

DGM

Programme

Magnesium

7th International Conference on
Magnesium Alloys and their Applications



6-9 Nov 2006

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International Congress Center
Dresden
Germany

Deutsche Gesellschaft
für Materialkunde e.V.


www.dgm.de/magnesium

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Preface



Magnesium is the most promising light metal for the universal use in the transportation industry. The intrinsic characteristics of light weight include promising mechanical properties, high recyclability and low primary material cost. Therefore, the interest for the implementation of magnesium alloys has increased both as a substitute and as a strategic material for new design.

Magnesium alloys have to compete in terms of economical aspects and design requirements with various light materials such as aluminium and polymers, but also with light weight steel based applications. After intensive research during the last decade, a number of new research programmes in Europe, China and North America have generated new ideas. The implementation of new alloys in power trains, the use of wrought alloys in 3C applications, and cast alloys for parts with decorative surfaces stand for sustainable research and development in the past.

Nevertheless, the production of parts by high pressure die casting is still the predominant technology. Wrought alloys have been niche products so far. The lack of knowledge on their behaviour, as well

as to the limited availability of alloys for extrusion, rolled products and forgings are most obvious. New developments will open new opportunities for the increased use of wrought alloys. This is one focus of the conference. The other major focus addresses the corrosion behaviour and hence the development of reliable surface coatings.

The conference programme includes the presentation of the research results of the Priority Programme "Extending the Range of Applications of Magnesium Alloys" (InnoMagTec) funded by the German Research Foundation (Deutsche Forschungsgemeinschaft, DFG).

The organisation of the conference required massive support by both the National and the International Committees to whom I would like to express my sincere thanks. For turning the contribution of the committees into shape, the Conference Secretariat provided by the Deutsche Gesellschaft für Materialkunde did an excellent job. My special thanks go to Ms. A. Mangold, Ms. Y. Koall, Ms. C. Wendt.

Karl U. Kainer, Chairman

General Information

Conference Location

The International Congress Center is one of the most modern and pleasant congress centers in Europe situated on the river Elbe:

International Congress Center
Dresden
Ostra-Ufer 2
01067 Dresden
Germany

Conference Office

The conference office located in the foyer of the congress center will be open on:

- Monday, 6 November:
10:00 to 17:00 h
- Tuesday, 7 November:
8:00 to 17:00 h
- Wednesday, 8 November:
8:00 to 17:00 h
- Thursday, 9 November:
8:00 to 13:00 h

Conference Language

The conference language will be English.

Organisation

Deutsche Gesellschaft
für Materialkunde e.V.
Senckenberganlage 10
60325 Frankfurt, Germany
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Conference Coordination

Anja Mangold (Project Manager)
Yvonne Koall
Christa Wendt
Deutsche Gesellschaft
für Materialkunde e.V.

Exhibition Coordinator

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Proceedings

The papers presented at the conference will be published in a proceedings volume that will be available at the conference. Participants may purchase the proceedings volume during the conference for a subscription price of 155 EUR. After the conference the price will be 299 EUR.



National Committee



Conference Chair
K.U. Kainer, GKSS-
Forschungszentrum
Geesthacht GmbH



F.-W. Bach, Univer-
sität Hannover



A. Bührig-Polaczek,
RWTH Aachen



B. Engl, Magnesium
Flachprodukte
GmbH, Freiberg



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Oberflächentechnik
GmbH & Co. KG,
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EADS Deutschland
GmbH, München



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schungszentrum
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gitter Magnesium-
Technologie GmbH



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Heidelberg



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Magnesium Marke-
ting GmbH, Bottrop



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Technische Univer-
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Clausthal-Zellerfeld



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sität Erlangen-Nürn-
berg



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hagen



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Honsel GmbH &
Co. KG, Meschede



J. Wesemann, Ford
Forschungszentrum
Aachen GmbH

International Committee



Chairman

K. U. Kainer

GKSS-Forschungszentrum
Geesthacht GmbH

E. Aghion

Ben Gurion University, Beer Sheva,
Israel

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U.S. Department of Energy,
Washington, USA

