Program overview

**December 3rd, Monday**   **Conference Room “Nakadake” (3rd floor)**

- 9:00 - 9:10    Opening remarks
- 9:10-10:30    Oral session 1
- 10:30-10:50   Coffee break
- 10:50-12:35   Oral session 2
- 12:35-14:00   Lunch break
- 14:00-15:45   Oral session 3
- 15:45-16:00   Coffee break
- 16:00-18:30   Poster session

**December 4th, Tuesday**   **Conference Room “Shirakawa” (2nd floor)**

- 9:00-10:20    Oral session 4
- 10:20-10:40   Coffee break
- 10:40-12:25   Oral session 5
- 12:25-13:50   Lunch break
- 13:50-15:35   Oral session 6
- 15:35-15:55   Coffee break
- 15:55-17:25   Oral session 7
- 17:25-17:35   Closing remarks

- 18:00-20:00   Banquet (Conference Room “Nakadake”)

**December 5th, Wednesday**

- 10:00-17:00   Excursion
December 3rd, Monday

Oral session 1 - Chairpersons: J. F. Nie and S. Miura

9:00-9:10 Opening Remarks
Y. Kawamura, Kumamoto University, Japan

9:10-9:40 Keynote lecture
New Insights into the Behaviour of Kink Bands in LPSO Magnesium: in situ Video Imaging and Acoustic Emission Study
A. Vinogradov, Norwegian University of Science and Technology, Norway

9:40-10:05 Invited talk
Strengthening mechanisms acting in the extruded LPSO phase alloys
K. Hagihara, Osaka University, Japan

10:05-10:30 Invited talk
Comprehensive study of the dislocation structure in a Mg-Zn-Y alloy using X-ray diffraction and transmission electron microscopy
K. Máthis, Charles University, Czech Republic

10:30-10:50 Coffee break

Oral session 2 - Chairpersons: E. Abe and K. Mathis

10:50-11:20 Keynote lecture
Mechanical and Corrosion Properties of Twin-roll Cast LPSO Magnesium Alloys
K. S. Shin, Seoul National University, Korea

11:20-11:45 Invited talk
Observation of Local Structures in Basal Plane of LPSO Phase by Scanning Tunneling Microscopy
S. Kurokawa, Kyoto University, Japan

11:45-12:10 Invited talk
Interfacial Segregation in an Mg-Zn-Y Alloy Containing Long Period Stacking Ordered Phase
X. H. Shao, Chinese Academy of Science, China
12:10-12:35 Invited talk
Phase diagram Exploration for Two-phase lamellar microstructure to find the candidates of “mille-feuille structure (MFS)” materials
S. Miura, Hokkaido University, Japan

12:35-14:00 Lunch break

Oral session 3 - Chairpersons: K. S. Shin and H. Kimizuka

14:00-14:30 Keynote lecture
Thermally activated plasticity of textured Mg alloys
S. R. Agnew, University of Virginia, USA

14:30-14:55 Invited talk
Study of the initial plasticity stages in Mg alloys containing LPSO phase using High resolution Digital Image correlation (HRDIC)
G. Garcés, CENIM-CSIC, Spain

14:55-15:20 Invited talk
Monitoring of Phase Stresses Evolutions in Mg97Zn1Y2 Alloys during Compression by Neutron Diffraction
S. Harjo, Japan Atomic Energy Agency, Japan

15:20-15:45 Invited talk
Crystal plasticity finite element analysis of kink band formation in directionally solidified crystals of Mg-based LPSO alloy
T. Mayama, Kumamoto University, Japan

15:45-16:00 Coffee break

16:00-18:30 Poster session - Chairperson: M. Yamasaki
December 4th, Tuesday

Oral session 4 - Chairpersons: A. E. Romanov and T. Fujii

9:00-9:30 Keynote lecture
Ripplocations: A Universal Mechanism in the Deformation of Layered Solids
M. W. Barsoum, Drexel University, USA

9:30-9:55 Invited talk
Configuration of dislocations in low-angle kink boundaries formed in a long-period stacking ordered Mg-Zn-Y alloy
M. Yamasaki, Kumamoto University, Japan

9:55-10:20 Invited talk
Analysis of Kink Deformation Based on Rank-1 Connection
T. Inamura, Tokyo Institute of Technology, Japan

10:20-10:40 Coffee break

Oral session 5 - Chairpersons: S. R. Agnew and K. Aizawa

10:40-11:10 Keynote lecture
Planar Defects, Solute Segregation and Precipitation in Mg Alloys
J. F. Nie, Monash University, Australia

11:10-11:35 Invited talk
Formation and stability of average- / long- period stacking ordered structures during heating amorphous Mg-Y-TM ribbons – SR-SWAXS results
H. Okuda, Kyoto University, Japan

11:35-12:00 Invited talk
Role of Intra- and Intercluster Interactions in Stabilization of Solute-Enriched Layers in Mg-based LPSO Phases: Towards Atomic Modeling of Mille-Feuille Structures
H. Kimizuka, Osaka University, Japan

12:00-12:25 Invited talk
Leading principal of a formation process of 18R-type long-period stacking ordered structure from hcp-Mg phase in Mg alloys
M. Matsushita, Ehime University
12:25-13:50 Lunch break

Oral session 6 - Chairpersons: M. W. Barsoum and K. Hagihara

13:50-14:20 Keynote lecture
Defects and deformation mechanisms in layered materials structures
A. E. Romanov, ITMO University, Russia

14:20-14:45 Invited talk
Electron Microscopic Study on Aging Precipitation of Mg alloys with Various Concentration of Solute Elements
T. Kiguchi, IMR Tohoku University, Japan

14:45-15:10 Invited talk
The effect of volume, number and diameter of Mg-filaments on the strength and electrical resistivity of Cu/Mg composite wires
A. Volkov, Russian Academy of Sciences, Russia

15:10-15:35 Invited talk
Oxidation behavior and incombustibility of Mg-Zn-Y alloys
S. Inoue, Kumamoto University, Japan

15:35-15:55 Coffee break

Oral session 7 - Chairpersons: A. Vinogradov and M. Enoki

15:55-16:25 Keynote lecture
Kink Strengthening of LPSO and Mille-feuille Structures in Mg Alloys
E. Abe, University of Tokyo, Japan

16:25-16:45 Invited talk
Interpretation of kink deformation mechanism by fiber bundle model via in situ hybrid neutron diffraction
K. Aizawa, Japan Atomic Energy Agency, Japan

16:45-17:05 Invited talk
Constructing a comprehensive theory of kink formation and strengthening: An interdisciplinary approach
T. Fujii, Tokyo Institute of Technology, Japan
17:05-17:25 Invited talk
Possibility of kink formation and high tensile strength by thermal elongation of crystalline polymer blends
H. Saito, Tokyo University of Agriculture and Technology, Japan

17:25-17:35 Closing remarks
Y. Kawamura, Kumamoto University, Japan
Poster presentations

P01
Atomic and Electronic Structures of Amorphous Mg85Zn6Y9 Alloy: Searching for the Seeds of Zn6Y8 L12 Clusters
S. Hosokawa¹, J. R. Stellhorn¹, K. Maruyama², K. Kobayashi², H. Sato³, H. Okuda⁴, M. Yamasaki⁵,⁶, and Y. Kawamura⁵,⁶
¹Department of Physics, Kumamoto University, Japan
²Department of Chemistry, Niigata University, Japan
³Hiroshima Synchrotron Radiation Center, Hiroshima University, Japan
⁴Department of Materials Science and Engineering, Kyoto University, Japan
⁵Department of Materials Science, Kumamoto University, Japan
⁶Magnesium Research Center, Kumamoto University, Japan

P02
Effects of cerium on non-basal slip in magnesium single crystals
K. Hayashi¹, M. Tsushida², H. Kitahara³ and S. Ando⁴
¹Graduate school of Science and Technology, Kumamoto University, Japan
²Faculty of Engineering, Kumamoto University, Japan
³Institute of Pulsed Power Science, Kumamoto University, Japan
⁴Magnesium Research Center, Kumamoto University, Japan

P03
Microstructure and mechanical properties of Mg-Y-Zn hot-rolled alloy sheet containing various amounts of Long-Period Stacking Ordered Structure phase
D. Ando¹, H. Somekawa², Y. Todaka³, M. Yuasa⁴, Y. Sutou¹, J. Koike¹
¹Tohoku University, Japan
²National Institute for Materials Science, Japan
³Toyohashi University of Technology, Japan
⁴Doshisha University,, Japan

