

PROGRAM

Tuesday, September 14, 2010

09:00-09:10	Opening Remark and Welcome Address Prof. Isao Taniguchi, President of Kumamoto University Prof. Yoshihito Kawamura, Kumamoto University
	SESSION 1 <i>Session Chairs: Prof. Y. Kawamura & Prof. D.H. Kim</i>
09:10-09:40	Keynote Lecture Pettifor Map Approach Towards Understanding the Bulk Metallic Glass Formation: Application to Ca and Mg based Bulk Metallic Glasses <u>Srinivasa Ranganathan</u>¹, T. Biswas¹, B.S. Murty², A. Takeuchi³ and A. Inoue³ ¹ Department of Materials Engineering, Indian Institute of Science, India ² Department of Metallurgical and Materials Engineering, Indian Institute of Science, India ³ Institute for Materials Research, Tohoku University, Japan
09:40-10:10	Keynote Lecture Current Trends and Perspectives for Research of Bulk Metallic Glass and Its Applications in Korea <u>Jung Chan Bae</u> Production Technology R&D Division, Korea Institute of Industrial Technology (KITECH), Korea
10:10-10:40	Keynote Lecture Characteristics in Microstructures and Deformation Behaviors in a Warm-extruded Magnesium Alloy with LPSO Phase <u>Kenji Higashida</u> and Tatsuya Morikawa Department of Materials Science and Engineering, Kyushu University, Japan
10:40-11:00	Coffee Break
	SESSION 2 <i>Session Chairs: Prof. C. Iwamoto & Prof. V. Keryvin</i>
11:00-11:30	Keynote Lecture Present Status and Prospects of Magnesium Industry and R&D in Korea <u>Min Cheol Kang</u>¹ and Keun Yong Sohn² ¹ Korea Magnesium Technology Research Association (KMTRA), Korea ² School of Nano Engineering, Inje University, Korea
11:30-11:45	Invited Lecture Comparison of Formability between AZ31, AZ61 and AZ80 Magnesium Alloy Sheets by Friction Stir Incremental Forming <u>Masaaki Otsu</u>, Tsukasa Ichikawa, Mitsuhiro Matsuda, Kazuki Takashima Department of Materials Science, Kumamoto University, Japan
11:45-12:00	Invited Lecture Tribology of Magnesium Alloys in Forging with Coated Tools <u>Ryo Matsumoto</u> Division of Mechanical Engineering, Graduate School of Engineering Science, Osaka University, Japan
12:00-12:15	Invited Lecture Influence of Rare Earth Elements on the Microstructure and Mechanical Properties of Mg–Zn–Y–RE Alloys with LPSO Phase <u>Jonghyun Kim</u>¹ and Y. Kawamura² ¹ Kumamoto Technology and Industry Foundation, CREATE Kumamoto University Laboratory, Japan ² Department of Materials Science, Kumamoto University, Japan

12:15-12:25	Taking Group Photo	Frontage of 100th Anniversary Memorial Hall
12:25-13:25	Lunch	FORICO
13:25-14:55	POSTER SESSION	
	SESSION 3 <i>Session Chairs: Prof. T. Mashimo & Dr. M.C. Kang</i>	
14:55-15:25	Keynote Lecture Temperature Dependence of Mechanical Properties and Pressure Sensitivity in Metallic Glasses below Glass Transition <u>Vincent Keryvin</u> ^{1,2} ¹ LARMAUR ERL CNRS 6274, University of Rennes 1, France ² LIMATB EA 4250, University of South Brittany, France	
15:25-15:40	Invited Lecture Wear Behaviors of Cast-Iron-Based Bulk Metallic Glass Coating Layers Formed by a HVOF Process B. T. Jang ¹ , S. S. Kim ¹ and <u>S. Yi</u> ² ¹ Department of Mechanical Engineering, Kyungpook National University, Korea ² Department of Materials Science and Metallurgy, Kyungpook National University, Korea	
15:40-15:55	Invited Lecture On the Deformability of Bulk metallic Glass by Room Temperature Processing <u>Min Ha Lee</u> ¹ , Jürgen Eckert ² , Jung Chan Bae ¹ ¹ Korea Institute of Industrial Technology, South Korea ² IFW Dresden, Institute for Complex Materials, Germany	
15:55-16:15	Coffee Break	
	SESSION 4 <i>Session Chairs: Prof. K. Higashida & Dr. J.C. Bae</i>	
16:15-16:45	Keynote Lecture Synthesis of Nanomaterials by Pulsed Plasma in Liquid <u>Tsutomu Mashimo</u> ¹ and Emil Omurzak ² ¹ Shock Wave and Condensed Matter Research Center, Kumamoto University, Japan ² Priority Organization for Innovation and Excellence, Kumamoto University, Japan	
16:45-17:00	Invited Lecture Extraction of Nd from Nd-Fe-B Magnet Using Mg Melts <u>Taek-Soo Kim</u> , Hong-Jun Chae Center for Echo Materials & Processing, Korea Institute of Industrial Technology (KITECH), Korea	
17:00-17:15	Invited Lecture Development of High Strength and Ductile Alloys Based on Modulation of Ultrafine Eutectic Structure <u>Ki Buem Kim</u> Department of Advanced Materials Engineering, Sejong University, Korea	
17:15-17:30	Invited Lecture In-Situ High-Resolution Observation of Spreading Reactive Molten Alloy on Ceramic Substrates <u>C. Iwamoto</u> , S. Satonaka Department of Mechanical Engineering, Kumamoto University, Japan	
18:30-20:30	Banquet	Kumamoto Hotel Castle

Wednesday, September 15, 2010

	SESSION 5 <i>Session Chairs: Prof. S. Ando & Prof. S.H. Yi</i>
09:00-09:30	Keynote Lecture Design of Nano-Composites Based on Phase Separating Metallic Glassy Alloys S. W. Sohn ¹ , B. J. Kim ¹ , H. J. Chang ² , E. S. Park ³ , W. T. Kim ⁴ , <u>D. H. Kim</u> ¹ ¹ Center for Noncrystalline Materials, Dept. of Metallurgical Eng. Yonsei Univ., Korea ² Electron Microscopy Group, Materials Science and Technology Division, Oak Ridge National Laboratory, ³ Department of Materials Science and Engineering, College of Engineering, Seoul National University, Korea ⁴ Division of Applied Science, Cheongju University, Korea
09:30-09:45	Invited Lecture Synthesis of Bulk Amorphous Composites with Three Amorphous Phases by Consolidation of Milled Amorphous Powders <u>Jin Kyu Lee</u> Division of Advanced Materials Engineering, Kongju National University, Korea
09:45-10:00	Invited Lecture Fracture Simulation in Equal Channel Pressing of Magnesium Powders Seung Chae Yoon ¹ , Taek-Soo Kim ² , <u>Hyoung Seop Kim</u> ³ ¹ Hyundai Hysco, Dangjin, Chungnam, Korea ² Department of Echo-Materials & Processing, Korea Institute of Industrial Technology (KITECH), Korea ³ Department of Materials Science and Engineering, Pohang University of Science and Technology (POSTECH), Korea
10:00-10:15	Invited Lecture Heterogeneous Deformation Induced by Nonequivalent Critical Resolved Shear Stresses in Magnesium Bicrystal <u>Tsuyoshi Mavama</u> ¹ , Tetsuya Ohashi ² , Kenji Higashida ³ ¹ Kumamoto University, Japan ² Kitami Institute of Technology, Japan ³ Kyushu University, Japan
10:15-10:35	Coffee Break
	SESSION 6 <i>Session Chairs: Prof K. Takashima & Prof. S. Ranganathan</i>
10:35-11:05	Keynote Lecture Temperature Dependence of Compression Behavior in Magnesium Single Crystals <u>Shinji Ando</u> and Hiromoto Kitahara Department of Materials Science and Engineering, Kumamoto University, Japan
11:05-11:20	Invited Lecture Inhomogeneous Deformation Behaviors Analyzed by High Precision Markers in a Warm-Extruded Magnesium Alloy with LPSO Phase <u>Tatsuya Morikawa</u> ¹ , Jun Hirotsu ² , Yuuki Mitani ² and Kenji Higashida ¹ ¹ Department of Materials Science and Engineering, Kyushu University, Japan ² Graduate School of Engineering, Kyushu University, Japan
11:20-11:35	Invited Lecture Microstructures and Mechanical Properties of Mg-Al-Sn Alloy System <u>Jong-beom Lee</u> ¹ , Hyeon-taek Son ² , Ha-guk Jeong ¹ , Toyohiko J. Konno ³ ¹ Eco Materials & Processing Department, Production Technology R&D Division, Korea Institute of Industrial Technology, South Korea ² Korea Institute of Industrial Technology, South Korea

	³ Institute for Materials Research, Tohoku University, Japan
11:35-11:50	Invited Lecture Microstructure and Mechanical Properties of Wire-Brushed Mg Sheets Hiramoto Kitahara , Takuya Yada, Shinji Ando Department of Materials Science, Kumamoto University, Japan
11:50-12:00	Closing Address Dr. Jung-Chan Bae, KITECH
12:00-13:00	Lunch FORICO
13:00-21:00	Excursion

POSTER PRESENTATIONS

100th Anniversary Memorial Hall

P-01	Application of BMG Micro-scaled Forming Characteristics Ha-Guk Jeong Production Technology R&D Division, Eco Materials & Processing Department, Korea Institute of Industrial Technology, Korea
P-02	Characterization of Thermal Properties of High Pressure Gas Atomized Ni-based Metallic Glass Powders Ji-su Kim ^{1,2} , Gwang-yeob Lee ^{1,2} , Do-hyang Kim ² , Min-ha Lee ¹ , Jung-chan Bae ¹ ¹ Production Technology R&D Division, Korea Institute of Industrial Technology, Korea ² Department of Materials Sciences and Metallurgy, Yonsei University, Korea
P-03	Consolidation of Zr₆₅Al₁₀Ni₁₀Cu₁₅ Bulk Metallic glass-diamond by Spark Plasma Sintering Soo-Young Lee ¹ , Taek-Soo Kim ¹ , Seung-Koo Kang ² ¹ Eco Materials & Processing Department, Production Technology R&D Division, Korea Institute of Industrial Technology, South Korea ² Shinhan Diamond Industrial Co.,Ltd., Korea
P-04	A Study on Characteristics of Zr-based BMG Die with Micro Pattern for Mobile-phone Window Module Se Hoon Oh , Jong-Wan Kim ¹ , Ha-gook Jeong ² , Jeong-Chan Bae ² ¹ Research and Development Center, Mogem Co. Ltd., Korea ² Advanced Materials Team, Korea Institute of Industrial Technology, Korea
P-05	Wear Properties of CMP Pad Conditioner Composed of Diamond-reinforced Bulk Metallic Glass Composites Seung-Koo Kang , Jun-Hyuk Hwang, Byung-Ki Kim Shinhan Diamond Industrial Co. Ltd., Korea
P-06	Improvement in Brittleness and Magnetic Properties of Fe-Si-B BMG (Bulk Metallic Glasses) Strip Fabricated by Planar Flow Casting(PFC) Yoon-seong Cho , Min-suk Sung, Jong-goo Kang ILJN electric Co., Ltd. Materials Division, New Technology R&D center Institute for materials Research, Korea
P-07	Electron Beam Welding of Zr-based Bulk Metallic Glass and Crystal Metals Naohisa Sawai ¹ , Yuji Yanagida ¹ , Hironori Kuroki ¹ , Jonghyun Kim ² and Y. Kawamura ² ¹ Kuroki Kogyosho Co.,Ltd, Japan ² Department of Materials Science, Kumamoto University, Japan
P-08	Fracture Behavior of Advanced Magnesium Alloys Hajime Yoshimura ¹ , Shun Matsuyama ¹ , Masaaki Otsu ¹ , Kazuki Takashima ¹ and Yoshihito Kawamura ¹ ¹ Department of Materials Science, Kumamoto University, Japan
P-09	Micro-tensile Testing of Extruded Mg-Zn-Y Alloys

	Y. Nagatomi , M. Otsu, K. Takashima, Y. Kawamura Department of Materials Science, Graduate School of Science and Technology, Kumamoto University, Japan
P-10	Resistance Spot Welding of Magnesium Alloys with Mg₉₆Zn₂Y₂ Inserts Ken Moutai , Chihiro Iwamoto, Shinobu Satonaka, Yoshihito Kawamura Graduate School of Science and Technology, Kumamoto University, Japan
P-11	Improvement of Corrosion Resistance of Mg-Zn-Y Mg/LPSO Two-phase Alloys by Fourth Element Addition Shogo Izumi , Michiaki Yamasaki, Yoshihito Kawamura Department of Materials Science, Kumamoto University, Japan
P-12	Influence of Fourth Element Addition on Corrosion Property of Mg-Zn-Gd Alloys with LPSO Phase Manabu Otani , Michiaki Yamasaki, Yoshihito Kawamura Department of Materials Science, Kumamoto University, Japan
P-13	Effect of Zr Addition on Mechanical Properties and Microstructure of Mg-Zn-Y Alloy Extrusions Prepared from Low Cooling Rate-Cast Ingots Shinichi Inoue , Michiaki Yamasaki, Yoshihito Kawamura Department of Materials Science, Kumamoto University, Japan
P-14	Effect of Extrusion on Microstructure and Elevated Temperature Properties of Mg-Zn-Y Alloys with LPSO Phase Masaaki Hirano ¹ , Michiaki Yamasaki ¹ , Yoshihito Kawamura ¹ , Koji Hagihara ² , Kenji Higashida ³ ¹ Department of Materials Science, Kumamoto University, 2Japan ² Graduate School of Engineering, Osaka University, Japan. ³ Department of Materials Science and Engineering, Kyushu University, Japan
P-15	Influence of Volume Fraction of LPSO Phase and Extrusion Ratio on Mechanical Properties at Elevated Temperatures in Mg-Zn-Y Alloys Yasufumi Fukunaga ¹ , Tsuyoshi Mayama ² , Yoshihito Kawamura ¹ ¹ Department of Materials Science, Kumamoto University, Japan ² Priority Organization for Innovation and Excellence, Kumamoto University, Japan
P-16	Improvement of Mechanical and Functional Properties of AZ31B by Wire-brushing Process Takuva Yada ¹ , Hiromoto Kitahara ² and Shinji Ando ² ¹ Graduate Student, Graduate School of Science and Technology, Kumamoto University, Japan ² Department of Materials Science and Engineering, Kumamoto University, Japan
P-17	Fatigue Behavior of Mg₉₆Zn₂Y₂ Alloys with LPSO Phase by Rotary Bending Fatigue Test Takuva Yanagihara ¹ , Masayuki Tsushida ² , Hiromoto Kitahara ³ and Shinji Ando ³ ¹ Graduate Student, Graduate School of Science and Technology, Kumamoto University, Japan ² Faculty of Engineering, Kumamoto University, Japan ³ Department of Materials Science and Engineering, Kumamoto University, Japan
P-18	Stability of Stacking Faults and Its Relation to the Long Periodic Stacking (LPS) Phase Jong-beom Lee ¹ , Toyohiko J Konno ² , Kenji Hiraga ² , Ha-guk Jeong ¹ ¹ Eco Materials & Processing Department, Production Technology R&D Division, Korea Institute of Industrial Technology, South Korea ² Institute for Materials Research, Tohoku University, Japan
P-19	An Experimental Study on Extrusion Characteristics of Mg Alloy by Surface Roughness of Billet in Hot Hydrostatic Extrusion Process Duk-Jae Yoon ¹ , Eung-Zu Kim ² , Ki-Sun Lee ¹ , Young-Chul Shin ¹

	¹ Advanced Forming Technology Center, Korea Institute of Industrial Technology, Korea ² Molding & Forming Technology R&D Department, Korea Institute of Industrial Technology, Korea
P-20	Corrosion Behavior of Rapidly Solidified Mg-Zn-Y-X Alloys in 3.5wt% NaCl Solution <u>S.W. Nam</u> ¹ , W.T. Kim ² , D.H. Kim ¹ , T.S. Kim ³ ¹ Center for Non-crystalline materials, Yonsei University, Korea ² IT Division, Cheongju University, Korea ³ Korea Institute of Industrial Technology, Korea
P-21	Effects of Cooling Rate on Microstructure and Mechanical Properties of As-cast Mg-Al-Ca-Nd Alloys <u>Dae-Won Kim</u> ¹ , Hyeon-Taek Son ² ¹ Korea Institute of Industrial Technology, South Korea
P-22	Enhanced Mechanical Properties in Mg-Zn-Sn-Ag and Mg-Al-Sn-Ag Based Alloys Prepared by Extrusion and Rolling Processes <u>Yong-Ho Kim</u> , Hyeon-Taek Son Korea Institute of Industrial Technology, South Korea
P-23	Effect of Several Routine of Differential Speed Rolling Process on Mechanical Property and Texture Evolution of AZ31 Mg Sheets <u>Yong-keun Kim</u> ^{1,2} , Do-Hyang Kim ² , Ha Guk Jeong ¹ , Won-yong Kim ¹ , Jong-beom Lee ¹ ¹ Production Technology R&D Division Eco Materials & Processing Department Korea Institute of Industrial Technology, Korea ² Department of Materials science and Metallurgy, Yonsei University, Korea
P-24	Bonding Ability of Fe-base Alloy and WC-Co Hard Metal <u>Hanshin Choi</u> , Yonghwan Kim Korea institute of industrial technology, South Korea
P-25	Butt Welding Technique for Industrial Materials by Softening and Stirring Effects of Tool <u>Kenji Nakamura</u> ¹ , Chihiro Iwamoto ¹ , Shinobu Satonaka ¹ , Yoshihito Kawamura ¹ , Kazuhiro Nakata ² ¹ Graduate School of Science and Technology, Kumamoto University, Japan ² Joining and Welding Research Institute, Osaka University, Japan
P-26	Joining of Tungsten/Copper Using Underwater Explosive Welding Technique <u>JoonOh Lee</u> ¹ , P. Manikandan ¹ and K. Hokamoto ² ¹ Graduate School of Science and Technology, Kumamoto University, Japan ² Shock wave and condensed matter research center, Kumamoto University, Japan
P-27	Characterization of Ni Powder Produced by Electrical Wire Explosion in Liquid Media <u>Gwang-yeob Lee</u> ^{1,2} , Ji-su Kim ^{1,2} , Do-hyang Kim ² , Min-ha Lee ¹ , Jung-chan Bae ¹ ¹ Production Technology R&D Division, Korea Institute of Industrial Technology, IKorea ² Department of Materials sciences and Metallurgy, Yonsei University, Korea
P-28	Synthesis of Nano-Sized TiN, AlN Powders through Electrical Wire Explosion in Liquid Nitrogen <u>Naoyuki Wada</u> ¹ , Kazunori Akiyoshi ¹ , Yuta Kimura ² , Kazuyuki Hokamoto ³ ¹ Graduate School of Science and Technology, Kumamoto University, Japan ² Faculty of Engineering, Kumamoto University, Japan ³ Shock Wave and Condensed Matter Research Center, Kumamoto University, Japan
P-29	Preparation of Wurtzite Type ZnS Nanocrystals by the Pulsed Plasma in Liquid <u>Kengo Taniguchi</u> ¹ , Emil Omurzak ² , Chen Liliang ¹ , Chihiro Iwamoto ³ , Saadat Sulaimankulova ⁴ , Tsutomu Mashimo ¹ ¹ Shock Wave and Condensed Matter Research Center, Kumamoto University, Japan ² Priority Organization for Innovation and Excellence, Kumamoto University, Japan

	³ Department of Materials Science, Kumamoto University, Japan ⁴ Institute of Chemistry and Chemical Technology, National Academy of Sciences, Kyrgyzstan
P-30	Synthesis of ZrO₂ Nanopowders by Plasma in Liquid Chen Liliang ¹ , Emil Omurzak ² , Chihiro Iwamoto ³ , and Tsutomu Mashimo ⁴ ¹ Graduate School of Science and Technology, Kumamoto University, Japan ² Priority Organization for Innovation and Excellence, Kumamoto University, Japan ³ Department of Mechanical System Engineering, Kumamoto University, Japan ⁴ Shock Wave and Condensed Matter Research Center, Kumamoto University, Japan
P-31	Orientation Dependence of Room Temperature Creep Behavior in Pure Titanium Single Crystals Yoshiteru Ohata ¹ , Akihito Kawano ^{1,2} , Hiromoto Kitahara ³ and Shinji Ando ³ ¹ Graduate student, Graduate school of science and technology Kumamoto University, Japan ² Present address; Kawasaki Heavy Industries, Japan ³ Department of Materials Science and Engineering, Kumamoto University, Japan
P-32	Fracture Behavior in HCP Metals by Molecular Dynamics Simulation Manami Ando ¹ , Yuichi Inoue ¹ , Hiromoto Kitahara ² , Shinji Ando ² ¹ Bachelor Student, Faculty of Engineering, Kumamoto University, Japan ² Department of Materials Science and Engineering, Kumamoto University, Japan
P-33	Effect of B₄C Fraction on the Tribological Behavior of Shrouded Plasma Sprayed Fe-based Bulk Metallic Glass Composite Coating Sanghoon Yoon ¹ , Junghwan Kim ¹ , Jong Jae Lee ² , Byung Doo Kim ² , Changhee Lee ¹ ¹ Kinetic Spraying Coating Laboratory (NRL), Division of Materials Science & Engineering, Hanyang University, Republic of Korea ² Hankook Coatings, Republic of Korea
P-34	Preliminary Research of Nd Extraction in the Nd-Fe-B Magnets Using Liquid Metal Extraction Yong Hwan Kim , Hanshin Choi Center for Echo Materials & Processing, Korea Institute of Industrial Technology (KITECH), Korea
P-35	Application of Numerical Simulation for Estimation of Contact Conditions in Metal Forming Junpei Kozasa, Yasuo Marumo , Liquan Ruan, Hiroyuki Saiki Graduate School of Science and Technology, Kumamoto University, Japan