E. Ghali

Laval University, Quebec, QC,
Canada

E.-H. Han

Chinese Academy of Science,
Shenyang, China

J. Jackman

CANMET Materials Technology
Laboratory, Ottawa, ON, Canada

S. Kamado

Nagaoka University of Technology,
Japan

H. Kaufmann

ARC Leichtmetall-Kompetenzzentrum
Ranshofen GmbH, Austria

N. Li

Ford Motors Company, Dearborn,
USA

A. Luo

General Motors Corporation,
Warren, MI, USA

J. F. Nie

Monash University, Melbourne,
VIC, Australia

E. A. Nyberg

Pacific Northwest National Laboratory,
Richland, WA, USA

F. Pan

Chongqing University, Chongqing,
China

G. Patzer

International Magnesium Association,
Wauconda, IL, USA

M. Pekguleryuz

McGill University, Montreal, QC,
Canada

L. L. Rokhlin

Baikov Institute of Metallurgy and
Materials Science, Moscow, Russia

H. Westengen

Norsk Hydro ASA, Porsgrunn, Norway

T. Wilks

Magnesium Elektron, Manchester,
UK

Programme Overview

Topics

- A** Alloy development
- B** Simulation, Modelling
- C** Microstrutural Evolution
- D** Mechanical Properties
- E** Corrosion and Surface Treatment
- G** Casting, Recycling, Melting
- H** Wrought Alloys
- I** Magnesium Matrix Composites
- J** Post processing (joining, machining etc.)
- K** Application (automotive, computer, communication, consumer goods)
- L** Research Programmes

	Monday 6 Nov 2006	Tuesday 7 Nov 2006	Wednesday 8 Nov 2006	Thursday 9 Nov 2006
Morning	<ul style="list-style-type: none"> • Registration • Opening 	<ul style="list-style-type: none"> • Authors' Coffee • Lectures in Parallel A / C E 	<ul style="list-style-type: none"> • Authors' Coffee • Lectures in Parallel G H 	<ul style="list-style-type: none"> • Authors' Coffee • Lectures in Parallel L I/K/D
Afternoon	<ul style="list-style-type: none"> • Plenary Session • Lectures in Parallel A E 	<ul style="list-style-type: none"> • Plenary Session • Oral Poster Presentations • Poster Discussion 	<ul style="list-style-type: none"> • Lectures in Parallel B / J D 	<ul style="list-style-type: none"> • Lectures in Parallel C D • Plenary Session • Closing
Evening	<ul style="list-style-type: none"> • Welcome Reception 	<ul style="list-style-type: none"> • Poster Evening 	<ul style="list-style-type: none"> • Conference Banquet 	<ul style="list-style-type: none"> • Sophienkeller

The lecture programme starts on Mon at 13:00 h. The end of the conference is on Thu at 15:30 h.

Room Saal 3

- 13:00 **Opening Address**
K.U. Kainer, GKSS-Forschungszentrum Geesthacht GmbH (Germany)

Plenary Session

Chair: K.U. Kainer, GKSS-Forschungszentrum Geesthacht GmbH (Germany)

Plenary

- 13:10 **Mg Research and Technology Development in North America: An Overview of Government-funded Programs**
J. Jackman (Sp), CANMET Materials Technology Laboratory, Ottawa, Ontario (Canada); J.A. Carpenter, Jr. Office of FreedomCAR and Vehicle Technologies, Ottawa, Ontario (Canada)

Plenary

- 13:40 **Advancements in High Pressure Die Casting of Magnesium**
H. Gjestland (Sp), H. Westengen, Hydro Aluminium, Porsgrunn (Norway)

- 14:10 **Short Break**

Room	Saal 3	Saal 4
	Alloy Development I	Corrosion and Surface Treatment I
	Chair: R. Schmid-Fetzer, Technische Universität Clausthal (Germany)	Chair: D. Eliezer, Ben-Gurion University, Beer-Sheva (Israel)

Highlight

- | | | |
|-------|---|---|
| 14:20 | <p>The Viability of Mg Alloy with Nano/Sub-micron Structure as a New Material for Practical Applications
E. Aghion (Sp), A. Arnon, Ben-Gurion University, Beer-Sheva (Israel)</p> | <p>Advances in the Active Environment Impact on the Viscoelastic Behavior of Magnesium Alloys
Y.B. Unigovski (Sp), E.M. Gutman, Ben-Gurion University, Beer-Sheva (Israel); Z. Koren, Israel Institute of Metals, Haifa (Israel)</p> |
| 14:40 | <p>A Comparative Study of Carbon Additives on Grain Refinement of Magnesium Alloys
D. StJohn (Sp), University of Queensland, Brisbane (Australia); P. Cao, University of Waikato, Hamilton (New Zealand); M. Qian, Brunel University, London (UK)</p> | <p>Evaluation of Mg TGSCC Using LIST and SSRT
N. Winzer, G. Song, A. Atrens, University of Queensland, Brisbane (Australia); W. Dietzel (Sp), C. Blawert, GKSS-Forschungszentrum Geesthacht GmbH (Germany)</p> |
| 15:00 | <p>Advanced Gravity Casting Magnesium Alloys for the Aircraft Industry
B. Bronfin (Sp), N. Moscovitch, Dead Sea Magnesium Ltd., Beer-Sheva (Israel); A. Bendov, IAI, Tel-Aviv (Israel); J. Townsend, S. Mahmood, Stone Foundries, London (UK); J. Vainola, VTT, Helsinki (Finland); S. Deveneyi, Specialvalimo, Helsinki (Finland)</p> | <p>Corrosion Behaviour of Magnesium Alloys: Material Specific Corrosion Testing
S. Bender (Sp), E. Boese, A. Heyn, J. Goellner, Otto-von-Guericke-University, Magdeburg (Germany)</p> |

