Executive Director Report

Takashi Saito, New Executive Director JPMA

Dear Friends:

Thank you very much for your constant cooperation with JPMA activity.

Last year, many JPMA members participated in the PM2014 Florida, and enjoyed communications and intimate contacts with worldwide PM-related people gathered there, deepening friendship together. Also we would like to express sincere thanks to hosting members of MPIF/APMI for the heartfelt hospitality.

This year, the APMA 2015 will be held by Japan Powder Metallurgy Association and Japan Society of Powder Metallurgy at Kyoto University in Kyoto, Japan from November 8 through November 10. The first APMA conferences was held in Pusan, Korea, the second one was in Xiamen, China, and the APMA 2015 Kyoto will be the third APMA conference. The concept of the APMA 2015 is “Simple and Compact”, and accordingly we are preparing effective lectures and paper presentations using facilities of Kyoto University. Many papers have already been applied, so an active and comprehensive conference would be expected.

Meanwhile, since the Autumn is the one of best season to sightseeing beautiful sceneries of Kyoto, a lot of worldwide sightseers visit Kyoto, so we hope many domestic and foreign PM related people to participate in the Conference and at same time to enjoy Autumn of Kyoto.

In comparison with an increase of 1.5% over last year of domestic product quantity of automobiles which are main PM products consumer, the increase for the same period of domestic product weight of PM machine parts and bearings was 0.4% that is presumed the result for driving cars reflected by their tendency of becoming compact and light weighted.

The Japanese economy is recovering thanks to the weak Yen staying, the stock price rising and the world economy improvement, though the recovering is gradual. However, the situation that it is difficult to expect the expansion of domestic automobile production as before is still unchanged.

Under such circumstances, the JPMA is actively working for standard integrations, standardizations, and promoting technologies with environmental issues. We believe such continuous activities will surely be favorable for the promotion of PM technologies and products and also the advancement of PM manufacturing fields.

Lastly, please note that the JPMA Web site has been renewed recently. So we would be happy if you could access to the Web address described below so that you could know JPMA’s activities, JPMA prize awarded products, etc. to be familiar with JPMA.

Permanent Board Members

- Mr. Taichi Haraguchi
  DIAMET CORPORATION
- Mr. Yozo Sato
  Hitachi Chemical Co., Ltd.
- Mr. Yoichi Inoue
  FINE SINTER CO., LTD.
- Mr. Isamu Kikuchi
  PORITE CORPORATION
- Mr. Akihiko Hamano
  JFE Steel Corporation
- Mr. Syuzo Sonoda
  FUKUDA METAL FOIL & POWDER CO., LTD.

Board Members

- Mr. Junichi Takahashi
  IWAKI DIECAST Co., Ltd.
- Mr. Mikio Fujihara
  Tungaloy Corporation
- Mr. Kazuhide Kikuchi
  Tokai Carbon Co., Ltd.
- Mr. Masayoshi Nishimura
  Fukuisinter Co., Ltd.
- Mr. Isao Takagi
  KOBE STEEL, LTD.
- Mr. Kouhachiro Ohashi
  Daido Steel Co., Ltd.
- Mr. Atsushi Nagano
  Dowa Electronics Materials Co., Ltd.
- Mr. Masanori Kijima
  Nippon Atomized Metal Powders Corporation
- Mr. Carl-Gustav Eklund
  Höganäs Japan K.K.
- Mr. Kazuaki Kusakari
  Mitsubishi Materials Techno Corporation

Auditor

- Mr. Masaaki Matsumoto
  Tungaloy Corporation
- Mr. Tomomi Yamamoto
  Daido Steel Co., Ltd.

JPMA Secretariat

- Mr. Yusuke Watanuki (Deputy Manager)
  General Assembly, Committees, Events, Web, Publication
- Ms. Aoi Yamanaka (Staff)
  Statistics, Events and General affairs
- Ms. Tokie Sakamoto (Staff)
  Accountant and General affairs
Activities of Committees

Selection Committee for Award Prize
Number of Committee Members: 14 persons

Chairman: Mr. Yoichi Inoue
(FINE SINTER CO., LTD.)
New Chairman

*Selection Committee for JPMA Award (Development Prize)

New Design
Development of synchronizer hub with helical gear for DCT

SUMITOMO ELECTRIC INDUSTRIES, LTD.

Committee for Administration
Number of Committee Members: 22 persons

Sub-Committee for General Affairs
Number of Committee Members: 7 persons

Chairman: Mr. Sanpei Seki
(PORITE CORPORATION)
New Chairman

*Planning and operating of the PR meeting “JPMA Awards Special Session” at JSPM Spring Meeting in June
*Planning and operating of “the tour of Committee for Administration”
*Publication of the report “Analysis of investigation results of sintered parts demand structure 2013” in June
*Planning and operating of “18th Metal Powder and Equipment PR Meeting” and “32th Case Studies on Improving Production Efficiency Meeting”
*Planning and operating of “PM information Exchange Meeting”

Sub-Committee for Public Relations
Number of Committee Members: 8 persons

Chairman: Mr. Yoshio Uetsuki
(SUMITOMO ELECTRIC INDUSTRIES, LTD.)
New Chairman

*Renewal of the “JPMA Website (Japanese site)”
*Planning of operating of “2nd Human resources development seminar”
*Publication of JPMA News “Funmatsu Yakin” (No377-380)

2014 JPMA Annual Report
Technical Committee for Sintered Parts
Number of Committee Members: 9 persons

Chairman: Mr. Hiroaki Terai
(SUMITOMO ELECTRIC INDUSTRIES, LTD.)
New Chairman

*Discussion of the matter for ISO/TC119/SC3 and SC5
*Planning and operating of “Joint Meeting by three technical committees”

Sub-Committee for Sintered Bearings
Number of Committee Members: 4 persons

Chairman: Mr. Yoshinari Ishii
(DIAMET CORPORATION)
New Chairman

*Deliberation of standardization of the PV value
*Inter laboratory test of the PV value

Technical Committee for Sintered Friction Materials
Number of Committee Members: 3 persons

Chairman: Mr. Yoshihisa Ueda
(FINE SINTER CO., LTD.)
Commission from 2010

*Publication of the Excerpt of the Standard of Friction Material
*Exchange of Information for Friction Material
*Deliberation of “Opinion Exchange Meeting among Young Workers of Sintered Friction Materials Companies”

Technical Committee for Press Machines
Number of Committee Members: 7 persons

Chairman: Mr. Katsuo Murakami
(YOSHIZUKA SEIKI CO., LTD.)
Commission from 2010

*Exchange of Information for defect case of Press
*Exchange of Information for newfangled Press machine
*Planning and operating of “Joint Meeting by three technical committees”
**Technical Committee for Metal Powders**

John Doe, JFE Steel Corporation

Number of Committee Members: 16 persons

*Discussion of Matter for ISO/TC119/SC2 ISO4498 Join to the inter laboratory test
*Introduction of topics about “Metal Powder” by Committee members and exchange of views
*Planning and operating of “Joint Meeting by three technical committees”

**Committee for Metal Injection Molding**

James Smith, IWAKI DIECAST CO., LTD.

Number of Committee Members: 11 persons

*Investigation of the Japanese MIM market
*Operating on the Standardization of the “Materials Property (fatigue, impact and tensile) with Sub-Committee for Material Characteristics
*Planning of “the MIM booklet”

**Marketing Committee**

John Doe, POCORP CORPORATION

Number of Committee Members: 14 persons

*Introduction of topics by Committee Members and exchange of views
*Introduction of Information Gathering of User Market and Other Market

**Committee for International Standardizations**

Tatsuya Kajino, KOBE STEEL, LTD.

Number of Committee Members: 7 persons

*Discussion of related matters for TC119, SC2, SC3 and SC5
Committee for Environment
Number of Committee Members: 5 persons

Chairman: Mr. Motonobu Isaka
(DIAMET CORPORATION)
New Chairman

*Introduction of Case Study of “CO2 Emissions Reduction”, “Waste Product Reduction” and “KANKYO Hiyari”

### JPMA Events and International Communications

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
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<tbody>
<tr>
<td>15, January</td>
<td>Gathering of 2014 New Year Greeting and Ceremony of Awarding Various Honors in 2013</td>
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<tr>
<td>28, February-1, March</td>
<td>The 5th Opinion Exchange Meeting among Young Workers of MIM Companies</td>
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<td>20, March</td>
<td>The 9th PM Information Exchange Meeting</td>
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<td>9, May</td>
<td>2014 JPMA General Assembly</td>
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<td>Mr. Mamoru Moritani was elected as a new President.</td>
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<td>The 2014 Working Plans and Budget of JPMA</td>
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<td>18-23, May</td>
<td>PM2014 Would Congress in Orland</td>
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<td>21, May</td>
<td>APMA, 6th Board Meeting</td>
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<td>21, May</td>
<td>MPIF/EPMA/JPMA Meeting</td>
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<td>3, June</td>
<td>JPMA Special Session at the JPMA Spring Meeting</td>
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<td>19, June</td>
<td>Tour of Committee for Administration</td>
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<td>Kyushu University Ito Campus</td>
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<td>4, July</td>
<td>2nd Human resources development seminar</td>
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<td>23, October</td>
<td>2014 JPMA Fall General Assembly</td>
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<td>Announcement of 2013 JPMA Awards</td>
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<td>14, November</td>
<td>The 32th Case Studies of Production Efficiency Improvement Meeting and the 18th Metal Powder and Equipment PR Meeting</td>
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</table>

### JPMA Publications

- The 35th Investigation Collection Results of Sintered Parts Demand Structure
- JPMA Report, 2013 (English and Japanese)
- JPMA News “Funmatsu Yakin” (No377-380)
- The Excerpt of the Standard of Friction Material
2014 New Members
Associate Member

Prime Corporation
- No Company Logo -

SANDVIK OSPREY LTD

PMG Group

Hitachi Automotive Systems, Ltd.

KTC KYOTO TOOL CO., LTD.
Production of PM Products in Japan

Fig 1 shows the production volume change of Machine Parts and Bearings for the period from 2005 through 2014.

Machine Parts volume was 90,838 ton, 0.1% decrease from the previous year. Bearings volume was 6,740 ton, 7.2% increase from the previous year. As the other products, Friction Materials volume was 691 ton, 14.4% increase from the previous year. Electric Contacts volume was 64 ton, 8.5% increase from the previous year.

![Production of Machine Parts and Bearings (Calendar Year)](source: METI)

Machine Parts and Bearings

Fig 2 shows the analysis of demand for Machine parts and Bearings for the period from 2005 through 2014.

Machine Parts Production volume for Vehicles was 84,224 ton, 0.4% decrease from the previous year.

This is because the production volume of vehicles, that automobile industry is the main user of P/M, was increased because of the onetime demand increase between Jan. through Mar. before the sales tax increase in April, 2014, but after that, the production amount was decreased by the reaction.

It is expected that the production volume of vehicles in 2015 will be decreased compared with 2014, that means the production amount of Machine Parts will be decreased. Bearings has some factor for production increase because the production plants and sales places will be transferred back from foreign countries to Japan.

And also Automobile makers will invest the new model, and plan the sales increase by adding the preventive safety technology. By those efforts, it is expected that the demand increase in future.

Production volume of Bearings for Vehicles was 4,197 ton, 6.5% increase from the previous year.
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 2013 based on the demand structure survey by JPMA.

52.8% of Machine parts were for engine use, the main trends of Machine parts are the cost down by the weight decrease of the existing parts or the cost down by design change from assembly of a few parts to one body. And P/M technology is used to make the new T/M Gear, and it is expected the future production increase.

The main demand of Bearings is for electrical use. For Bearings, the main trends are to produce Bearings with the strength, anti-corrosion property, high temperature use, anti-load property and anti-vibration property and also the bearings without rare metals. The use of Bearings with high quality and low cost are expected to expand continuously in future.

Fig3. Breakdown of Machine Parts and Bearings for Automobile (2013) (Source: JPMA)
Fig 4 shows the weight of sintered parts used for one car and the car production in Japan for the period from 2004 through 2013.

The weight of sintered parts used for one car in 2013 was 8.8kg in Japan, 20.2kg in U.S. and 9.0kg in Europe.

Fig 5 shows the shipment of metal powders.

**Fig 4. Weight for sintered parts used for one car (Source JPMA and JAMA)**

**Fig 5. Shipment of Metal Powders (Source JPMA)**

**Shipment of Iron Powders (Calendar Year)**

- For PM: 30034, 33496, 32001, 42954, 48119, 5791, 5173, 6195
- For Others: 64960, 69768, 65186, 55683, 53868, 52400, 40313, 37900
- Export: 11064, 105989, 10972, 10883, 107642, 1185, 1115, 1091

**Shipment of Copper Powders (Calendar Year)**

- For PM: 1185, 1219, 1137, 1102, 1126, 1177, 1181
- For Others: 5791, 5173, 4848, 4768, 5081
- Export: 1185, 1115, 1102, 1126, 1177, 1181

**Shipment of Other Powders (Fiscal Year)**

- Stainless steel powder: 2463, 2836, 2841, 3014, 2933, 2056, 2812, 2305
- MIM powder: 301, 320, 414, 379, 409, 313, 2451, 505
- Aluminum powder: 2463, 2836, 2841, 3014, 2933, 2056, 2812, 2305
Awards

Personal Prize

Mr. Yoshiyasu Iino
Adviser of DIAMET CORPORATION

2010-2014
Chairman of JPMA
Board Member of JPMA
Chairman of Selection Committee for Award Prize
Chairman of PM2012 Organizing Committee

Mr. Kazunori Arai
Former Executive Director of JPMA

2008-2014
Executive Director of JPMA
Secretary General of PM2012
Secretariat of APMA
Development Prize

A New Design

A-1
Development of synchronizer hub with helical gear for DCT

SUMITOMO ELECTRIC INDUSTRIES, LTD.

B New Materials

B-1
Development of sintered bearing for the output shaft in door closer motor

DIAMET CORPORATION

A-2
Air-compressor component with thin-walled part for electric vehicle

DIAMET CORPORATION

A-3
Development of sprocket with crank sensor for diesel engine

DIAMET CORPORATION

B-2
Valve guide material with high wear resistance by dispersion of hard particle

Hitachi Chemical Co., Ltd.

B-3
Net Shape Reactor Core with Developed Insulating-Lubricant

Hitachi Chemical Co., Ltd.
**C Process Development**

**C-1**
Development of DCT synchronizer hub applied laser quenching technology

**SUMITOMO ELECTRIC INDUSTRIES, LTD.**

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**D New Powder**

**D-1**
Ni Free Alloyed Steel Powder Providing the 600MPa in Tensile Strength and the Excellent Machinability of Sintered Parts

**JFE Steel Corporation**

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**E Equipment Development**

**E-1**
Compactly integrated production line exclusively for shock absorber parts

**FINE SINTER CO., LTD.**

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**F Effort Prize**

**F-1**
Valve switching motor sintered oilless bearing for high-temperature

**PORITE CORPORATION**

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**F-2**
Sintered contact strip material made of C/C composite impregnated with copper alloy used for train vehicle

**FINE SINTER CO., LTD.**

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**F-3**
Miniature Tool Set

**CASTEM CO., LTD.**
Prize for Distinguish Service of the Committee Activities
Mr. Hiroshi Shimizu
PORITE CORPORATION
1999-2001
- Member of Committee for Administration
- Member of Sub-Committee for General Affairs
- Member of Sub-Committee for Public Relations
- Member of Marketing Committee
- Member of PM2000 Steering Committee
2006-2014
- Member of Committee for Environment

Mr. Isamu Otsuka
EPSON ATMIX CORPORATION
2006-2014
- Chairman and Member of Metal Injection Molding

Mr. Atsushi Tamaki
SUMITOMO ELECTRIC INDUSTRIES, LTD.
2010-2014
- Chairman and Member of Committee for Administration
- Chairman and Member of Sub-Committee for General Affairs
- Chairman and Member of Sub-Committee for Public Relations
- Member of Selection Committee for Award Prize
- Member of PM2012 Steering Committee

Recognition of Superior Employees
2014 prizewinner numbered 17 persons
(12 member companies)
2014 APMA Activities

The 6th Board Meeting
Date: Wednesday 21th May 2014  10:00 - 12:00
Venue: The Walt Disney World Dolphin Hotel, Oceanic 1 Room, Lobby Floor
Participants:
APMA Board Member
President  Mr. Isamu Kikuchi (JPMA, Japan)
Director  Prof. Yaung Do Kim (KPMI, Korea)
Director  Mr. Chiu-Lung Chu (TPMA, Taiwan)
Director  Mr. N. Gopinath (PMAI, India)
Director  Dr. Han Wei (CPMA, China)
Auditor  Prof. Hideshi Miura (JSPM, Japan)
Secretariat  Mr. Takashi Saito (JPMA, Japan)

Attendant of APMA Members Association

CPMA(China)  Dr. Cai Rang  President
            Dr. Han Wei  Secretary General
            Dr. Yu Yang  Director
CPMS(China)  Prof. Xiong Xiang  Secretariat
TPMA(Taiwan)  Mr. Chiu-Lung Chu  President
KPMA(Korea)  --------------------------
KPMI(Korea)  Prof. Young Do Kim  President
            Mr. Hwi Jun Kim
PMAI(India)  Mr. N. Gopinath  President
JSPM(Japan)  Prof. Hideshi Miura  President
            Ms. Yoko Inoue  Secretary General
JPMA(Japan)  Mr. Mamoru Moritani  President
            Mr. Isamu Kikuchi  Permanent Board of Director
            Mr. Sanpei Seki  Chairman of Committee Administration
            Mr. Atsushi Tamaki  Member of Committee Administration
            Mr. Takashi Saito  Executive Director
            Mr. Yusuke Watanuki  Secretariat

Conclusion
* 2014 Finance was approved
* Board members was elected
  Mr. Isamu Kikuchi was elected as a President
  Mr. Jun Sakai of JSPM president was elected as an Auditor
* Introduction of the APMA2015 Kyoto, Japan preparations situation
* Clarification for the PM2018 China host city and the Visa problem
* Next APMA Conference is decided to be held in Taiwan
* Next APMA Board Meeting is decided to be held at APMA2015 Kyoto, Japan
## PM Production in Asia

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

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*Included “Others*
### Application Field Ratio of PM Production (2014) (%)

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<th>AREA</th>
<th>For Transportation Machines</th>
<th>For Industrial Machines</th>
<th>For Electrical Machines</th>
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