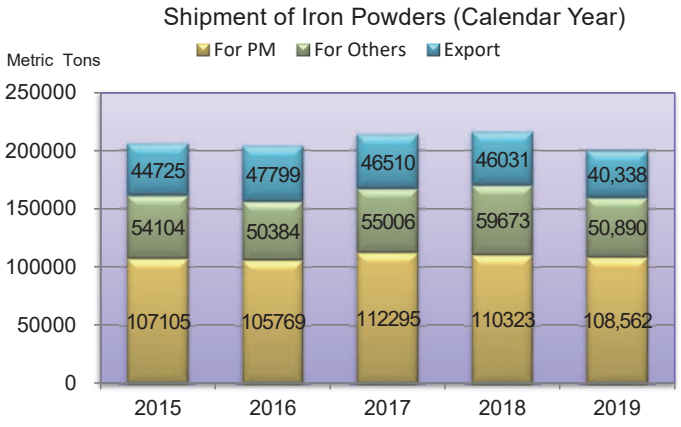


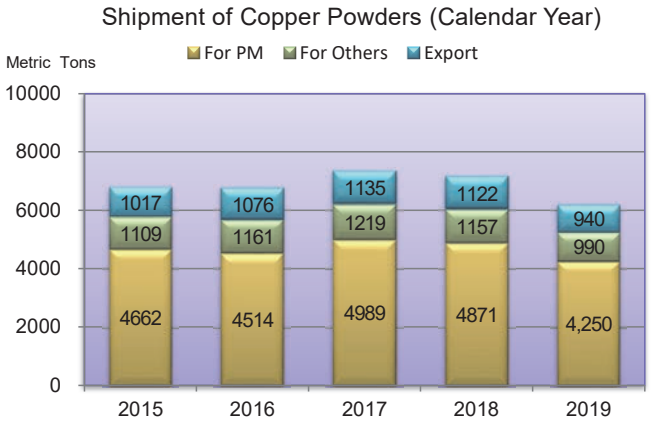
Fig5 shows the Shipment of Iron and Copper Powders for the period from 2015 through 2019 and Shipment of Other Powders for the period from 2014 through 2018.

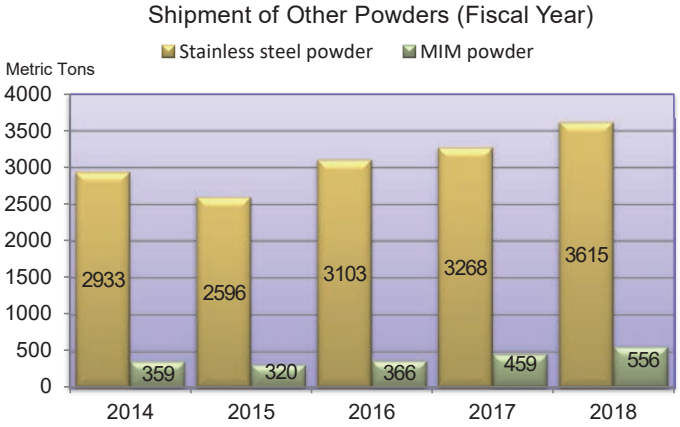
There is no big change between the shipment constitution of Iron Powder and Copper Powder, but the shipment of Stainless steel powder was expanded because of the use expansion for heat-resisting and anti-oxidation products.

Because the many use field of MIM products are existing in Japan, use trend is different for each use field, MIM powder demand will increase in future over all.

Fig.5 Shipment of Metal Powders (Source JPMA)







Awards

Personal Prize

Mr. Isamu Kikuchi

Supreme Advisor of PORITE CORPORATION

1963-2019

Chairman of JPMA

Chairman of APMA

Board Member of JPMA

Chairman of Selection Committee for Award Prize

Member of PM2012 Organizing Committee

Mr. Takashi Saito

Former Executive Director of JPMA

2014-2019

Executive Director of JPMA

Secretariat of APMA

Development Prize

GRAND PRIX

Sintering of disconnect parts

FINE SINTER CO., LTD.

TOYOTA MOTOR CORPORATION

New Design

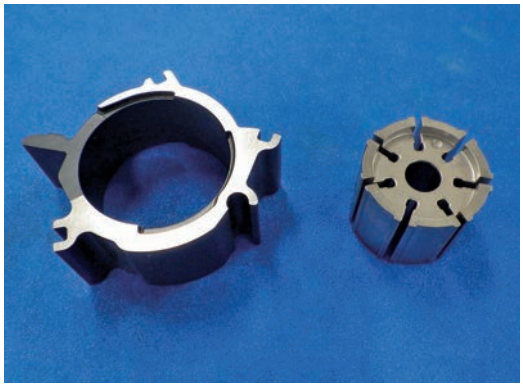
Sintered brake lining for new high-speed railroad vehicles

FINE SINTER CO., LTD.

Development of Double teeth Sprockets with the application of Green machining

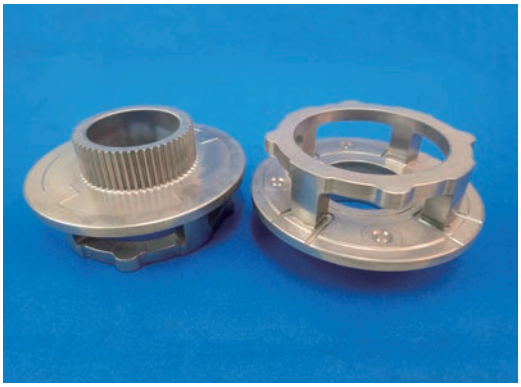
SUMITOMO ELECTRIC INDUSTRIES, LTD.

Development of the parts for the variable displacement oil pump



DIAMET CORPORATION

Development of Lightweight iron-based Sintered Carriers that can replace Aluminum products

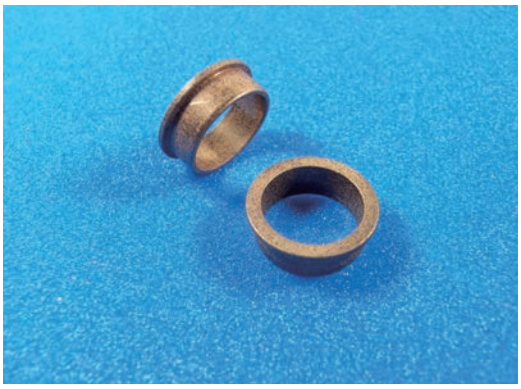


SUMITOMO ELECTRIC INDUSTRIES, LTD.

Development of Sinter Hardened 4WD Cam Parts with High Bending Fatigue Strength

SUMITOMO ELECTRIC INDUSTRIES, LTD.

Development of sintered oil-impregnated bearings for Electric Parking Brake (EPB)



DIAMET CORPORATION

New Powder

Premixed iron powder with machinability improvement effect in wide range of cutting condition

JFE Steel Corporation

Effort Prize

Development of Niobium-added Stainless steel Sintered material for Desensitization

SUMITOMO ELECTRIC INDUSTRIES, LTD.

Cost-down by using MIM (Metal Injection Molding) for industrial collaborative robots

FINE SINTER CO., LTD.

Prize for Distinguished Service of the Committee Activities

Mr. Masaaki Matsumoto
Tungaloy Corporation
2000-2019
Board Member
Auditor
Chairman and Member of Technical Committee for Sintered Friction Materials
Member of Committee for Administration
Member of Sub-Committee for Public Relations
Member of Committee for 60th Anniversary Edit

Recognition of Superior Employees

2019 prizewinner numbered 18 persons
(13 member companies)

Environment Prize

Reduction of CO_2 basic unit
NAPAC Co., Ltd.
Headquarter and Plant
(Nagano Prefecture, Japan)

Reduction for total waste basic unit
PORITE COPORATION
Headquarter and Plant
(Saitama Prefecture, Japan)

2019 APMA Activities

The 11th Board Meeting

Date：Wednesday 20 February 2019　17:00 - 18:15

Venue：Meeting Room 1st Floor, JW Marriott Hotel, Sanapati Bapat Rd.. Pune, India

Participants：

APMA Board Member

President	Chiu-Lung Chu (TPMA, Taiwan)
Director	Aniket Gore (PMAI, India)
Secretariat	Takashi Saito (JPMA, Japan)

Attendant of APMA Members Association

CPMA(China)	Xiangji Kong (Deputy Secretary General)
JPMA(Japan)	Motonobu Isaka (Chairman of Committee for Administration)
	Yoshio Uetsuki (Member of Committee for Administration)
	Kazunori Kato (Member of Committee for Administration)
	Aoi Yamanaka (Secretary)
JSPM(Japan)	Yoko Inoue (Director, Secretary General)
KPMA(Korea)	Joon Park (Secretary General)
KPMI(Korea)	Hyoung Seop Kim (President)
	Chang Kyu Rhee (Former President), Jai Sung Lee (Former President)
PMAI(India)	N.Gopinath (Former President)
	Deepak Grover (Vice President), NB Dhukey (Vice President)
	P. Ramakrishnan (Advisor)
TPMA(Taiwan)	Sea Fue Wang (President)
	Ming Wei Wu (Secretary General)
ThaiPMA(Thailand)	Boon Teeraprawatekul (Secretary General)

Conclusions

*Decided topics exchange method for each association

*2018 Finance and 2019 Budget was approved

*Report of APMA2021 Korea

*Report of Next WORLD PM2024 Japan

APMA2019 Pune, India Review

By the sponsorship of Powder Metallurgy Association of India (PMAI), APMA2019 was held at JW Marriot hotel in Pune, India, 3 days from February 19, 2019 through February 21.

This is the first time held in India for APMA meeting. The meeting was held from the registration at February18. The opening ceremony, presentation of market trend of Asia and India and the invitation lectures were held at February 19, and the invitation lectures and the paper publications were enforced at February 20. About 450 people attended mainly from Asian area. Including the exhibition, all paper publications and meetings were performed at JW Marriot Hotel.

The paper publications were performed from the afternoon of February 20 through February21, at 6 meeting rooms. Total 135 paper publications (132 oral presentation and 3 poster presentation) were performed.

PM Production in Asia

PM Production (Source JPMA, PMAI, KPMI, TPMA and CMPMA)

(Metric Tons)

AREA		2017	2018	2019	19/18(%)
Japan	Iron-base	92,166	92,283	89,239	96.7
	Copper-base	3,059	3,026	2,776	91.7
	Total	95,225	95,309	92,015	96.5
China	Iron-base	169,636	168,876	162,612	96.3
	Copper-base	15,535	14,831	10,780	72.7
	Total	185,171	183,707	173,392	94.4
Korea	*Iron-base	68,917	65,858	64,531	98.0
	Copper-base	435	639	673	105.3
	Total	69,352	66,497	65,204	98.1
Taiwan	Iron-base	32,637	34,800	30,630	88.0
	Copper-base	2,070	2,040	2,060	101.0
	Total	34,707	36,840	32,690	88.7
India	Iron-base	33,600	36,000	40,000	111.1
	Copper-base	7,200	8,900	10,200	114.6
	Total	40,800	44,900	50,200	111.8
Malaysia	Iron-base	3,744	3,970	3,920	98.7
	Copper-base	85	95	115	121.1
	Total	3,829	4,065	4,035	99.3
Singapore	Iron-base	1,542	1,655	1,442	87.1
	Copper-base	404	314	384	122.3
	Total	1,946	1,969	1,826	92.7
Thailand	Iron-base	16,498	19,771	18,434	93.2
	Copper-base	66	67	76	113.4
	Total	16,564	19,838	18,510	93.3
Indonesia	Iron-base	6,134	6,778	6,588	97.2
	Copper-base	96	104	111	106.7
	Total	6,230	6,882	6,699	97.3
Total	Iron-base	424,874	429,991	417,396	97.1
	Copper-base	28,950	30,016	27,175	90.5
	Total	453,824	460,007	444,571	96.6

*Included “Others”

Application Field Ratio of PM Production (2019) (%)

AREA	For Transportation Machines	For Industrial Machines	For Electrical Machines	For Others
Japan	94.2	4.0	1.4	0.4
China	57.0	1.0	28.0	14.0
Korea	95.9	0.0	2.3	1.8
Taiwan	44	26	8	22
India	80.0	7.0	8.0	5.0
Malaysia	67.8	1.7	30.2	0.2
Singapore	47.5	3.3	49.1	0.1
Thailand	92.8	3.6	3.6	0.0
Indonesia	100.0	0.0	0.0	0.0