15:20 Short Break

Room	Saal 3	Saal 4
	Alloy Development II	Corrosion and Surface Treatment II
	Chair: E. Aghion, Ben-Gurion University, Beer-Sheva (Israel)	Chair: W. Fürbeth, DECHEMA e.V., Frankfurt am Main (Germany)

Highlight

- | | | |
|-------|---|--|
| 15:50 | <p>Elektron 21- An Aerospace Magnesium Alloy for Sand Cast & Investment Cast Applications
P. Lyon (Sp), I. Syed, S. Heaney, Magnesium Elektron, Swinton, Manchester (UK)</p> | <p>Corrosion Fatigue of AZ31 Wrought Magnesium Weldments
C.E. Cross (Sp), P. Xu, BAM, Berlin (Germany); D. Eliezer, Ben-Gurion University of the Negev, Beer-Sheva (Israel)</p> |
| 16:10 | <p>Elevated Temperature Alloys - Paths for Further Performance Gains in AE44
P. Bakke (Sp), A. Bowles, H. Westengen, Hydro Magnesium, Porsgrunn (Norway)</p> | <p>Investigation of the Corrosion of Welded Magnesium Joints
K. Eppel (Sp), J. Ellermeier, T. Troßmann, C. Berger, Technische Universität Darmstadt (Germany); H. Masny, K. Woeste, U. Dilthey, RWTH Aachen (Germany)</p> |
| 16:30 | <p>Phase Formation in Mg-Sn Alloys Modified by Ca and Ce
J. Gröbner, A. Kozlov, M. Hampl, R. Schmid-Fetzer (Sp), Technische Universität Clausthal (Germany)</p> | <p>Effect of Salt Spray Corrosion on the Tensile Behavior of Wrought Magnesium Alloy AZ31hp
S.G. Pantelakis, N.D. Alexopoulos, A.N. Chamos (Sp), University of Patras (Greece)</p> |

Room	Saal 3	Saal 4
	Alloy Development II	Corrosion and Surface Treatment II
	Chair: E. Aghion, Ben-Gurion University, Beer-Sheva (Israel)	Chair: W. Fürbeth, DECHEMA e.V., Frankfurt am Main (Germany)

- 16:50 **Microstructures and Mechanical Properties of Mg-Zn-Al Alloys Produced by High Pressure Die Casting and Sand Casting**
M. Easton, Monash University, Melbourne (Australia); T.B. Abbott, Advanced Magnesium Technologies Pty Ltd, (Australia); J.-F. Nie (Sp), Monash University, Melbourne (Australia)
- 16:50 **Characterization of Corrosion Interfaces in Extruded Mg-Al-Zn Alloys**
I. Apachitei (Sp), F. Andreatta, L.E. Fratila-Apachitei, J. Dzwonczyk, A. Berkani, J. Duszczak, Delft University of Technology (Netherlands)
- 17:10 **Microstructure and High Temperature Mechanical Properties of Mg-Al-Sn Alloys**
K.S. Shin (Sp), W.C. Cho, Y.J. Chung, Seoul National University (Korea, Republic)
- 17:10 **Influence of the Casting Method on Microstructure and Corrosion of AZ91 and AM50**
D. Zander (Sp), C. Pieper, U. Köster, Universität Dortmund (Germany)
- 17:30 **Effective Alloy Development Using Thixomolding® Focussing on Improved Creep Strength of AZ91**
A. Lohmüller (Sp), H. Eibisch, M. Scharrer, R.F. Singer, Neue Materialien Fürth GmbH (Germany)
- 17:30 **Effect of Second Phase on Corrosion Behavior of AZ31-xCa Magnesium Alloys**
C.D. Yim (Sp), Y.M. Kim, B. You, Korea Institute of Machinery and Materials, