

FINAL ANNOUNCEMENT

Programme and Registration Information

APMA2013 Powder Metallurgy-Challenge and Development in Asia

2nd International Conference on Powder Metallurgy in Asia Xiamen, China 3-6 November 2013

General Introduction



APMA 2013

2nd International Conference on Powder Metallurgy in Asia Xiamen, China 3-6 November 2013

Organized by

China Strategic Alliance for Technological Innovation in Powder Metallurgy Industry (SATI-PM) in conjunction with Taiwan Powder Metallurgy Association (TPMA)

Endorsed by

Asian Powder Metallurgy Association (APMA)

Supported by

Japan Powder Metallurgy Association (JPMA) Japan Society of Powder & Powder Metallurgy (JSPM) Korean Powder Metallurgy Institute (KPMI) Korean Powder Metallurgy Association (KPMA) Powder Metallurgy Association in India (PMAI) Malaysian Powder Metallurgy and Particulate Materials Association (MPM²A) Powder Metallurgy Australia (PMA)

APMA2013 Secretariat

SATI-PM Office

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Note:

The APMA2013 Secretariat reserves the right to make changes to the final programme.





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Welcome from APMA 2013 Conference Chairman

The China Strategic Alliance for Technological Innovation in Powder Metallurgy Industry (SATI-PM) and the Taiwan Powder Metallurgy Association (TPMA) have great pleasure to invite you, as a member of the world's powder metallurgy, to the APMA2013 to be held in Xiamen, China, on November 3-6 2013.

It is the first time for China to hold APMA2013, the 2nd International Conference and Exhibition on Powder Metallurgy in Asia. It is endorsed by APMA and has received many supports from associations and societies in Japan, Korea, India, Malaysia and Australia. We would like to express thanks for everyone who contributes to APMA2013 and look forward to seeing you in Xiamen. The conference and exhibition will attract international key PM producers, research institutes, associate suppliers and customers from PM industries and relating sections. It is an excellent event for you to attend and the best opportunity to present your products and research.

Xiamen is a well-known tourist port city in the Southeast coast of China. It is one of the Cleanest Cities of China, the Garden Cities of China, the National Environmental Protection Model Cities, and the best sightseeing cities in China. Not only being wealthy with travel resources, Xiamen is also a city combining scientific, technological, historical and cultural ingredients, providing an invaluable environment for the exchange of ideas. APMA2013 will provide four relaxing and enjoyable days for you.





Cairang China Iron & Steel Research Institute Group



Huang Boyun Central South University





Conference Topics

Powders

Powder Manufacturing and Treatment Mechanical Alloying

Compaction and Consolidation

Powder Compaction	Sintering and Post Processing
Powder Forging	PIM (Powder Injection Molding)
Rapid Prototyping	Spray Forming

PM Production Management

PM Production and Testing Equipment	Quality and Environment Control
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PM Materials

Iron and Copper Base Parts	Friction Materials
Aluminum and Titanium	Hard Metals
Diamond and CBN Tools	Refractory Materials
Ceramic Materials	Composite Materials
Porous and Cellular Materials	Nano and Ultra-fine Materials
Magnetic Materials	PM Materials for Electronics

PM Materials for Aerospace Application

Organization



Conference Chairmen

Cairang

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China Iron & Steel Research Institute Group







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Zhang Zhongjian	Zhuzhou Cemented Carbide Group Co.(China)	
Cheng Jigui	Hefei University of Technology (China)	
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Liu Xuequan	Beijing CISRI-GAONA Materials & Technology Co., Ltd. (China)	
Kuang Chunjiang	Advanced Technology & Materials Co., Ltd. (China)	

					APM	A2013 Xi	amen Congr	ess Schedule	0					
	Nov. 2, Saturday	Nov. 3, Sunday		Nov. 4.	, Monday		Nov. 5,	Tuesday			Nov. (ó, Wednesday		
8:00 -														- 8:00
8:30 -			Opening Cere	emony of Exhibi	ition (8:15-8:45), 1st Floor, XICC		•							- 8:30
9:00 -							K7-K8, R	ed Keynote Le oom 1F,1st F	ecture loor,XICC	2ı Exbiti	Oral Ses 04 T4/Mee	sion Oral Sess ting T5/Meeti	ng T6/Meeting	9:00
9:30 - 10:00							,	PM Forum		nd Fl on /1	XICO I XICO I Ster I	B, Room 2A	01, Romm 2C, XICC	- 9:30 10:00
10.20				The 5th	a APM & Board Meeting		Koom	LF, ISt Floor, Coffee Break	XICC	oor, st F	Prese	Coffee Bre	ak	- 10.00
- 02.01 - 11:00 - 11:30 -				Meeting	(10:00-12:00) g Room 1A01, 1st Floor, XICC	2	Room	PM Forum 1F,1st Floor,	XICC	XICC	Oral Ses T4/Meer Room J	sion Oral Sess ting T4/Meeti B, Room 2A	ion Oral Session ng T6/Meeting 01, Room 2C,	- 10.30 - 11:00 - 11:30
12.00			21			2nd	D			С	XICC	XICC	XICC	12.00
12:30 - 12:30 - 13:00 -	Ex	Ex	nd Floor Lob Exbiti 1st Floor,	Gran Gran Area,	Lunch (Buffet) (12:00-13:30) d Ballroom Reception 1st Floor, XICC Hotel	Floor Lobby Exbition 1st Floor, X	Grand Ball FI	Lunch (Buffet (12:00-13:30) room Receptio oor, XICC Hc) on Area, 1st tel	Friendsh PMA Reco	ip Luncheo I host APM eption Area	n, Award, AP A2015, Granc ,1st Floor, XI	MA authorize I Ballroom CC Hotel	- 12:30 - 12:30 - 13:00
- 06:61	E hit	l hib R M	on XI	Opening	Geremony, Room 1F, 1st Floor, XICC	γ, Σ ΙC	Dral Session	Oral Session	Oral Session					00:01 -
14:00 - 14:30 -	Exhibition bition Area	Exhibition official distribution official di	CC	k1-K2, k1-K2,	vited Keynote Lecture Room 1F, 1st Floor, XICC		T1/Meeting Room1B, XICC	T2/Meeting Room 2A01, XICC	T3/Meeting Room 2C, XICC		Tours of	Back Trackir	ല്	- 14:00 - 14:30
15:30 -	prepa	prepa , 1st l n and y, 1st			Coffee Break			Coffee Break						- 15:30
16:00 -	ration Floor,	Floor, Inforr Floor		Invi	ted Keynote Lecture		Oral Session T1/Meeting	Oral Session T2/Meeting	Oral Session T3/Meeting					- 16:00
16:30 -	XICO	n XICC natior ,XICC		N-6N	o, koom 1F, 1St F100F, XICC		Room 1B, XICC	Room 2A01, XICC	Room 2C, XICC	Note 1:				- 16:30 - 17:00
17:30 -	C									XICC: Xia	amen Interna	ational Confer	ence Center	- 17:30
18:00 -							Dinner (Buffet) (17:45-19:00	((XICC Hot	el: Xiamen	International	Conference	- 18:00
18:30 -						5	rand Ballroom 1st Floor, 3	Keception Ar XICC Hotel	ea,	Center Hot	el			- 18:30
19:00 -										Note 2:				- 19:00
19:30 - 20:00				Wclcon	be Banquet					T1, PM Irc T2 Defrace	n Base Mat	erials de & nord Me	4010	- 19:30
20:30 -			Grand B	allroom, 21	nd Floor, XICC Hotel					12, INUIAU T3, PM Fu	nctional Ma	tterials (1)	SID	- 20:30
21:00 -										T4, PM Fu	nctional Ma	tterials (2)		- 21:00
21:30 -										T5, Powde	r Forming &	č Post Sinterii	ig Treatment	- 21:30
- 00:22										10, PM INC	nierrous M	aterials		- 22:00

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Invited Keynote Lecture

K1: Metal Powder Injection Molding - Historical Developments, Current Statistical Assessment, and

Future Trends <u>Venue:</u> Room 1F <u>Chair:</u> Huang Boyun, Nideshi Miura <u>Invited keynote Speaker:</u> Prof. R.M.German <u>Biography:</u>



Randall M. German is Professor and former Associate Dean of Engineering Research of Mechanical Engineering at San Diego State University. His PhD degree is from University of California at Davis, MS from The Ohio State University, and BS from San Jose State University; he is distinguished alumnus from all three. In his career he held Chaired Professorships and directed major research efforts winning \$56 million in sponsorship. He published 990 articles, 17 books (including Sintering Theory and Practice), 25 patents, and 19 edited books. He has an honorary doctorate, Tesla Medal, and is a Fellow of three technical societies. He has a very active consulting practice and is a member of MPIF.

Abstract:

First market reports on MIM arose as the industry emerged and became profitable in the 1990s. Various update provide a perspective on the trends and current status, including comparative productivity data such as sales per molding machine. Much speculation exists on how large MIM might become, possibly reaching \$3.2 to \$4.2 billion in global sales within the next few years. This corresponds to about 20% per year expansion from the \$1.2 billion in sales for 2012. Can this happen? What will be the requirements on people, design, applications, production capacity, and investment? Much of this can be sensed by extrapolation and analysis of how MIM reached its current size and diversity. Continued growth is both a financial and technical matrix. What are the needs in powders, engineering skills, installed equipment, user knowledge, and secondary operations? Is it possible that MIM will pass press-sinter powder metallurgy in commercial value soon? Careful assessment will be provided based on working thirty years with the industry.



K2: Fatigue Properties of Ferrous PM Materials in the Gigacycle Range

<u>Venue:</u> Room 1F <u>Chair:</u> Huang Boyun, Nideshi Miura <u>Invited keynote Speaker:</u> Prof. Herbert Danninger

Biography:



Herbert Danninger studied Technical Chemistry at Vienna University of Technology (TU Wien), earning his PhD in 1980 with a thesis about sintering of tungsten heavy alloys. In 1990 he obtained the "Habilitation" or venia docendi at TU Wien, and in 2003 he was appointed Full Professor for Chemical Technology of Inorganic Materials. Since 2011 he is Dean of the Faculty of Technical Chemistry at TU Wien. He has been working on powder metallurgy topics for more than 30 years and is author of more than 350 scientific papers in journals and proceedings. His main topics are sintering processes, with particular focus on the chemical reactions with the atmosphere, as well as high strength PM alloy steels and fatigue of PM materials.

Abstract:

Fatigue loading is increasingly common for powder metallurgy precision parts; in particular for automotive components, very high loading cycle numbers are attained. This has to be considered both when designing and testing of PM materials and components. Furthermore, though gigacycle loading, singular defects in the materials are revealed that are inaccessible by other means. In the present study it is shown that the gigacycle fatigue endurance strength of sintered steels depends not only on the density / total porosity but also on the sintering conditions and the matrix microstructure. The threshold stress intensity factor, in contrast, is only slightly affected by these parameters which means that the materials are the more sensitive to singular defects the higher their basic strength is. I.e. there is a tendency from microstructure-controlled failure to defect controlled one. This is also evident when comparing fully dense PM tool steels to their wrought counterparts: while the latter start to fail from one of the very numerous carbide clusters, the PM grades fail from the few remaining inclusions, but at markedly higher stress amplitudes. With all investigated materials, the existence of a true fatigue limit was clearly disproved, at least up to 10E10 cycles.



K3: Advances and Application of Soft Magnetic PM Materials

Venue: Room 1F

Chair: Chiu-Lung Chu, Young- Do Kim

Invited keynote Speakers: Dr. Michael Krehl

Biography:



Dr. Michael Krehl, Managing Director and CEO of PMG Holding GmbH, is responsible for the PMG group since 2003. Before he joined PMG (at that time Sinterstahl GmbH) in 1996, he worked in leading positions in several materials companies in Germany and USA.

Dr. Krehl studied Material Science at the Technical University Stuttgart and received his Master Degree (Dipl.-Ing.) in 1981. He did his PhD with Prof. Dr. G. Petzow at the Max-Planck-Institute for Material Science also in Stuttgart. Both theses were on the behavior of Niobium and Niobium-Tantalum alloys at high temperatures and during sintering.

During his career, Dr. Krehl wrote approximately 30 publications and presented numerous papers at conferences mainly in the field of refractory metals, powder metallurgy and manufacturing.

Abstract:

Driven by recent requirements of e-mobility, the necessary high power densities bring new challenges to the traditional motor design. It is well known that the typical electric motor design based on electrical steels is limited to 2D magnetic flux distribution and the power output can only be controlled by the size of the motor. In contrast, soft magnetic powder composites (SMC) can be used for a 3D magnetic flux path reducing the size of the machine. The specific core losses influencing the efficiency of the electric machines can be decreased substantially at frequencies in excess of 500 Hz, if SMC materials are used. The magnetic permeability of SMC materials is lower in comparison to the permeability of electrical steels, in many magnetic systems with air gaps, however, this difference is hardly considerable. The use of PM technology for manufacturing of soft magnetic components can contribute to new solutions in the area of compact electric motors with high efficiency. Practical examples will be presented.



K4: Application of Powder Metallurgy Products to Automobile Parts

<u>Venue:</u> Room 1F <u>Chair:</u> Chiu-Lung Chu, Young-Do Kim <u>Invited keynote Speaker:</u> Dr. Yoshimi Sugaya

Biography:



Born in 1953, Yoshimi Sugaya graduated from the graduate school, Ibaraki University, Japan, in March 1979, majored in mechanical engineering. Then in 2006, he acquired Doctor of Engineering at Ibaraki University. He chiefly researched compacting method and tooling technique for powder metallurgy. He joined Hitachi Powdered Metals Co., Ltd. since 1979 and has been serving on the technical committee in JPMA since 2009.

Abstract:

Spread and development of automobiles resulted in a large amount of fossil fuels consumption. They have influenced on the global environment because of being the main emission sources of atmospheric pollution and CO_2 of greenhouse gas. To decrease the environmental burden and minimize fossil fuel consumption, automobile makers are accelerating the development of environmentally-friendly and fuel-saving automobiles. In response, Japanese powder metallurgy products corresponding to the development of environmentally-friendly automobiles have increased. In this presentation, overall trends in the automobile industry and efforts by automobile makers to create environmentally-friendly automobiles are outlined, and cases of powder metallurgy products that support these efforts are introduced





K5: Advances in Powder Metallurgy Technology Using Nanopowder

Venue: Room 1F

Chair: Chiu-Lung Chu, Young-Do Kim

Invited keynote Speaker: Prof. Jai-Sung Lee

Biography:



Jai-Sung Lee received his Ph.D. in Materials Science at the University of Stuttgart in 1983 when working at Powder Metallurgy Laboratory of the Max-Planck Institute for Metal Research with Prof. Guenter Petzow. Since 1983 he is Professor of Hanyang University-ERICA Campus and served as Dean and Director of ERICA. His research interests are in processing of metal nanopowders, design of nanopowder feedstock for 3D net-shaping process and grain boundary diffusion in nanoparticulate materials. He has published more than 200 scientific publications, edited three books and holds more than 20 patents. Prof. Lee received several national and international awards for their achievements. He is a member of the National Academy of Engineering of Korea and fellow of the Alexander von Humboldt Foundation. He was President of the Korean Powder Metallurgy Institute and Director of Board of the Korean Research Council of Fundamental Science & Technology and the Asian Powder Metallurgy Association. He was also Technical Advisor to Samsung Electro-mechanics, R&D and Samsung Corning Ltd.

Abstract:

3-D net-shaping technology as powder injection molding (PIM) and additive manufacturing technology inevitably requires advanced materials for raw materials including polymer, metal and ceramics. Especially fine metal powders as nano powders are essential in net-shaping of small-sized metallic components. Those powders are expected to be in a nanoscale alloyed or composite state with uniform chemical composition and so reach easily full density by pressureless sintering. However, the consolidation of a low green density compact by pressureless sintering has troubles with satisfying full densification as well as fine microstructure. In this presentation our recent works on a breakthrough PM technology for processing net-shaped ferrous PM components using nano powders are introduced. The key idea of this technology is based upon the optimization of structure design and full density processing of intrinsic- or extrinsic type multimodal powders including nano powders into either 2-dimensional or 3-dimensional powder agglomerates on full density nanopowder materials even only by pressureless sintering. Entire processes during net-shaping of iron based nano powders are discussed in terms of microstructures and related material properties.

Invited Keynote Lecture



K6: Challenges for a Growing PM Industry in Asia

<u>Venue:</u> Room 1F <u>Chair:</u> Chiu-Lung Chu, Young-Do Kim <u>Invited keynote Speaker:</u> Mr. Ola Litström

Biography:



Mr. Litström earned a master's degree in Physical Metallurgy at the Royal Institute of Technology in Stockholm, capital of Sweden. He has been working in the PM Industry for 17 years, representing Swedish company Höganäs AB. Mr. Litström's career includes more than ten years of product and process development, including project management. The research and development work has also resulted in several patented inventions. Mr. Litström's experience further includes technical market support, production and plant management as well as conducting training and education in the field of Powder Metallurgy. Mr. Litström's current position is Application Development Manager, Höganäs Region Asia. In this capacity he is stationed with Höganäs China Co. Ltd in Qingpu, Shanghai.

Abstract:

On a macro-economic scale Asia is by far the biggest and most populous part of the world. With recent economic downturn in other parts of the world, there is an increasing focus on Asia, when it comes to economic and industrial development.

In this respect the PM industry is no different from other industries. However, the competitive landscape for Powder Metallurgy in Asia has some differences compared to the rest of the world. With rapid economic growth in many Asian countries, different manufacturing technologies are competing with each other and developing quickly. In this context the relatively small PM industry has to prove being both agile and innovative, in order to win business from the casting, forging and machining industries among others.Our means to achieve this include pushing technology limits, increasing value chain co-operations and making PM manufacturing technology more widely known to end-user industries. Further speaking in our favor long-term, is the fact that PM is energy-efficient and has a resource utilization that is significantly better than most competing technologies.As an industry, we have our destiny in our own hands!



K7: Direct Laser Forming of Titanium Alloy Powders for Medical and Aerospace Applications

Venue: Room 1F

Chair: Wen-Cheng Chang, Jai-Sung Lee

Invited keynote Speaker: Prof. Hideshi Miura

Biography:



Hideshi Miura is Professor of Mechanical Engineering at Kyushu University, and a President of Japan Society of Powder & Powder Metallurgy (JSPM). His BS, MS, and PhD degrees are from Kyushu University. He held the 2012 P/M World Congress at Yokohama in Japan as Vice–chairman. He published about 300 articles, 1 book (Translated the Powder Metallurgy Science written by R. M. German), 12 patents, and 20 edited books. He received more than 20 Awards from JSPM, JSME, JIM, etc.

Abstract:

Titanium and its alloys have been widely used for various industrial and medical applications because of their excellent characteristics of low density, high corrosion resistance and high biocompatibility. However, it is not easy to produce the complicated shape and precise components with low cost because of their poor workability. Therefore, Direct Laser Forming (DLF) is hoped to be a suitable and advanced powder processing technique. In this paper, DLF technique has been introduced to fabricate more complex shaped Ti-6Al-4V and Ti-6Al-7Nb alloy parts for aerospace and medical applications. The effects of DLF parameters on the morphology of compacts are investigated respectively by fabricating specimens, which have the typical features in the vertical plane, the horizontal plane and 3D coordinate. Eventually, not only the complex shape but also the excellent properties as same as the wrought material were achieved.





K8: Recent Progress in Nanostructured Powder Metallurgical Ferritic Steel

Venue: Room 1F <u>Chair:</u> Wen-Cheng Chang, Jai-Sung Lee <u>Invited keynote Speaker:</u> Prof. Huang Boyun, Yong Liu

Biography:

Prof. Baiyun Huang is a professor of Central South University (CSU), and a member of Chinese Academy of Engineering and Third World Academy of



Sciences (TWAS). He obtained his bachelor's degree at CSU in 1969; Master's and Ph.D. Degree at Iowa State University, USA (1980-1986). After that he worked as post-doc at University of Tennessee and Oak Ridge National Laboratory until 1988. His research interests are advanced composite materials, special powder metallurgy materials etc. During his career, he received four national science and technology awards, and published hundreds of papers and presented numerous papers at conferences. He is also a member of Standing Committee of the 12th National People's Congress, the Vice President of China Association for Science and Technology, the President of Hunan Association for Science and Technology and the President of Chinas Research Society (C-MRS).

Abstract:

Nanostructured ferritic alloys (NFAs) have drawn more and more attentions from world-wide scientists, due to their excellent mechanical properties and resistance to nuclear irradiations. NFAs have been essentially fabricated by mechanical alloying (MA) pre-alloyed ferritic powders with Y_2O_3 . In this presentation, a new process by the combination of MA powder and gas atomized (GA) powder was introduced, and Y_2O_3 was replaced by Y hydride and more soluble Fe₂O₃. The microstructural characterization concerning the formation of nanostructured particles and the mechanical behaviors of NFAs were investigated. It is found, during mechanical alloying, both Fe₂O₃ and hydride can be easily dissolved into the ferritic matrix. A high density of coherent Y–Ti–O nanoparticles with a pyrochlore $Y_2Ti_2O_7$ structure, incoherent Cr_2O_3 and Ti-rich oxides were precipitated after the hot consolidation. The mixtures of MA and GA powders lead to the formation of a bi-model grain structure, i.e. the mixing of nanocrystalline and micron-sized grains. Compared with conventional NFAs, the new microstructure in this work show a combination of high strength and improved ductility. Finally, micro-alloying of Cu to the NFAs further increases the high temperature strength due to the precipitation of nanometer-sized Cu-rich phases. The results provide new ideas on designing high performance powder metallurgical materials.





PM Forum

Introduction of the development of Powder Metallurgy of each country and region.

Lecture 1 **Invited Forum Speakers:** Dr. Cairang (China) SATI-PM/General Manager of China Iron & Steel Research Institute Group Lecture 2 **Invited Forum Speakers:** Prof. Wen-Cheng Chang (Taiwan) TPMA/National Chung Cheng University Lecture 3 **Invited Forum Speakers:** Prof. Qian Ma (Australia) PMA/ARC Centre of Excellence for Design in Light Metal, The University of Queensland Lecture 4 **Invited Forum Speakers:** N. Gopinath (India) PMAI/Fluidtherm Technology Pltd Lecture 5 **Invited Forum Speakers:** Tetsuo Ito (Japan) JPMA/Hitachi Chemical Co., ltd. Lecture 6 **Invited Forum Speakers:** Prof. Young-Do Kim (Korea) KPMI/Hanyang University Lecture 7 **Invited Forum Speakers:** Prof. Dr. Norhanmidi Muhamad (Malaysia) MPM²A/Universitiy Kebangsaan Malaysia



T1-PM IRON BASE MATERIALS November 5, 2013

* Invited paper

Session 1-1 Chair: Yang Yu, Yoshinobu Takeda 13:30-15:20, November 5, 2013 Room1B, XICC

ORAL

O-T1-1

Advanced Material Systems to for High Performance PM Applications. Michael Marucci, K.S. Narasimhan, Peter Sokolowski Hoeganaes Corporation, Cinnaminson, NJ 08077 -

USA

O-T1-2

The Effects of Molybdenum and Chromium on Liquid Phase Sintering of Boron-containing Powder Metallurgy Steel. Ming-Wei Wu¹, Guo-Jiun Shu², Wei-Shun Lin¹ ¹Department of Materials Science and Engineering, National Formosa University, Huwei, Yunlin, 63201. Taiwan

²Center for Condensed Matter and Science, National Taiwan University, Taipei, 10617, Taiwan

O-T1-3

Sintering of a High Compactable Metal Nanopowder Agglomerate. Geon-Yong Lee, Jun-Il Song, Jai-Sung Lee Department of Metallurgy and Materials Science, Hanyang University-ERICA, Ansan 426-791, Korea

O-T1-4

Development of High Density Segregation Free Powder Mixture. Satoshi Nishida¹, Hironori Suzuki¹, Nobuaki Akagi¹, Tomotsuna Kamijo¹ ¹Kobe Steel, Ltd., Japan

0-T1-5

Unraveling the Mechanism of Dimensional Changes Caused by Alloying Elements in Fe-Cu-C. Ligen Wang¹, Shaoming Zhang¹, Limin Wang¹, Xiangqing Liu¹, Wenlong Dang², Zhenliang Yang² ¹General Research Institute for Nonferrous Metals, Beijing 100088, China ²Gripm Advanced Materials Co., LTD, Beijing 101407, China

POSTER

Electrochemical corrosion behavior of Fe35Mn prepared by elemental powder sintering Qian Zhang¹, Peng Cao^{1*} ¹Department of Chemical and Materials Engineering, University of Auckland, Private Bag 92019, Auckland 1142, New Zealand

Comparative Evaluation of Lubricants for PM Structural Steel Norimitsu Hirose¹,Louise Chen², Yoshinobu Takeda¹ ¹Höganäs Japan KK, Japan, ²Höganäs (China) Co., Ltd

Influence of stirred Mill Technique on Morphology of stainless steel powders Huo Guang, Kuang Xing, Zeng Hong, Kuang Chunjiang^T, Ding Fuchang Advanced Technology & Materials Co., Ltd, Beijing, 100081 China

Compactability of Metal Nanopowder Agglomerate Gil-Su Han, Geon-Yong Lee, Jun-Il Song, Jai-Sung Lee Department of Metallurgy and Materials Science,

Hanyang University-ERICA, Ansan 426-791, Korea

Hydrogen Reduction Process of Fe₂O₃ Nanopower Agglomerate

Jun-Il Song, Geon-Yong Lee, Jai-Sung Lee Department of Metallurgy and Materials Science, Hanyang University-ERICA, Ansan 426-791, Korea



Effect of Heat Treatment on Microstructure of ODS Steel

W. W. Yang¹, Z. M. Guo¹, J. Luo¹

¹University of Science and Technology Beijing, 30# Xueyuan Road, Haidian District, Beijing, 100083, China

15:20 COFFEE BREAK (15:20-15:35)

Session 1-2

Chair: Ming-Wei Wu, K.S. Narasimhan 15:35-17:25, November 5, 2013 Room1B, XICC

ORAL

O-T1-6

Mechanical Performance and Microstructures of Various Lean Mo Containing Alloy Steels. Yoshinobu Takeda¹, Norimitsu Hirose¹, Ola Liström² ¹Höganäs Japan KK, Japan, ²Höganäs China Co., Ltd, China

O-T1-7

Development and Properties of a New Malleable Iron Powder Grade. Ray Guo¹, F. Chagnon² and C. Coscia² ¹QMP Metal Powders (Suzhou), China ²Rio Tinto Metal Powders, Quebec, Canada

O-T1-8

Modeling the Initial Rapid Wetting of Cu in Liquid Phase Sintering. Abdul Malik Tahir, Gustav Amberg, Minh Do-Quang

Department of Mechanics, Royal Institute of Technology (KTH), Osquars Backe 18, 10044, Stockholm, Sweden

O-T1-9

Numerical Simulation of the Capsule Deformation during Hot Isostatic Pressing. Wang Xuebing, Kuang Chunjiang, Huo Guang, Zhong Hailin

Advanced Technology & Materials Co. Ltd., 76# Xue Yuan Nan Road, Hai Dian District, Beijing 100081, P.R.China

O-T1-10

Surface Analysis of Atomized FeMn Powder before and after Reduction. Li Song-lin, LONG An-ping, WANG Hang, CHEN Hui-zhu State Key Laboratory of Powder Metallurgy, Central South University, Changsha 410083, China

POSTER

Very high cycle fatigue behaviors of Fe-Cu-Ni-Mo series sintered steels Yu-Heng Lu, Zhi-Yu Xiao*, Lei Hu, Yuan-Biao Wu and Xuan Ye School of Mechanical and Automotive Engineering, South China University of Technology, Guangzhou 510641, China

Warm compacting and sintering behaviors of pre-mixed Fe-Cu-Mn-C powders Yu-Heng Lu, Zhi-Yu Xiao*, Lei Hu, Wen-chao Fu and Xuan Ye School of Mechanical and Automotive Engineering, South China University of Technology, Guangzhou 510641, China

Fabrication of bimodally grained bulk irons with large plasticity by spark plasma sintering of mechanically alloyed nanocrystalline iron powder Chao Yang, Tian Wei, Yuanyuan Li National Engineering Research Center of Near-net-shape Forming for Metallic Materials, South China University of Technology, Guangzhou 510640, P.R. China

Effect of shot peening on microstructure and ultrasonic fatigue performance of sintered iron-based material Xiao Zhiyu, Ye Xuan, Lu Yuheng, Hu Lei, Zhang Wen South China University of Technology,

Guangdong Guangzhou 510640, China

Electromagnetic and Absorption Properties of NiCuZn Ferrites Absorber Sheet Ching-Chien Huang ,Yung-Hsiung Hung, Jen-Yung Hsu New Materials R&D Dep., China Steel Corporation, Kaohsiung, Taiwan

Advanced Lubrication Technology Dennis Hammond Apex Advanced Technologies

> **T2-**REFRACTORY METALS & HARD METALS November 5, 2013

* Invited paper

Session 2-1



Chair: Chunjiang Kuang, Herbert Danninger 13:30-15:20, November 5, 2013 Room 2A01, XICC

ORAL

O-T2-1

China's Era for the World's Cemented Carbide Industry.

WU Chong-hu^{1,2}, XIAO Wei^{1,2}, XIAO Man-dou^{1,2} ¹China National R&D Center for Tungsten

Technology, ²Viewon Tungston Co., Ltd. Technology

²Xiamen Tungsten Co., Ltd. Technology Center, China

O-T2-2

Thermodynamic and Diffusivity Databases of Gradient Cemented Carbides.

Yong Du¹, Yingbiao Peng¹, Weibin Zhang¹, Weimin Chen¹, Peng Zhou¹, Kaiming Cheng¹, Lijun Zhang¹, Wen Xie², Guanghua Wen¹, Shequan Wang²

¹State Key Lab of Powder Metallurgy, Central South University, Hunan, 410083, China ²Zhuzhou cemented carbide cutting tools limited company, Zhuzhou, Hunan 412007, China

O-T2-3

New Developments of Fine-Grain Tungsten-based Composite Materials in China.

Jinglian Fan, Yong Han, Tao Liu, Jiamin Tian State Key Lab of Powder Metallurgy, Central South University, Hunan, 410083, China

O-T2-4

Micro Powder Injection Molding of Cemented Carbide.

Abdolali Fayyaz, Norhamidi Muhamad, Abu Bakar sulong, Javad Rajabi, Yee Ning Wong,

Department of Mechanical and Materials Engineering, Faculty of Engineering and Built Environment, Universiti Kebangsaan Malaysia, 43600 Bangi, Selangor, Malaysia.

O-T2-5

Effects of titanium-based raw materials on electrochemical behavior of Ti(C, N)-based cermets.

ZHANG Li, NAN Qing, FENG Yu-ping, WAN Qing-lei, KE Rong-xian, WANG Zhe State Key Laboratory of Powder Metallurgy,

Central South University, Changsha 410083, China

POSTER

Fabrication and Mechanical Properties of TiC-FeAl Alloys Koji SHIMOJIMA, Akihiro MATSUMOTO,

Kiyotaka KATO, Hiroyuki HOSOKAWA Materials Research Institute for Sustainable

Development, National Institute for Sustainable Industrial Science and Technology, 2266-98 Shimo-Shidami, Moriyama-ku, Nagoya 463-8560, Japan

Effect of Hot Isostatic Pressing Treatment on Microstucture and Properties of Large-size Cemented Carbide Anvil LIU Wen-bin, CHEN Fei-xiong, XIONG Ning, NIU Shan-ting, SUN Yan-long, WANG Tie-jun China Iron & Steel Research Institute Group, Advanced Technology & Materials Co., Ltd (AT&M), China Beijing Engineering Research Center for Refractory Metal Materials, Beijing 100081, China

Research on Testing Methods for Cutting Performance of Cemented Carbide Tool Deng Ling, Deng Ying, Zhang Yanhua

Thermodynamics and Diffusion Kinetics Databases for WC-Ni₃Al Composites Chong Chen^{1,2}, Yaru Wang^{1,2}, Zhongjian Zhang², Tao Xu², Jianzhan Long², Shaoqing Wang¹, Weimin Chen¹, and Yong Du^{1,2} ¹State Key Lab of Powder Metallurgy, Central South University, Changsha, Hunan, 410083, China ²State Key Lab of Cemented Carbides, Zhuzhou,

Hunan, 412000, China

Relationship between contiguity and volume fraction of hard phase for TiCN-Ni Cermets Hiroyuki Hosokawa, Kiyotaka Katou, Koji Shimojima, Ryoichi Furushima, Akihiro Matsumoto

Materials Research Institute for Sustainable Development, National Institute of Advanced Industrial Science and Technology, 2266-98 Shimo-Shidami, Moriyama-ku, Nagoya 463-8560, Japan

Microwave Sintering of WC-8Co micro gears prepared by μ-PIM Hao Luo^{1,2}, Haiqing Yin², Keli Zeng¹, Xuanhui

Qu², Qingjun Zheng³ ¹Powder Technology Research Center, Guangzhou Research Institute of Non-ferrous Metals, Guangzhou, 510651, China



²School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing, 100083, China
³Kennametal Inc, 1600 Technology Way, PA 15650, USA

Research progresses of catalytic performance on tungsten carbide

Zhiwei Liu, Ping Li, Xuanhui Qu

Institute for Advanced Materials and Technology, University of Science and Technology Beijing, Beijing 100083, China

The Microstructure, texture and sputtering properties of molybdenym targets fabricated by different metallurgical processes

H.S. Huang, H.C. Tung, C.H. Chiu, I.T. Hong

New Materials Research & Development Department, China Steel Corporation, Taiwan, Republic of China

Computational Investigations of the CVD (Ti,Al)N and TiCN Coating

Shaoqing Wang¹, Yong Du¹, Xiangming Chen² ¹State Key Laboratory of Powder Metallurgy, Central South University, China ²Zhuzhou Cemented Cutting Tools Co., Ltd., China

Experimental Investigations and Computer Simulations on Formation of Diffusion-controlled Fcc-free Surface Layers on Cemented Carbides CHEN Wei-min¹, XIE Wen², ZHANG Wei-bin¹, DU Yong^{1,*}, ZHANG Li-jun¹, CHEN Li^{1,2}

¹State Key Laboratory of Powder Metallurgy, Central South University, Changsha 410083, China;

²Zhuzhou cemented carbide cutting tools limited company, Zhuzhou, 412007,China

Effect of nitrogen pressure on thickness of gradient zones in WC–Ti(C,N)–Co cemented carbides Weibin Zhang¹, Yong Du^{1,2}, Yingbiao Peng¹, Shequan Wang², Guanghua Wen², Wen Xie² ¹State Key Lab of Powder Metallurgy, Central South University, Changsha, China ²State Key Laboratory of Cemented Carbides, Zhuzhou, China

WC-Si₃N₄ composites prepared by two-step spark plasma sintering

Dong-hai ZHENG, Xiao-qiang LI, Min-ai ZHANG, Yuan-yuan LI

National Metallic Materials Net-shape Forming Engineering Research Center, South China University of Technology, Guangzhou 510640, P. R. China

15:20 COFFEE BREAK (15:20-15:35)

Session 2-2

Chair: Chenguang Lin, Anish Upadhyaya 15:35-17:25, November 5, 2013 Room 2A01, XICC

ORAL

O-T2-6

Ultra high purity tungsten and its applications. Yang Yu, Feng Bai, Ailong Zheng, Jiupeng Song, Fusheng Peng SATI-PM, Xiamen Honglu Tungsten Molybdenum Industry Co., Ltd. China

O-T2-7

Research and development of W/Cu mono-block plasma facing components for fusion devices Guohui Liu, Wuping Zhou, Tiejun Wang, Advanced Technology & Materials Co., Ltd. China

O-T2-8

Industrial Preparation of Nanocrystalline WC/Co Composite Powder. Tan Xing-long¹, Yang Jian-gao², Dai Yu¹, Deng Jun-wang¹ ¹Advanced Corporation for Materials & Equipments, China ²Hunan Research Center for Engineering & Technology on New Industrial Heating Equipments, China.

O-T2-9

The Structure and Performance of Cemented Carbide Inserts with Injection Molding. Shequan Wang^{1,2}, Songhe Liu^{1,2} ¹ Zhuzhou Cemented Carbide Cutting Tools Co., LTD, Zhuzhou Hunan, 412007, China ² State Key Laboratory of Cemented Carbides, Zhuzhou Hunan 412000, China

O-T2-10

Microstructure and Properties of High-Density Tungsten/Polymer Composites.

Guozhang Zhao¹, Yang Yu¹, Fusheng Peng¹, Zongxing Wei¹, Jiupeng Song¹, Zhimin Huang¹, Tao Shi¹, Zhigang Zhuang², Qingdong Zhong³ ¹Xiamen Honglu Tungsten & Molybdenum Industry Co. Ltd., Xiamen 361021, China, ²China National R&D Center for Tungsten Technology, Xiamen Tungsten Co. Ltd., Xiamen 361026, China, ³School of Material Science and Engineering,



Shanghai University, Shanghai 200072, China

POSTER

Nearly Spherical Tungsten Powder Prepared by Reduction of Modified Tungsten Oxide and Its Mechanism Analysis

Wang Congcong¹, Jia Chengchang¹, Gao Peng¹, Liang Dong¹, Gai Guosheng², Yang Yufen² ¹School of Materials science and Engineering, University of Science and Technology, Beijing 100083, China;

²Department of Material Science and Engineering, Tsinghua University, Beijing 100084, China

Skin effect of WC-8Co alloy by microwave sintering

Rui Bao¹, Jianhong Yi^{1,2}*, Yuandong Peng¹ ¹State Key Laboratory of Powder Metallurgy, Central South University, Changsha, 410083, China

²School of Materials Science and Engineering, Kunming University of Science and Technology, Kunming 650093, China

Manufacture of Nano Tungsten Powder via Plasma Method

Xinglong Tan¹, Jiangao Yang², Yu Dai¹, Junwang Deng³, Gang Liu¹

¹Advanced Corporation for Materials & Equipments

²Hunan Research Centre for Engineering & Technology on New Industrial Heating

Equipments

³Changsha Research Institute for Industrial Heating Technology

Effects of WC particle size on the microstructure and mechanical properties of Ti(CN)-based cermets

Ling Deng^{1,2}, Pingping Li¹, Ying Liu¹, Jinwen Ye¹ ¹School of Materials Science and Engineering, Sichuan University, Chengdu 610065, China ²Chengdu Chengliang Tools Group Co., Ltd. Chengdu 610503, China

Corrosion properties of AlTiN, AlCrN and AlCrSiWN coatings on WC–Co cemented carbide in 3.5 wt.% NaCl solution

ZHANG Li¹, FENG Yu-ping¹, WAN Qing-lei¹, KE Rong-xian¹, WANG Zhe¹, LU Zhi-hong²

¹State Key Laboratory of Powder Metallurgy, Central South University, Changsha 410083, China

²Xiamen Golden Egret Special Alloy Co., Ltd., Xiamen 361006, China Synthesis of ultrafine W-Ni-Fe powders by soft chemical method Yumeng Fan, Jigui Cheng*, Lei Wan, Zhijie Zheng, Yan Liu School of Materials Science and Engineering,Hefei University of Technology, Hefei, 230009, China

Effect of Minor Ti Additions on Mechanical Property and Microstructure of WCuNi Alloys Liu Guirong, Xiong Ning, Wang Ling, Pei Yanbin Advanced Technology and Materials Co., Ltd., Beijing 100081, PR China

Investigation on Preparation of Nanophase WC-Co composite powder

YANG Jian-gao^{1,2,3}, LV Jian², ZHU Er-tao², TAN Xing-long¹, DENG Jun-wang¹, CHEN Hao¹, GUO Sheng-da²

 ¹Advanced Corporation for Materials & Equipment Co., Ltd. Changsha, 410118, China
 ²School of Materials and Chemical Engineering, Jiangxi University of Science and Technology, Ganzhou, 341000, China
 ³Engineering Research of Center of

High-efficiency Development and Application Technology of Tungsten Resources, Ministry of Education, Ganzhou, 341000, China

Tungsten carbide synthesized by low-temperature combustion as gas diffusion electrode catalyst Liqun Cui^{1*}, Ping Li¹, Li Daren², Cai Yixiang², Qi Wan¹, Xuanhui Qu^{1,3}

¹School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing 100083, China

²P/M Department, Guangzhou Research Institute of Non-ferrous Metals, Guangzhou 510650, China ³State Key Laboratory for Advanced Metals and Materials, University of Science and Technology Beijing, Beijing 100083, China

Facile synthesis of superfine W-Ni-Fe powders by a soft chemical method

Yan Liu^{1,2}, Jigui Cheng^{1,2}*, Lei Wan¹, Zhijie Zheng¹, Yumeng Fan¹

¹School of Materials Science and Engineering, Hefei University of Technology, Hefei, 230009, China

²Research Centre for Powder Metallurgy Engineering and Technology of Anhui Province, Hefei, 230009, China

Preparation and Properties of W-TiC with Ultra-Fine Grain by SPS Sintering Method



Changshu Xiang, Haiyan Liu, Yuanping Huang, Hanliang Zhang, Zengfeng Li, Huiping Tang State Key Laboratory of Porous Metal Materials, Northwest Institute for Non-ferrous Metal

Research, 96 Weiyang Road, Xi'an 710016, Shaanxi, P. R. China

T3-PM FUNCTIONAL MATERIALS (1) (Friction and anti-friction materials, porous materials, nanocrystalline materials, special ceramics)

November 5, 2013

* Invited paper

Session 3-1

Chair: Xuanhui Qu, Geon-Yong Lee 13:30-15:20, November 5, 2013 Room 2C, XICC

ORAL

O-T3-1

Microstructure and Mechanical Properties Evolution of Biomedical Co-Cr-Mo Alloys Produced by EBM method during Novel Heat Treatment.

Akihiko Chiba, Yunping Li, Shingo Kurosu, Hiroaki Matsumoto, Yuichiro Koizumi Institute for Materials Research, Tohoku University, Sendai, Japan

O-T3-2

Porous Titanium Materials Huiping Tang, Jiang Wang, Guangyu Yang State Key Laboratory of Porous Metal Materials, Northwest Institute for Nonferrous Metal Research, Xi'an 710016, China

O-T3-3

Sintering NiTi Shape Memory Alloy From TiH2 Powder: an In-situ Study

Peng Cao

Department of Chemical and Materials Engineering, The University of Auckland, Private Bag 92019, Auckland 1142, New Zealand

O-T3-4

Improved Oxidation Resistance of Metallic Interconnector Prepared with Dual Layer Powder Yi-Mu Cheng^{1,a}, Sheng-Wen Chiang^{1,b}, Shuang-Shii Lian^{1,c}, Yung-Chin Yang², Wei-Ja Shong^{3a}, R.Y Lee^{3,b}

¹Department of Material Science and Engineering, National Taiwan University, Taiwan ²Department of materials and mineral resources engineering, National Taipei University of Technology, Taiwan ³Institute of Nuclear Energy Research, Atomic Energy Council, Taiwan

O-T3-5

Effect of Ceramic Nanoparticle Dispersion on the Microstructure and Thermoelectric Properties of P-type TAGS-85 Materials

Hyo-Seob Kim, Soon-Jik Hong

Division of Advanced Materials Engineering, Kongju National University, Cheonan, Republic of Korea

POSTER

Effect of minor alloying substitution on glass-forming ability and crystallization behavior of a $Ni_{57}Zr_{22}X_8Nb_8Al_5$ (X=Ti, Cu) alloy synthesized by mechanical alloying

C. Yang*, J. Zeng, H. Guo, S.G. Qu, X.Q. Li

National Engineering Research Center of Near-net-shape Forming for Metallic Materials, South China University of Technology, Guangzhou 510640, China

The research of SHS NiMo-TiC coating process by the detonation spray system WU Xu, GUO Zhimeng

School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing, 100083, China

Dielectric Properties of Spark Plasma Sintering AlN/SiC Composite Ceramics Gao Peng, Cao Wenbin, Jia Chengchang, Wang Congcong, Chang Yuhong, Zhang Yuli, Feng

Xiaopeng

School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing 100083, China

Microstructure and Thermal Conductivity of Diamond/SiC Composites

Zhenliang Yang^{1, 2}, Xinbo He², Ligen Wang¹, Limin Wang¹, Rongjun Liu³, Haifeng Hu³ and Xuanhui Qu²

Gripm Advanced Materials Co., LTD, Beijing 101407, P. R. China

²Schoolof Materials Science and Engineering, University of Science & Technology Beijing, Beijing 100083, P. R. China

³College of Aerospace and Materials Engineering, National University of Defense Technology,



Changsha 410073, P. R. China

Research of preparation of porous metal niobium by electrodeoxidation of Nb₂O₅ Wang Xing Qing, Xie Da Hai, Chen Wei School of Materials Science and Engineering, Shanghai University, Shanghai 200072, China

Preparation of mesoporous tantalum oxide thin film by a templated sol-gel process Ping Ren¹, Yongxin Pang², Li Wang³, Benshuang Song³, Dongxin Wang⁴, HUTTULA Marko², LI Bin¹, SHI Wenfeng¹

¹Ningxia Orient Tantalum Industry Co., LTD, Ningxia, 753000, China

² School of Science and Technology, University of Teesside, Middlesbrough, Tees Vally TS1 3BA, UK

³ CNMC Ningxia Orient Group Co., LTD, Ningxia, 753000, China

⁴ National Engineering Research Center of tantalum and Niobium, Ningxia, 753000, China

Formation and corrosion behavior of mechanically alloyed Cu-Zr-Ti bulk metallic glasses P. Y. Lee

Institute of Materials Engineering, National Taiwan Ocean University, Keelung, Taiwan

15:20 COFFEE BREAK (15:20-15:35)

Session 3-2

Chair: Shaoxiong Zhou, Hideki Kyogoku 15:35-17:25, November 5, 2013 Room 2C, XICC

ORAL

O-T3-6

The fabrication and characterization of ceramic membrane for water treatment using diatomite based natural materials

Yoo-Dong Hahn, Jang-Hoon Ha, In-Hyuck Song Powder and Ceramics Division, Korea Institute of Materials Science, Republic of Korea

O-T3-7

Preparation and Properties of Biomimetic Porous Titanium Implant Yimin Li, Xiang Zhang State Key Laboratory of Powder Metallurgy, Central South University, Changsha, 410083, China

O-T3-8

Biomedical porous tantalum synthesized via 3D wire frame and chemical vapor deposition LU Dong¹, HE Jilin¹, CAO Wei², WANG Li¹, HUTTULA Marko², LI Bin¹, SHI Wenfeng¹ ¹CNMC (Ningxia) Orient Group Limit Company;

No.105, Yejin Road, Dawukou disctrict, Shizuishan City, Ningxia, 753000, P. R. China ²Department of Physics, University of Oulu, P.O. Box 3000, FIN-90014, Finland

O-T3-9

Preparation and Property of Mn₃B₇O₁₃Cl Microwave Attenuation Ceramics LIANG Dong, CAO Lin, JIA Cheng-Chang, WANG Cong-Cong, GAO Peng

School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing 100083, China

O-T3-10

Research on Preparation Technique of ZrB₂ Body and Thin Films Pengchuang Liu, Xiaoxuan Pang, Qingfu Wang, Pengcheng Zhang China Academy of Engineering Physics, Mianyan

621900, China

POSTER

Ultrafine-grained Biomedical Ti Alloy With High Strength And Low Modulus Fabricated By Spark Plasma Sintering

L.M. Zou, C. Yang, Y.Y. Li

National Engineering Research Center of Near-net-shape Forming for Metallic Materials, South China University of Technology, Guangzhou 510640, China

Influence of Heat Treatment on the Microstructure and Properties of In-Situ synthesis TiC Particualte Reinforced Steel Matrix Surface Composites Jun Cheng^{1,2}, Zhimeng Guo¹, Kewei Gao¹

¹University of Science and Technology Beijing, China,

²Inner Mongolia University of Science and Technology, China

The Effect of Different Addition of C by In-situ Synthesis TiC Particles Reinforced Organization and Performance of Steel Matrix Surface Composites

Jun Cheng^{1,2}, Kewei Gao¹, Zhimeng Guo¹ ¹University of Science and Technology Beijing, China



² Inner Mongolia University of Science and Technology, China

Study on Reaction Cladding TiCp-(Fe,Cr)₇C₃ Hadifield Steel Matrix Surface Reinforced Composites Prepared by Vacuum Evaporative Pattern Casting

Tao Shi¹, Zhimeng Guo¹, Jun Cheng^{1,2}

¹University of Science and Technology Beijing, China ²Inner Mongolia University of Science and

Technology, China

Improving of permeability and mechanical strength of porous Inconel 625 tubes by sintering in $\rm H_2$ with gaseous NaCl

Wang Jian, Yang Kun, Tang Huiping, Xiang changshu

State Key Laboratory of Porous Metal Materials, Northwest Institute for Nonferrous Metal Research, Xi'an 710016, China

Pulse electron beam assisted nitriding of TiC-(Ni-Cr) cermet Bao-hai Yu¹, V.E. Ovcharenko², N.N. Koval³, Yan-hui Zhao¹

¹Institute of Metal Research Chinese Acedemy of Sciences, Shenyang 110016, China ²Institute of Strength Physics and Materials Sciences, Siberia Branch, Russian Academy of Sciences, 2/1 Academichesky Pr., Tomsk 634 021, Russia

³High Current Electronics Institute, Siberia Branch, Russian Academy of Sciences,, Tomsk 630 090, Russia

Effect of Heat Treatment Temperature on Bending Properties of C/C-Cu Composites Yin Jian

Central South University, Changsha, Hunan, China

The Effect of Powder Solid Content in Suspension and Sintered Temperature on the Preformance of the Graded tube

Wang Qiangbing^{1,2}, Xi Zhengping², Tang Huiping², Wang Pei³, Yang Baojun², Tan Ping², Chi Yudi²

¹Xi'an Jiaotong University, State Key Laboratory for Mechanical Behavior of Materials, Shaanxi, Xi'an 710049, China

²Northwest Institute for Nonferrous Metal Research, State key laboratory of porous metal materials, Shaanxi, Xi'an, China Effect of Characterization of Porous Metal Fiber Media on Sound Absorption Coefficient Jianzhong Wang, Qingbo Ao, Huiping Tang*, Tengfei Bao

State Key Laboratory of Porous Metal Materials, Northwest Institute for Nonferrous Metal Research, Xi'an 710016, P.R.China



T4-PM FUNCTIONAL MATERIALS (2) (Magnetic materials, electric materials) November 6, 2013

* Invited paper

Session 4-1

Chair: Jianhong Yi, Jai-Sung Lee 8:30-10:20, November 6, 2013 Room 1B, XICC

ORAL

O-T4-1

Production of Ultrafine Structured Metal Matrix Nanocomposite Materials and Components by a Combination of High Energy Mechanical Milling and Thermomechanical Powder Consolidation. Deliang Zhang¹*, Jiamiao Liang¹, Mingtu Jia², Dengshan Zhou², Fei Yang², Xun Yao¹, Yifeng Zheng¹, Mingxing Ma¹

¹State Key Laboratory for Metal Matrix Composites, School of Materials Science and Engineering, Shanghai Jiao Tong University, Shanghai, China

²Waikato Centre for Advanced Materials (WaiCAM), School of Engineering, University of Waikato, Hamilton, New Zealand

O-T4-2

Mass Synthesis and Characterization of Magnetic Nanowires

Wei-Syuan Lin¹, Hong-Ming Lin¹*, Yeu-Kuang Hwu², Yuh-Jing Chiou³

¹Department of Materials Engineering, Tatung University, Taipei 104, Taiwan

²Institute of Physics, Academia Sinica, Nankang, Taipei 115, Taiwan

³Department of Chemical Engineering, Tatung University, Taipei 104, Taiwan

O-T4-3

A Study on Microstructure and Magnetic Properties Change due to Small Dy-Co Alloy-powder Addition in NdFeB Sintered Magnets

Minwoo Lee¹, D.R. Dhakal¹, T.S.Jang^{1,*}, T.H.Kim², S.R. Lee²

¹Dept. of Hybrid Engineering, Sunmoon University, Asan, Choongnam 336-708, Korea ²Dept. of Materials Science and Engineering, Korea University, Seoul 136-713, Korea

O-T4-4

Interfacial Characteristics and Destroying Mechanism of TiO₂ Nanotube/Ti Substrate

Jian-peng Zou

State Key Laboratory of Powder Metallurgy, Central South University, Changsha 410083, China

O-T4-5

Composite cathode materials for lithium-ion batteries Hsiu-Fen Lin, Shih-Chieh Liao, Chi-Ju Cheng, Chia-Chin Lee, and Chi-Hsun Tsai Industrial Technology Research Institute, TAIWAN

POSTER

Arc erosion behaviors of a Cu-Ti₃SiC₂ electrical contact material ZHANG Peng¹, NGAI Tungwai¹, XIE Heng², LI

Yuanyuan¹

 ¹ National Engineering Research Center of Near-net-shape Forming Technology for Metallic Materials, South China University of Technology, Guangzhou 510640, China
 ² Huizhou University, Huizhou 516007, China

A Study of Ni-Cu Alloy Electrodes Applied on Multilayer Ceramics Capacitor Cheng-Shu Chiang¹, Dong-Ren Fong², Ying-Chieh Lee^{2*}, Wen-His Lee¹

¹ Department of Electrical Engineering, National Cheng Kung University, Tainan 701, Taiwan
² Department of Material Engineering, National Pingtung University of Science & Technology, Pingtung, Taiwan

Structural Characteristic of W-20wt%Cu Composite Powder Synthesized from WO₃-CuO Powder Mixtures with Different Milling Times Sung-Soo Ryu¹, Wha-Jun Lee^{1,2}

¹Korea Institute of Ceramic Engineering and Technology, South Korea

²A School of Advanced Materials Science and Engineering, Sungkyunkwan University, South Korea

The Study of CVD-Tungsten Thick Coatings deposited on the Tungsten-copper Functionally Graded Materials via Ultrafine Composite Powder Y.Lv¹, J. Song¹, Y. Yu¹, F. Peng¹, Z. Zhuang², Y. Lian³, X. Liu³

¹ Xiamen Honglu Tungsten Molybdenum Industry Co. Ltd, 361021 Xiamen, China

 ² China National R&D Center for Tungsten Tech., Xiamen Tungsten Co. Ltd, 361026 Xiamen, China
 ³Southwestern Institute of Physics, P.O. Box 432, 610041 Chengdu, China



Effect of aging treatment on structure and mechanical properties of CuCrZr/AlN nanocomposites

Man Gu^{1,2}, Yucheng Wu^{1,3}, Minghua Jiao^{3,4}, Xinmin Huang¹

¹School of Material and Engineering, Hefei University of Technology, Hefei 230009, China ²Department of Mechanical Engineering, Hefei University, Hefei 230009, China

³Engineering Research Center of Powder Metallurgy of Anhui Province, Hefei 230009, China

⁴Institute of Tribology, Hefei 230009, China

The influence of percentage composition of Cu on the properties of W-Cu alloy produced by solid-liquid extrusion

Li Daren^{1,2}, Cai Yixiang¹, Liu Zuyan², Yu Yang², Wang Erde²

¹Guangzhou Research Institute of Non-ferrous Metals, Guangzhou 510651, China ²School of Materials Science and Engineering, Harbin Institute of Technology, Harbin 150001, China

Microstructure and Magnetic Properties of NdFeB melt-spun Ribbons with Different Nd contents Xuchao Wang^{1,2}, Minggang Zhu¹, Wei Li¹, Ke Zhang¹, Liyun Zheng¹, An Du²

¹Division of Functional Materials Research, Central Iron & Steel Research Institute, Beijing, 100081, China

² College of Sciences, Northeastern University, Shenyang 110819, China

10:20 COFFEE BREAK (10:20-10:35)

Session 4-2

Chair: Wen-cheng Chang, Akira Fujiki 10:35-12:25, November 6, 2013 Room 1B, XICC

ORAL

O-T4-6

Kinetics of Mechanically Activated Disproportionation of as-cast NdFeB Alloy during Reactive Milling in Hydrogen: Experimental Studies, Mechanism and Modeling Lianxi Hu, Xiaoya Liu School of Materials Science and Engineering, Harbin Institute of Technology, China

O-T4-7

Coactivity Enhancement of NdFeB Sintered Magnets Fabricated by RE Core-shell Powder Manufacturing.

JinWoo Kim, Ji Min Yu, Seong Yeul Kwak, Seok Hyun Hwang, Young Do Kim

Department of Materials Science and Engineering, Hanyang University, Seoul 133-791, Korea

O-T4-8

Effect of Al₂O₃ nano-particle adding on the magnetic properties of iron soft magnetic composites

Yuandong Peng^{1,2}, Jian Ma¹, Junwu Nie¹, Wenjun Zhang¹, Chongxi Bao¹, Yang Cao¹ ¹ NBTM New Materials Group Co., LTD, Ningbo, 315191, P. R. China

² State Key Laboratory of Powder Metallurgy, Central South University, Changsha, 410083, P.R.China

O-T4-9

Friction and Wear Behaviors of Cu-Ti3SiC2 Composite under Electric Current. XIE Heng², NGAI Tungwai¹, LI Yuanyuan¹ ¹National Engineering Research Center of Near-net-shape Forming Technology for Metallic Materials, South China University of Technology, Guangzhou 510640, China ² Huizhou University, Huizhou 516007, China

O-T4-10

Preparation and Hot Deformation Behavior of Nano-grained Nd-Fe-B Sntered Magnets. Bin Liu¹, Yong Liu¹, Akihiko Chiba², Yunping Li² ¹State Key Laboratory of Powder Metallurgy, Central South University, Changsha 410083, China ²Institute for materials research, Tohoku university, Sendai, Japan

POSTER

Magnetic Properties and Microstructures of Sm₂Co₁₇ Sintered Magnets Made With Homogeneous Heat-treated Ingots Wei Sun, Minggang Zhu, Yikun Fang, Zhiying Liu, Zhaohui Guo, Xiao Du, Wei Pan, Wei Li Division of Functional Materials Research, Central Iron & Steel Research Institute, Beijing, 100081, China

Magnetic and electrical properties of iron-based soft magnetic composites with silicone resin insulation coating Li Fachang, Feng Xiaopeng, Li Yi, Liu Xuequan, Li Jinpu, Li Nan, Ding Cunguang, Li Lixin



China Iron & Steel Research Institute Group, Beijing 100081, China

Preparation and research of magnetic fluid in silicon oil vpo705 SUN Sen , SHAO Hui-ping

School of Advanced Material and Technology Institute, University of Science and Technology Beijing, Beijing 100083, China

Magnetic anisotropy in nanocrystalline NdFeB magnet induced by deformation before desorption-recombination processing Hu Lianxi¹*, Liu Xiaoya¹, Li Yuping²

¹ School of Materials Science and Engineering, Harbin Institute of Technology, Harbin, China ² Hengdian Group DMEGC magnetic limited company, Dongyang, Zhejiang, China

The influence of activation process on the morphology of ultrafine W-Cu composite powder prepared by ultrasonic-assisted electroless plating Limei HUANG¹, Laima LUO^{1*}, Ding Xiaoyu¹, Guangnan LUO², Xiang ZAN¹, Yu HONG¹, Jigui CHENG¹, Liu ZHU³, Yucheng WU¹

¹College of Material Science and Engineering, Hefei University of Technology, Hefei 230009, China

²Institute of Plasma Physics, Chinese Academic Sciences, Hefei 230031, China

³Department of Mechanical Engineering, Taizhou University, Taizhou 318000, China

Synthesis of ultrafine W–Cu composite powders and microstructure characteristics of the sintered alloys

Xiaoyue TAN¹, Laima LUO¹*, Zelong LU¹, Guangnan LUO², Xiang ZAN¹, Yu HONG¹, Jigui CHENG¹, Liu ZHU³, Yucheng WU¹

¹ College of Material Science and Engineering, Hefei University of Technology, Hefei 230009, China

²Institute of Plasma Physics, Chinese Academic Sciences, Hefei 230031, China

³ Department of Mechanical Engineering, Taizhou University, Taizhou 318000, China

Effect of Powder Characteristics on Core Loss and DC Bias of MPP Magnetic Powder Cores Zhao Tong Chun^{A1}, Ma Hong Qiu^{B1}, Jin Cheng Hai^{C1}, Zhang Jun^{D1}

¹Advanced Technology & Materials Co., Ltd., China

T5-POWDER FORMING & POST

SINTERING TREATMENT November 6, 2013

Session 5-1 Chair: Kuen-Shyang Hwang, Hafizawati Zakaria 8:30-10:20, November 6, 2013 Room 2A01, XICC

ORAL

* Invited paper

O-T5-1

Investigations of an Axisymmetric Compound Flow Behavious of Sintered Preform: An Upper Bound Approach

Abhay Kr. Sharma¹, R. K. Ranjan¹, V.K. Bajpai² ¹ Dept. of Mechanical Engineering, Gyan Ganga Institute of Tech. & Sc., Jabalpur, INDIA ² Dept. of Mechanical Engineering, NIT Kurukshetra, INDIA

O-T5-2

Flexible Heat Treatment with Impressive Effects Mats Gärdin Avure Technologies, Quintusv. 2, 72166 Vasteras, Sweden

O-T5-3

Machinability and Fatigue Strength of Powder Forged Materials with Machinability Enhancer Hironori Suzuki, Nobuaki Akagi, Hiroyuki Tanaka Kobe Steel, Ltd., Japan

O-T5-4

Improving the Mold Design in Metal Injection Molding (MIM) by Computer Simulation Shun-Tian Lin¹, Hank Lin², David Lin², Justin Cheng³, Paige Chen³

¹Mechanical Engineering Deparment, National Taiwan University of Science and Technology, Taiwan

²Shin Zu Shing Co. Ltd., Taiwan ³Taiwan Auto-Design Co., Taiwan

O-T5-5

Molding Modeling and Simulation in Powder Metallurgy

Lin Dongguo¹, Seong Jin Park¹, Shan Zhongde² ¹ Mechanical Engineering, Pohang University of Science and Technology (POSTECH), Korea ² China Academy of Machinery Science & Technology (CAM), China



POSTER

Processing and Properties of AISI 420 MIM Parts Manufactured via Prealloy and Master Alloy Routes

Ms Judy Wang¹, Dr Andrew Coleman¹, Mr Keith Murray¹, Mr Bob Sanford², Mr Erainy Gonzalez² ¹Sandvik Osprey Ltd., Red Jacket Works, Milland Road, Neath, SA11 1NJ, United Kingdom ²TCK S.A., Zona Franca Industiral Las Americas, Santo Domingo, Dominican Republic

Preparation and characterization of (Ti_x,Zr_{1-x})MnFe gettering compound powders Shuqiu Wang¹, Fanhao Zeng¹*, Jiangfeng Song², Xiang Xiong¹

¹State Key laboratory of Powder Metallurgy, Powder Metallurgy Research Institute, Central South University, Changsha 410083, China ²China Engineering Physical Institute, Mianyang 621900, China

A Study on High temperature Mechanical properties of Ni-based Superalloy by MIM Doo-Sik Min, Jong Ha Kim

PIM KOREA Co.,Ltd, 123-2, Sunhwa-ri, Jinryang-eup, Gyeongsan-city, Gyeongbuk, KOREA

MPROVEMENT OF MAGNETIC PERFORMANCE OF Fe-50%Ni ALLOY BY POWDER INJECTION MOLDIMG Ma Jidong

University of Science and Technology Beijing, Beijing 100083, China

The process and properties of metal injection molded heatresistant stainless steel W. Wang¹, M.Ouyang¹, D. Ye¹, J. Song¹, F. Peng¹, Y. Yu¹, Z. Zhuang²

 ¹ Xiamen Honglu Tungsten Molybdenum Industry Co. Ltd, 361021 Xiamen, China
 ² China National R&D Center for Tungsten Tech.,

Xiamen Tungsten Co. Ltd, 361026 Xiamen, China

Investigation of the preparation of TiAl-base high temperature alloys by Gel-casting process Xinyue Zhang, Zhimeng Guo, Huiping Shao Univ Sci & Technol Beijing, Sch Mat Sci & Engn, Beijing 100083, China

A Study on Sulfuric Acid Corrosion of 430 Stainless Steel By Ceramic Nano-Particle Coating Yi-Qian Sun, Jar-Myung Koo, Soon-Jik Hong* Division of Advanced Materials Engineering, Kongju National University, Cheonan, 331-717, Republic of Korea

High-Temperature Oxidation Characteristics of Zircaloy-4 by Ceramic Nanoparticle Coating Han-Jin Ko¹, Hyo-Seob Kim¹, Joeng-Yong Park², Hyun-Gil Kim², Soon-Jik Hong¹*

¹Division of Advanced Materials Engineering, Kongju National University, 275, Budae-dong, Cheonan, Chungnam, 331-717, Republic of Korea ²LWR Fuel Technology Division, Korea Atomic Energy Reserach Institute, 105, Deokjin-dong, Yuseong, Daejeon, 305-353, Requblic of Korea

Dissolution properties of valuable metals from PDP waste panel powders by high-energy milling process

Chan-Mi Kim, Hyo-Seob Kim, Soon-Jik Hong, Jar-Myung Koo

Division of Advanced Materials Engineering & Institute for Rare Metals, Kongju National University, Cheonan 331-717, Korea

Performance of Lubricants for High Density Applications

O. Wang¹, R. Guo¹, S. St-Laurent², V. Paris² ¹ QMP Metal Powders (Suzhou), China ² Rio Tinto Metal Powders, Quebec, Canada

Flow-Induced Dilation of Wetted Granular Materials

Cheng Liang

China Academy of Engineering Physics, Mianyan 621900, PR China

10:20 COFFEE BREAK (10:20-10:35)

Session 5-2

Chair: Chenghai Jin, Chien-Min Wang 10:35-12:25, November 6, 2013 Room 2A01, XICC

ORAL

O-T5-6

Electroless Encapsulation of Powders for Cold-Spray Deposition Ivi Smid Pennsylvania State University, 147 Research West, University Park, PA 16802, USA

O-T5-7

Micro Powder Injection Molding of Yttria Stabilized Zirconia



Hafizawati Zakaria^{1,2}, Norhamidi Muhamad¹, Abu Bakar Sulong¹, Farhana Foudzi¹, Azizah Wahi¹, RozieNani Ahmad¹

¹Department of Mechanics & Material Engineering, Faculty of Engineering & Built Environment, UniversitiKebangsaan Malaysia, 43600 UKM, Bangi, Selangor, Malaysia

² Program of Mechanical Engineering, School of Mechatronic Engineering, Universiti Malaysia Perlis, 02600 Arau, Perlis, Malaysia

O-T5-8

Densification and Microstructural Development during Sintering of Powder Injection Molded Fe Micro-Nano Powder

Joon-Phil Choi, Hyun-Gon Lyu, Jai-Sung Lee Department of Metallurgy and Materials Science, Hanyang Univeristy-ERICA, Ansan 426-791, Korea

O-T5-9

Numerical Calculations of New Innovative Heat Treatment

Andreas Åkerberg, Mats Gärdin

Avure Technologies, Quintusv. 2, 72166 Vasteras, Sweden

O-T5-10

A competitive sinter-hardening solution for industrial manufacturing Xin Xu, Yunjuan Han, Lifang Chen, Ola Listroem Höganäs China Co. ltd

POSTER

Research on the temperature rise in high velocity compaction

He Li¹, Haiqing Yin¹, Dil Faraz Khan^{1,2}, Xuanhui Qu¹, Mingjun Yi¹, Xianjie Yuan¹

¹ Institute of Advanced Material, School of Materials Science & Engineering, USTB, Beijing, 100083, China

² Department of Physics University of Science and Technology Bannu, 28100, Bannu, Pakistan

Synthesis and microstructure of MoSi₂ alloyed with Nb and Al

Xiaohong Wang, Guangzhi Wu, Qiong Lu, Zhi Sun School of Materials Science and Engineering China University of Mining and Technology, Xuzhou, PR 221116, China

First-principles study of Cr doping effect on the mechanical properties of hard phase of Mo_2NiB_2 based cermets

Shanjie Yi^{1,2}, Haiqing Yin¹*, Jack Zheng³, Dil Faraz Khan^{1,4}, Matiullah Khan⁴, Xuanhui Qu¹

 ¹Laboratory of Particulate and Powder Metallurgy, School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing, 100083, P.R. China
 ²Department of Inorganic non-metallic materials, University of Science and Technology Beijing, Beijing, 100083, P.R. China
 ³Kennametal Inc, 1600 Technology Way Latrobe, PA 15650, USA
 ⁴Department of Physics, University of Science and Technology Bannu, Bannu, 28100, Pakistan

Preparation and characterization of nanosized sliver powders by a novel chemical method Wenchao Chen, Jigui Cheng*, Nanmin Ye School of Materials Science and Engineering, Hefei University of Technology, Hefei, 230009, China

Preparation and microstructure of spherical silver nanopowder with high tap density Li Chunguang, Wang Lihui Northwest Rare Metal Material Research Institute, Ningxia Shizuishan 753000, PR China

The preparation and application of IGZO target LIU BINNING, LIU XIAONING, ZHANG HONGMEI

Northwest Rare-metal Materials Research Institute, 753000, China

Optimization of Solid Loading in SUS 316L Micro-Nano Powder Feedstock for Powder Injectoin Molding

Hyun-Gon Lyu, Joon-Phil Choi, Jai-Sung Lee Department of Metallurgy and Materials Science, Hanyang University-ERICA, Ansan 426-791, Korea

Combustion-Ammonolysis synthesis of chromium nitride nanopowders

Zhiqin Cao^{1,2}, Mingli Qin¹, Aimin Chu¹, Min Huang¹, Haoyang Wu¹, Xuanhui Qu¹

¹ School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing 100083, China

² School of resources and environmental engineering, college of Pan Zhihua, Pan Zhihua 617000, China

Experiments and Finite Element Simulations of Hot Isostatic Pressing of Selective Laser Sintered Samples



Yanying Du¹, Yusheng Shi², Yunchen¹, Xinhong Xiong¹

¹Department of mechanical design and automation, Wu Han University of Technology, Wuhan 430063, P.R. China

² State Key Laboratory of Material Forming and Die and Mould Technology, Hua Zhong University of Science and Technology, Wuhan 430074, P.R. China

Influence of cooling method on microstructure and mechanical properties of hot-forged P/M V-5Cr-5Ti allov

Xianfeng Dong, Qiang Li, Dapeng Zeng, Qishou Li, Bo Lin

China academy of engineering physics, Mianyang 621900, China.

Brief Analysis on the Application and Development of Steel Belt Furnaces in Powder Metallurgy

Deng Jun-wang, Liu Hong, Li Li, Dai Yu Advanced Corporation for Materials & Equipment Co., Ltd., Hunan, Changsha 410118, China

Development and Application of New powder metallurgy sinter-hardening furnace Deng Junwang, Dai Yu

Advanced Corporation for Materials & Equipment Co., Ltd., Hunan, Changsha, 410118, China.

T6-PM NONFERROUS MATERIALS November 6, 2013

* Invited paper

Session 6-1

Chair: Xingjun Liu, Jung-Ho Ahn 8:30-10:20, November 6, 2013 Room 2C, XICC

ORAL

O-T6-1

Application Progress in Metal Beryllium Zhong Jing-Ming¹, XU De-Mei^{1,2}*, WANG Zhan-Hong¹, Li Feng¹, Wang Li¹, Li Zhi-nian¹, QIN Gao-Wu²

¹ Nation Engineering Research Center for Special Metal Materials of Tantalum and Niobium, Northwest Rare Metal Materials Research Institute, Shizuishan, NingXia, 753000 China

² Key Laboratory for Anisotropy and Texture of Materials (Ministry of Education), Northeastern

University, Shenyang, 110004 China

O-T6-2

Design and Application of Powder Metallurgy Titanium Alloys Yong Liu, Bin Liu, Yanbin Liu, Tao Luo. State Key Laboratory of Powder Metallurgy, Central South University, Changsha 410083, China

O-T6-3

Preperation and Characterization of Electrolytic Copper Nanopowder

Akansha Sengar, P.R.Soni

Department of Metallurgical & Materials Engineering, Malaviya National Institute of Technology Jaipur-302017, India

O-T6-4

Turning Al-7wt%Si-0.3wt%Mg Casting Alloy Machining Chips into High-strength Bulk Materials by High Energy Ball Milling in Combination with Hot Mechanical Consolidation J. M. Liang, D. L. Zhang Shanghai Jiao Tong University, China

O-T6-5

Microstructure Evolution during Semi-solid Powder Rolling and Post-treatment of 7050 Aluminum Alloy Strips

Yunzhong Liu, Xia Luo, Zhilong Li

National Engineering Research Center of Near-net-shape Forming for Metallic Materials, South China University of Technology, Guangzhou 510640, China

POSTER

Effects of heat treatment on phase contents and mechanical properties of infiltrated B4C/2024Al compositesI

Xiaofen Tan¹, Fanhao Zeng¹*, Fei Zhou², Changqing Xia², Xiang Xiong¹

¹State Key laboratory of Powder Metallurgy, Powder Metallurgy Research Institute, Central South University, Changsha 410083, China ²School of Materials Science and Engineering, Central South University, Changsha 410083, China

Fabrication and characterization of core-shell structured titanium alloys

Daihong Xiao, Xiuxiu Li, Dan Liu, Xianzhe Wu State Key Lab of Powder Metallurgy, Central South University, Changsha 410083, China



Ultrafine-grained Biomedical Ti Alloy With High Strength And Low Modulus Fabricated By Spark Plasma Sintering

L.M. Zou, C. Yang Y.Y. Li

National Engineering Research Center of Near-net-shape Forming for Metallic Materials, South China University of Technology, Guangzhou 510640, People's Republic of China

Preparaion of titanium by direct sintering of TiH₂ Qing Ye^{1,a}, Zhimeng Guo¹, Junjie Hao¹ ¹Univ Sci & Technol Beijing, Sch Mat Sci & Engn, Beijing 100083, China

Microstructure and mechanical properties of Ti-O alloys

Daihong Xiao, Xiuxiu Li, Dan Liu, Xianzhe Wu State Key Lab of Powder Metallurgy, Central South University, Changsha 410083, China

Tensile Properties and Fracture Behaviour of Powder Forged Ti6Al4V alloy C. Liang¹, D. L. Zhang^{1,2}, J. Q. Yan¹, M.X.Ma¹, M.

T. Jia²

¹School of Materials Science and Engineering, Shanghai Jiao Tong University, Shanghai 200240, China

²Waikato Center for Advanced Materials, School of Engineering, University of Waikato, Hamilton, New Zealand

The investigation of Al-based sputtering target by novel powder metallurgy method and its thin film properties

Kun-Ming Chen^{1,2}, Deng-An Tsai², Hao-Chia Liao¹, In-Gann Chen²*, Weng-Sing Hwang²

¹ SolarApplied Materials Technology Corp, No. 1, Gongye 3rd Rd., Annan Dist., Tainan City 70995, Taiwan

² Department of Materials Science and Engineering, National Cheng Kung University, Tainan 70101, Taiwan

Hot extrusion of a sintered Al-Cu-Mg alloy Cao Huiqin, Guo Zhimeng, Luo Ji, Yang Weiwei, Ye Anping

Institute of Advanced Materials and Technology, University of Science and Technology Beijing, Beijing 100083, China

Microstructure and Mechanical Properties of 2024Al/SiC_p Metal-matrix Composites Prepared by Powder Metallurgy Activated Sintering Technology

Anping Ye, Zhimeng Guo, Ji Luo, Jun Chen, Huiqin Cao, Junjie Hao

Institute of Advanced Materials and Technology, University of Science and Technology Beijing, Beijing 100083, China

Physical Properties of Carbon Nanotube and Al₂O₃ Reinforced Copper Matrix Composites JIANG Likun, CUI Zhaowen, LIU Jianjin, JIA Chengchang

University of science and technology Beijing, Materials science and engineering college, Beijing 100083, CHINA

Sintering Behavior of Mo-Si-B Alloy Fabricated by Reaction Synthesis Seok Hyun Hwang¹, Jong Min Byun¹, Myung-Jin Suk², Sung-Tag Oh³, Seong Lee⁴, Young Do Kim¹* ¹Division of Materials Science and Engineering, Hanyang University, Seoul 133-791, Korea ²Division of Materials and metallurgical engineering, Kangwon National University, Samcheok 245-711, Korea ³Division of Materials Science and Engineering, Seoul National University of Science and Technology, Seoul 139-743, Korea ⁴Agency for Defense Development, 462 Jochiwon-gil, Yuseong-gu, Daejeon, Korea

10:20 COFFEE BREAK (10:20-10:35)

Session 6-2

Chair: Yong Liu, Qian Ma 10:35-12:25, November 6, 2013 Room 2C, XICC

ORAL

O-T6-6

The Current Situation and Future Development of Copper and Copper Alloy Powders Industry and Technology in China

Wang Li-min, Zhang Jing-guo, Zhang shao-ming¹, Wang Li-gen^{1,2}, Zhang Jing-huai^{1,2}, Wang Lin-shan^{1,2}

 ¹Beijing General Research Institute For Nonferrous Metals, Beijing, 100088, China
 ²GRIPM Advanced Materials Co., ltd, Beijing 101407, China

O-T6-7

Study on High Strength Aluminum Alloy 7050 Powder by High Velocity Compaction Haiqing Yin^{1,2}, Jia Guan¹, Xianjie Yuan¹, Dil Faraz



Khan^{1,2}, Xuanhui Qu¹

¹Institute of Particulate and Powder Metallurgy, University of Science and Technology Beijing, Beijing, 100083, P.R. China ² Department of Physics, University of Science and Technology Bannu, Bannu, 28100, Pakistan

O-T6-8

Preparation and Mechanical Properties of Ultrafine Structured Ti/CNT Nanocomposites by High Energy Ball milling and Powder Consolidation Yifeng Zheng, Deliang Zhang* The State Key Laboratory of Metal Matrix

Composites, School of Materials Science and Engineering, Shanghai Jiao Tong University, Shanghai, China

O-T6-9

Equiaxed grained structure: A structure in titanium alloys with higher mechanical properties L.H. Liu, C. Yang

National Engineering Research Center of Near-net-shape Forming for Metallic Materials, South China University of Technology, Guangzhou 510640, China

O-T6-10

Numerical Simulation of Hot Forging of Ti/Al Composite Powder Component

Deng Taiqing, Hu Lianxi, Sun Yu, Wang Erde Campus Box 435#, School of Materials Science and Engineering, Harbin Institute of Technology, Harbin 150001, China

POSTER

Study on the Ultrafine Structured AA6063-5vol.%SiC nanocomposites fabricated by high energy ball milling and powder consolidation Xun Yao, Deliang Zhang*

The State Key Laboratory of Metal Matrix Composites, School of Materials Science and Engineering, Shanghai Jiao Tong University

Microstructure and Mechanical Properties of Al-TiB2 Metal-matrix Composites Prepared under High-intensity Ultrasound

Cunguang Chen, Zhimeng Guo, Ji Luo, Jun Chen, Wenwen Wang, Junjie Hao

Institute of Advanced Materials and Technology, University of Science and Technology Beijing, Beijing 100083, China

Study on Properties of Carbon Reinforced Copper Based Composite

Xiaoli Chen¹, Yucheng Wu^{1, 2}, Wenfang Wang

¹School of Material Science and Engineering, Hefei University of Technology, Hefei 230009, China

²Engineering Research Center of Powder Metallurgy of Anhui Province, Hefei 230009, China

Phase structure and microstructure of multiprincipal component MgAlMnCuZn alloy powder prepared by mechanical alloying Mingxing Ma*, Cun Liang, Deliang Zhang State Key Laboratory for Metal Matrix Composites, School of Materials Science and Engineering, Shanghai Jiao Tong University, Shanghai 200240, China

Disscussion on the Mechanism of Hf Eliminating PPB in Powder Metallurgy Superalloys Zhang Yiwen, Liu Jiantao, Han Shoubo, Sun Zhikun, Chi Yue, Zhang Ying High Temperature Materials Institute, CISRI, Beijing, 100081, China

The way of obtaining the alloys Cu-Mn-Ni system as solders Jing.Chai, Biao Yan Tongji University, Shanghai, China

Development of constitutive relationship of powder metallurgy TiAl based alloy based on artificial neural network

Yu Sun, Taiqing Deng, Lianxi Hu

National Key Laboratory for Precision Hot Processing of Metals, School of materials Science and Engineering, Harbin Institute of technology, Harbin 150001, China

Exploratory analysis of the composition gradients and properties in the Ti-Al-Mo system using diffusion-multiple approach

Congzhang Qiu^{1, 3}, Yon Liu¹, J.-C. Zhao^{1, 2}, Qiaofu Zhang², Bin Liu¹, Ruifang Yang³

¹ State Key Laboratory of Powder Metallurgy, Central South University, Changsha 410083, P.R.China

² Department of materials Science and Engineering, The Ohio State University, Columbus, OH 43210, USA

³ Hunan Rare-earth Metal Research Institute, Changsha, 410126, China

Simulation and Experiment of Titanium Alloy Ti-6Al-4V during Hot Isostatic Pressing Forming Bu Guoliang^{1,a}, Lang Lihui^{1,b}, Xue Yong¹, Wang Gang¹, Yao Song¹



¹School of Mechanical Engineering and Automation, Beihang University, Beijing 100191, China

Microstructure and mechanical properties of in-suit synthesized TiB whiskers reinforced titanium matrix composites by high-velocity compaction Zhiqiao Yan, Feng Chen, Yixiang Cai, Yukai Zheng

Department of Powder Metallurgy, Guangzhou Research Institute of Non-ferrous Metals, Guangzhou 510650, China

Characteristics of alumina particles in dispersion

strengthened copper alloys Xuehui Zhang, Chenguang Lin*, Shun Cui, Zengde Li

Powder Metallurgy and Special Materials Department, General Research Institute For Nonferrous Metals, Beijing 100088, PR China

Ti-Mg binary biomaterials fabricated by mechanical alloying and spark plasma sintering. Hong Wu, Yong Liu State Key Laboratory of Powder Metallurgy,

Central South University, Changsha 410083, China







Registration

Registration Fee

	Before September1, 2013	After September 1, 2013
Participant	400 US Dollars	460 US Dollars
Student ^{*,} **&Accompanying Person***	250 US Dollars	280 US Dollars

* "Student" is required to submit a copy of their student ID by fax or e-mail (in PDF format).

** Student speakers are categorized as "Student".

*** Accompanying persons are limited to the participants' family members only.

REGISTRATION FEE INCLUDES: All technical program, program & abstract book, coffee time, lunch,

dinner and so on.

Payment Methods

Method 1: Bank Transfer

Please telegraphic transfer through your bank in US Dollars to:

Bank Name	Industrial and Commercial Bank of China. Beijing Municipal Branch. Xinjiekou Banking Office
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Bank Address	No.143 XiZhiMen Street. Xicheng District. Beijing. China. 100035
Beneficiary's Name	China Iron and Steel Research Institute Group.
Account No.	0200002909003200456
Beneficiary's Address	No.76 XueYuanNan Street. Haidian District. Beijing. China. 100081

A copy of the receipt for the bank remittance should be send to the Conference Secretariat. Please ensure the participants' name on the transfer record.

Method 2: Credit Card

International credit cards such as VISA, Mastercard and JCB are accepted. Please download '*International Credit Card Authorization Form*' from the conference website (www.apma2013.org), fill the form and return the scanned copy to the Conference Secretariat. A receipt will be sent out via E-mail when the payment is received.

Method 3: Cash on the Registration Desk





Exhibition

The conference and exhibition will attract international key PM producers, research institutes, associate suppliers and customers from PM industries and relating sections. It is an excellent event for you to attend and the best opportunity to present your products and research.

Exhibition Fee

Please note the price shown below is based on United States Dollar.

Booth	Price
Standard booth size (9m ²)	\$2000.00
Non-standard booth size	$200.00/m^2 > 18m^2$

Booths must be ordered in multiples of 9 m², Non-standard booth must be no less than 18m².

Each standard exhibition booth is 9m² (3m X 3m) and includes:

- \diamond Three-side of wall panels
- ♦ Electricity (220V/5A)
- \diamond One table and two chairs
- \diamond Lighting (two spotlights per 9m²)
- \diamond Booth lintel (with logo and company name)

Important Dates

Deadline of payment: September 30, 2013.

Booth Reservation:

Exhibition booths are allocated on 'first come, first served' basis, please ensure you provide alternative choices of booth location when you return your reservation form.

Cancellations:

A cancellation fee of 50% of total amount will be applied for cancellations received in writing before September 30, 2013. No refunds can be made thereafter.

Exhibition Area (next page)

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Hotel Accommodation



Hotel Accommodation

General Information

Xiamen C&D ITS Business Conference Exhibition Co,. Ltd. has been appointed the official agent for the Congress and will handle Hotel Reservation.

Xiamen C&D ITS Business Conference Exhibition Co., Ltd. PHONE: Miss Sarah Li 86-592-2263826 (Working-time: Monday –Friday 09:00-12:00,14:00-17:00) FAX: 86-592-2109961 E-mail: hotelbooking@sino-trip.com

Please reserve your hotel in advance due to holiday season.

Signed Hotels Information:

No.	Hotel names	Airport	Railway station	Conference & Exhibition Center	Hotel websites
1	Xiamen International Conference Hotel Five stars	13 km	8 km	0 km	www.icchotel.com
2	Xiamen International Seaside Hotel Five stars	13 km	8 km	1 km	www.seaside.cn
3	Hotel Nikko Xiamen Five stars	13 km	8 km	2 km	www.hotelnikkoxiamen.com
4	Hualin Harbour Serviced Apartment Three stars	13 km	8 km	2 km	www.xmhlhotel.com

Note:

If you take a taxi from the airport, it may cost 40-60 RMB to the above hotels.

Hotel introduction:

1) Xiamen International Conference Hotel (Five stars)

Address: No.1697 East Ring-Island Road, Siming-district, Xiamen

Opening: January, 2011

Feature: Hotel belongs to C&D group, near Xiangshan International Yacht Dock and overlook the Big & Small Islands of Taiwan.



If you need to take a taxi to International Conference Center Hotel, please show the following information to the driver.

Hotel: International Conference Center Hotel 宾馆: 国际会议中心酒店 Address: NO. 1697 East Ring-Island Road, Siming District 地址: 思明区环岛东路 1697 号 Telephone: 0592-5958888 电话: 0592-5958888



2) Xiamen International Seaside Hotel (Five stars)

Address: No. 199 No. 2 Huizhan Road, Siming-district, Xiamen

Opening: Year 2001

Feature: Hotel belongs to C&D group, focuses of casual conference theme. Each sea-view room has a big balcony to overlook the beautiful sea.