P04
MCMC Investigations of In-plane Cluster Ordering in Dilute Mg-Ni-Y LPSO Phases
K. Yamashita¹, D. Egusa¹, and E. Abe¹,²
¹Department of Materials Science & Engineering, The University of Tokyo, Japan
²Research Center for Structural Materials, National Institute for Materials Science, Japan

P05
Microstructure evolution during uniaxial compression with respect to the lamellar structure of a directly solidified Mg-LPSO alloy
D. Drozdenko¹,², K. Máthíš², M. Yamasaki¹, Y. Kawamura¹
¹Magnesium Research Center, Kumamoto University, Japan
²Department of Physics of Materials, Faculty of Mathematics and Physics, Charles University, Czech Republic
P06

Solute-Fault Interactions at Kink Boundaries in Dilute Mg Alloys

D. Egusa¹ and E. Abe¹, ²
¹The University of Tokyo, Japan
²National Institute for Materials Science, Japan

P07

Development of rapidly solidified Mg-Zn-Y-Al alloys with high fracture toughness

S. Nishimoto¹, M. Yamasaki², S. Inoue² and Y. Kawamura²
¹Graduate School of Science and Technology, Kumamoto University, Japan
²Magnesium Research Center/Department of Materials Science, Kumamoto University, Japan

P08

Imparting Mille-Feuille-like Structure to Ti-Mo alloy

S. Emura¹
¹National Institute for Materials Science, Japan

P09

Extended isogeometric analysis for two-dimensional kink deformations

S. Kobayashi¹ and R. Tarumi¹
¹Osaka University, Japan

P10

Hierarchical Evaluation by Pulsed Neutron Diffraction - Bridging Scale Studies of Microstructures and Mechanical Properties -

S. Harjo¹, K. Aizawa¹ and T. Kawasaki¹
¹Japan Atomic Energy Agency, Japan

P11

Rotation-Angle Fluctuations of \{10\overline{2} \overline{1}0\} \{10\overline{2} \overline{1}0\} Twins in Mg Alloys

S. Hirata¹, D. Egusa¹, and E. Abe¹, ²
¹Department of Materials Science & Engineering, The University of Tokyo, Japan
²Research Center for Structural Materials, National Institute for Materials Science, Japan
P12

Orientation Dependence of Mechanical Properties of Textured Ti3SiC2 MAX Phase Ceramic Fabricated by Slip Casting in a Magnetic Field and Spark Plasma Sintering

K. Ikeda1, Y. Shirakami2, S. Miura1, K. Morita3 and Y. Sakka3
1Faculty of Engineering, Hokkaido University, Japan
2Graduate School of Engineering, Hokkaido University, Japan
3Research Center for Functional Materials, National Institute for Materials Science, Japan

P13

Dislocation configuration of low angle kink boundaries formed in a Mg-Zn-Y 18R-LPSO crystal

T. Matsumoto1, M. Yamasaki2, K. Hagihara3 and Y. Kawamura2
1Department of Materials Science, Kumamoto University, Japan
2Magnesium Research Center, Kumamoto University, Japan
3Graduate School of Engineering, Osaka University, Japan

P14

Kink deformation of Ti3SiC2 investigated by micropillar compression

K. Kishida1,2, M. Higashi1, S. Momono1, N. L. Okamoto1,2 and H. Inui1,2
1Department of Materials Science and Engineering, Kyoto University, Japan
2Center for Elements Strategy Initiative for Structural Materials (ESISM), Kyoto University, Japan

P15

Structure change of clusters in long period stacking ordered structure in Mg-Zn-Y alloys examined by EXAFS

K. Kintsu1, M. Ito1, T. Sugino1, H. Okuda1, M. Tabuchi2, H. Kimizuka3, M. Yamasaki4 and Y. Kawamura4
1Kyoto University, Japan
2Nagoya University, Japan
3Osaka University, Japan
4Kumamoto University, Japan

P16

Deformed Structures of Multilayered Thin Films Fabricated by Electrodeposition

Y. Kaneko1, T. Kubomae1, and M. Uchida1
1Osaka City University, Japan

P17

Role of substituted atoms on stacking fault formation in long-period stacking ordered system

S. Kawano1, S. Iikubo1, and H. Ohtani2
1Graduate School of Life Science and Systems Engineering, Kyushu Institute of Technology, Japan
2Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Japan
P18
Analysis of Lattice Constants of $\alpha$-Mg and 18R-LPSO Phases in an As-Cast Mg$_{97}$Zn$_1$Y$_2$ Alloy Polycrystal using a Gandolfi Camera Method with Synchrotron Radiation
S. Kimura$^1$ and N. Yasuda$^1$
$^1$JASRI, Japan

P19
SCC behavior of extruded Mg-Zn-Y alloys with multimodal microstructure
T. Kawakami$^1$, M. Yamasaki$^2$, S. Inoue$^2$, Y. Kawamura$^2$
$^1$Graduate School of science and Technology, Kumamoto University, Japan
$^2$Magnesium Research Center / Department of Materials Science, Kumamoto University, Japan

P20
Mechanical properties and microstructural evolution of severe plastic deformed Mg-Y-Zn alloy
H. Somekawa$^1$, Y. Todaka$^2$, D. Ando$^3$ and M. Yuasa$^4$
$^1$National Institute for Materials Science, Japan
$^2$Toyohashi University of Technology, Japan
$^3$Tohoku University, Japan
$^4$Doshisya University, Japan

P21
Effect of Li Addition on Phase Stability of LPSO Phase Formed in Mg-TM-RE System Alloys
H. Moriyama$^1$, K. Ikeda$^2$, S. Miura$^2$ and T. Itoi$^3$
$^1$Graduate School of Engineering, Hokkaido University, Japan
$^2$Faculty of Engineering, Hokkaido University, Japan
$^3$Faculty of Engineering, Chiba University, Japan

P22
Effects of Pre-Straining on Room Temperature Compression and Creep Strength in a Directionally Solidified Long Period Stacking Ordered Type Mg-Zn-Y Alloy
M. Suzuki$^1$, T. Yamaguchi$^1$, Y. Takahashi$^1$, R. Watanabe$^1$ and K. Hagiwara$^2$
$^1$Department of Mechanical Systems Engineering, Faculty of Engineering, Toyama Prefectural University, Japan
$^2$Department of Adaptive Machine Systems, Graduate School of Engineering, Osaka University, Japan

P23
Improvement of incombustibility of high strength LPSO-type Mg-Zn-Gd alloys
R. Omoto$^1$, M. Yamasaki$^2$, S. Inoue$^2$ and Y. Kawamura$^2$
$^1$Graduate School of science and Technology, Kumamoto University, Japan
$^2$Magnesium Research Center / Department of Materials Science, Kumamoto University, Japan
P24
Thermodynamic Study on Segregation of Solute Elements to Stacking Faults in Some Binary Alloy Systems
T. Tokunaga\textsuperscript{1} and H. Era\textsuperscript{1}
\textsuperscript{1}Kyushu Institute of Technology, Japan

P25
Spontaneous change of cluster size and formation of completely stacking order in LPSO phase of Mg-Al-RE alloy
T. Murakami\textsuperscript{1}, N. Fujima\textsuperscript{1}, T. Hoshino\textsuperscript{1}, M. Takeda\textsuperscript{2} and K. Konno\textsuperscript{2}
\textsuperscript{1}Shizuoka University, Japan
\textsuperscript{2}Sendai National College of Technology, Japan

P26
Development of extra-fine wire of LPSO-type RS P/M magnesium alloys
T. Tsuda\textsuperscript{1}, Y. Kawamura\textsuperscript{2}, H. Okouchi\textsuperscript{3} and M. Ishida\textsuperscript{3}
\textsuperscript{1}TOHO KINZOKU CO. LTD., Japan
\textsuperscript{2}Magnesium Research Center, Kumamoto University, Japan
\textsuperscript{3}FUKUDA METAL FOIL & POWDER CO. LTD., Japan

P27
Plastic anisotropy analysis of 18R-LPSO single crystals using micro-mechanical tests
Kosuke Takagi\textsuperscript{1}, Tsuyoshi Mayama\textsuperscript{1}, Yoji Mine\textsuperscript{1}, and Kazuki Takashima\textsuperscript{1}
\textsuperscript{1}Kumamoto University, Japan

P28
First-Principles Study of the Phase Stabilities, and Magnetic and Electronic Properties of Long-Period Stacking Ordered Structure of Fe
T. Tsumuraya\textsuperscript{1,2}, I. Watanabe\textsuperscript{3}, and T. Sawaguchi\textsuperscript{3}
\textsuperscript{1}Priority Organization for Innovation and Excellence, Kumamoto University, Japan
\textsuperscript{2}International Center for Young Scientists, National Institute for Materials Science, Japan
\textsuperscript{3}Research Center for Structural Materials, National Institute for Materials Science, Japan

P29
Metastable Mille-Feuille structures based hexagonal lattice metal
S. Urata\textsuperscript{1}, S. Hiraoka\textsuperscript{1}, K. Masuda\textsuperscript{1}, D. Yamauchi\textsuperscript{1}, T. Tsuchiya\textsuperscript{1}, M. Nishikawa\textsuperscript{1}, S. Abe\textsuperscript{1}, H. Ohfuji\textsuperscript{1}, M. Yamasaki\textsuperscript{2}, Y. Kawamura\textsuperscript{2}, and M. Matsushita\textsuperscript{1}
\textsuperscript{1}Ehime University, Japan
\textsuperscript{2}Kumamoto University, Japan
P30
Effect of deformation process on microstructure evolution in Mg–Y–Zn alloys processed by equal channel angular pressing
M. Yuasa1, H. Somekawa2, Y. Todaka3, D. Ando4, and H. Miyamoto1
1Doshisha University, Japan
2National Institute for Materials Science, Japan
3Toyohashi University of Technology, Japan
4Tohoku University, Japan

P31
The Fatigue Behavior of Mg97Zn1Gd2 Magnesium Alloy with LPSO Phase under Ultrasonic Fatigue Test
G. Lu1, M. Tsushida2, H. Kitahara3, and S. Ando4
1Graduate school of Science and Technology, Kumamoto University, Japan
2Faculty of Engineering, Kumamoto University, Japan
3Institute of Pulsed Power Science, Kumamoto University, Japan
4Magnesium Research Center, Kumamoto University, Japan

P32
Mille-Feuille Structures Comprised of Block Copolymers
H. Yabu1
1Tohoku University, Japan

P33
Deformation mechanism of Mg17Al12 as a strengthening phase in Mg alloys
K. Hayakawa1, K. Hagihara1
1Department of Adaptive Machine Systems, Graduate School of Engineering, Osaka University, Japan

P34
Fatigue Behavior of Mille-feuille Structure Materials: an Experimental-Numerical Study on Mg Alloy
F. Briffod1, T. Shiraiwa1, and M. Enoki1
1Department of Materials Engineering, The University of Tokyo, Japan

P35
Phase transformation in Mg-Sc alloys and their mechanical and functional properties
Y. Ogawa1, D. Ando2, Y. Sutou2, J. Koike2, M. Yamasaki3, and H. Somekawa1
1National Institute for Materials Science, Japan
2Tohoku University, Japan
3Kumamoto University, Japan
P36

Deformation behavior of Pure Magnesium and Zinc single crystals during a single pass of ECAP

Y. Oda¹, Y. Matsuo¹, M. Tsushida², H. Kitahara³, and S. Ando⁴
¹Graduate school of Science and Technology, Kumamoto University, Japan
²Faculty of Engineering, Kumamoto University, Japan
³Institute of Pulsed Power Science, Kumamoto University, Japan
⁴Magnesium Research Center, Kumamoto University, Japan

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Dynamic Deformation Process in Mille-feuille Structure

T. Shiraiwa¹, K. Tamura¹, C. Yang¹, F. Briffod¹ and M. Enoki¹
¹Department of Materials Engineering, The University of Tokyo, Japan

P38

Acoustic emission monitoring of nanoindentation process on Mille-feuille structure materials

C. Yang¹, P. Chivavibul¹, F. Briffod¹, T. Shiraiwa¹, M. Enoki¹
¹Department of Materials Engineering, The University of Tokyo, Japan

P39

The improvement of the impact strength of PMMA by press molding method

S. Nishitsuji¹, T. Yuki¹, H. Ito¹ and T. Inoue¹
¹Yamagata University, Japan

P40

Nanowrinkle structure as a candidate of kink

K. Taki¹
¹Kanazawa University, Japan