Brief introduction: 208 rooms in total | 10 basic conference rooms| 600 people contained in the largest conference room, theatre type



If you need to take a taxi to Xiamen International Seaside Hotel, please show the following information to the driver.

Hotel: International Seaside Hotel 宾馆: 厦门会展中心酒店 Address: NO. 199 No. 2 Huizhan Road, Siming District 地址: 思明区会展二路 199 号 Telephone: 0592-5959999 电话: 0592-5959999

3) Hotel Nikko Xiamen (Five stars)

Address: NO.199 Wenxing Donglu (rd), Siming-district, Xiamen

Opening: Year 2011

Feature: Japanese hotel always advocates the service principle of warm, gentle and fashion Brief introduction: 443 rooms in total



If you need to take a taxi to Hotel Nikko Xiamen, please show the following information to the driver.

Hotel: Hotel Nikko Xiamen 宾馆: 厦门日航酒店 Address: NO. 199 Wenxing Donglu (rd), Siming District 地址: 思明区文兴东路 199 号 Telephone: 0592-5020888 电话: 0592-5020888

Hotel Accommodation



4) Hualin Harbour Serviced Apartment (Three stars)

Address: 88 Qiancunpu Rd, Siming District Xiamen China

Opening: Year 2006

Feature: The hotel has a beautiful environment and convenient transportation and is only 5 minutes to the Conference & Exhibition Center on foot.

Brief introduction: 222 rooms in total, hotel equips business center, Chinese restaurant, Café, meeting room and provides travel agent service.



If you need to take a taxi to Xiamen Hualin Hotel, please show the following information to the driver.

Hotel: Xiamen Hualin Hotel 宾馆: 厦门华林酒店 Address: NO.88 Qiancunpu Road, Siming District 地址: 思明区前村埔路 88 号 Telephone: 0592-5020999 电话: 0592-5020999

HOTEL BOOKING

Hotel	Room Type	Room Rate
Xiamen International Seaside	City-view Twin-size bed room	RMB600 per room per night
Hotel Five stars	Sea-view Twin-size bed room	RMB750 per room per night
Xiamen International	City-view Twin-size bed room	RMB720 per room per night
stars	Sea-view Twin-size bed room	RMB820 per room per night
Xiamen Nikko Hotel Five	Superior Room Twin size bed	RMB750 per room per night
Nov.3)	King size bed	RMB750 per room per night
Xiamen Hualin Hotel Three	Twin size bed or	RMB360 per room per night
stars	King size bed	RMB360 per room per night

Note: All the rooms include 1-2 breakfast.



Hotel Accommodation

Map



Visit and Tours



Visit and Tours

Xiamen C&D ITS Business Conference Exhibition Co,. Ltd has been appointed as the official agent for the Congress and will handle tours. Please note that all the tours arranged by this agent are optional. Any consumption is self-paid.

Xiamen C&D ITS Business Conference Exhibition Co,. Ltd. PHONE: Miss Sarah Li 86-592-2263826 (Working-time: Monday –Friday 09:00-12:00,14:00-17:00) FAX: 86-592-2109961 E-mail: hotelbooking@sino-trip.com

For more information, please visit www.apma2013.org



About Xiamen

Airport

With 62 international and domestic air routes, Xiamen Gaoqi International Airport is the fourth largest air traffic hub in China after Beijing, Shanghai and Guangzhou. Daily direct domestic flights are available from major cities, e.g. daily 10 flights from Beijing, 18 flights from Shanghai and 5 flights from Hong Kong. In addition, you can also go by direct flight to international destinations such as Seoul, Tokyo, Osaka, Singapore, Bangkok, Manila and Kuala Lumpur.

Airport Customs

Upon entering China, a health declaration must be filled out, together with a list of objects of value in one's possession. A copy of these should be kept until departure. A customs' control will be carried out when one leaves the country. Antiques can only be exported if they have a red seal attesting to their authenticity.

Customs officials may seize audio and videotapes, books, records and CDs to check for pornographic, political or religious material. Baggage declaration forms must be completed upon arrival noting all valuables (such as cameras, watches and jewellery); this may be checked on departure. Receipts for items such as jewellery, jade, handicrafts, paintings, calligraphy or other similar items should be kept in order to obtain an export certificate from the authorities on leaving. Without this documentation, such items cannot be taken out of the country.

Shopping

Xiamen has two famous shopping streets: Zhongshan Road in the old city and Dragon Head Road on scenic Gulang Islet. Zhongshan Road, which is 1.2 km long, has 243 plazas, shops and restaurants, such as Hualian Commercial Building, Huahui Mall department stores, and Tianshun Jewellery Store. Thanks to its strong ethnic culture and special scenery of south Fujian, it has become an ideal place for domestic and foreign tourists to do shopping. On both sides of Dragon Head Road, there are many stores selling local products. It is worth mentioning that the sports shoes made in Fujian enjoy a great reputation throughout the world. Xiamen has 22 designated tourism shops selling commodities to tourists.

Business Hours

Typical business hours in government and private offices are from 08:30 to 17:30 on Monday - Friday; and they are closed on Saturday and Sunday. Most shops and banks are open from 09:00 to 19:00 or later and are open seven days a week.

Climate

Xiamen, a tourist-oriented coastal city, appeals strongly to foreign tourists largely due to its climate. Located in the subtropical zone, the city receives abundant sunshine (a total of 2,276 hours annually). The annual average temperature in Xiamen is 20.8C. The optimum time for visiting Xiamen is from May to July with warm, but not excessive, temperatures.

Credit Cards, Travellers Cheques and ATM's

American Express, Diners Club, Eurocard/MasterCard and Visa are widely accepted in major provincial cities in designated establishments. However, the availability of ATMs is often limited, and the acceptance of credit cards is not as widespread as in major cities. To avoid additional exchange rate charges, travellers are advised to take traveller's cheques in US Dollars.

About Xiamen



Cuisine and Dietary Matters

Xiamen cuisine, the most representative one of Fujian cuisine, is characterized by its similarity to Canton food; sweet, light and very popular. The food is certainly one of the best things about Xiamen particularly the seafood which is exceptionally fresh. Dishes here use copious amounts of oysters, crabs, prawn and peanuts. Xiamen peanut soup is oftern served. The Sweet Peanut Shop (Huangzehe Huashengtang Dian) on Zhongshan Lu is the best place to sample Xiamen's favorite nutty goodies.

Local specialties here include fish ball soup, shrimp noodles and oyster soup. There are some great seafood restaurants around town. On Gulangyu Island there is a wealth of places to choose from, particularly around the Lujiang Hotel. The hotel itself also serves good Chinese food including an impressive medicinal banquet the properties of the food are apparently good for the soul and body! Those tired with seafood should seek out the Marco Polo Hotel on Jianye Road and tuck into their authentic Peking Duck.

There are also a couple of good vegetarian restaurants in Xiamen; one in the Nanputo Temple and the other is the Hao Qing Xiang Restaurant on Hubin Zhong Lu. Muslim food is also popular here. Tasty lamb dishes, kebabs and Xinjiang bread are all available from the street vendors and in the little Muslim cafes dotted about town. Special Dietary needs can be catered for at the APMA2013 if detailed to the secretariat and your hotel in advance.

Culture and Customs

Cultural differences may create misunderstandings between local people and visitors.

A few points to note:

1. The Chinese do not usually volunteer information and the visitor is advised to ask questions.

2. Hotels, train dining cars and restaurants often ask for criticisms and suggestions, which are considered seriously.

3. Do not be offended by being followed by crowds; this is merely an open interest in visitors who are rare in the remoter provinces.

4. The Chinese are generally reserved in manner, courtesy rather than familiarity being preferred.

5. The full title of the country is 'The People's Republic of China', and this should be used in all formal communications. 'China' can be used informally, but there should never be any implication that another China exists.

6. Although handshaking may be sufficient, a visitor will frequently be greeted by applause as a sign of welcome. The customary response is to applaud back.

7. Anger, if felt, is expected to be concealed and arguments in public may attract hostile attention.

8. In China, the family name is always mentioned first.

9. It is customary to arrive a little early if invited out socially.

10. When dining, guests should wait until their seat is allocated and not begin eating until indicated to do so.

11. If using chopsticks, do not position them upright in your rice bowl as the gesture symbolises death.

12. Toasting at a meal is very common, as is the custom of taking a treat when visiting someone's home, such as fruit, confectionery or a souvenir from a home country.

Currency

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The official currency is the China Yuan Renminbi (RMB). Travellers' cheques and major credit cards are accepted and foreign currency can be converted in hotels, in friendly stores and in subsidiaries of the Bank of China. Import and export of local currency is limited to RMB20000. Import of foreign currency is up to US\$1000 (US\$5000 for non-residents). Higher amounts should be declared upon arrival. Export of foreign currency is limited to the amount imported and declared.

Electricity

220 volts AC, 50Hz. Two-pin sockets and some three-pin sockets are in use. However, most 4 to 5 star hotels are wired for the use of 110 volt appliances.

Health Regulations

No vaccinations are required, but anyone coming from areas with yellow fever epidemics must carry a certificate of immunity from this disease. In other cases, it is sufficient to carry a supply of one's habitual medications and never to drink tap water.

Language

The local language is Southern Fujian dialect. English is spoken by many guides and in hotels. Many taxi drivers do not speak English. The official language of APMA2013 is English.

Liability and Insurance

The conference organizers will not accept liability for personal injury or loss/damage to property/belongings of participants or accompanying persons, either before, during or following the congress, tours or their stay in Xiamen. It is therefore recommended that participants arrange their own personal health, accident and travel insurance.

Photography

Photography is not allowed in airports. Places of historic and scenic interest may be photographed, but permission should be sought before photographing military installations, government buildings or other possibly sensitive subjects.

Religion

China is officially Atheistic, but the stated religions and philosophies are Buddhism, Daoism and Confucianism. There are 100 million Buddhists and approximately 60 million Muslims, 5 million Protestants (including large numbers of Evangelicals) and 4 million Roman Catholics.

Tax

Currently in China there is a 4% Government price adjustment fund and some services are subject to 15% service charge.

Telephone Useful Telephone Numbers

China's IDD code 0086 Fire alarm 119 Xiamen area code 0592 First aid 120

Consumer's complaint 2032272 Long-distance bus station 2031246

Airline information 6020033 Train information 5054340

Police 110 Traffic accident 122

Xiamen Airlines air-ticketing 5083666

Inquiry for telephone numbers 114

Xiamen Customs 2028747 Tourist complaint 5318985

About Xiamen



Time Zone

China is eight hours ahead of Greenwich Meantime at the time of the Conference.

Tipping

Tipping is not a part of Chinese custom. A 10%-15% service charge may be added to your bill at some tourist hotels thus no tipping is expected unless you are provided with extra service. It is not necessary to tip a taxi driver unless he/she assists with luggage or provides extra service.

Transfers

The easiest and most economical way to travel from the airport to your hotel is to hail one of the taxis in the taxi station located directly outside the arrivals hall. A 30 minute trip (which will get you anywhere in Xiamen) should cost you no more than RMB60. It is advisable to have the Chinese name of your destination printed out on a piece of paper to show your driver in the event that your driver does not speak English. Pre-arranged transfers, daily car hire or coach hire may be reserved through C&D Travel by contacting travelbooking@sino-trip.com

Transport

Going from one place to another within the city by bus is fairly easy with over 50 public transport routes. Bus fares are \$1. Minibuses also shuttle back and forth in the city, but be prepared for delays because minibus drivers are liable to wait until the bus is full. Fares for such buses are from \$1 and above depending on the number of stops. Taxis can be hailed with ease in the downtown area and at major scenic spots on the outskirts and are very reasonable.

Visa Entry requirements to China and Letters of Invitation

To visit China, it is necessary to have a passport with a validity of at least 6 months, as well as an entry visa. All delegates are advised to get up to date information from their nearest Chinese consulate or embassy before travelling. If you arrive without a valid travel visa, you will not be allowed to enter, may be fined and will be immediately deported at your own expense.

Individuals requiring an official letter of invitation to attend APMA2013 should write to the Secretariat at: jenny_wu@apma2013.org. This procedure is designed to assist participants who need to obtain a visa or permission to attend the Conference and does not cover registration fees or other expenses. The invitation does not imply provision of financial or other support.

What to Wear

Conservative casual wear is generally acceptable everywhere and modest dress is advised.



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APMA2013 Secretariat SATI-PM Office

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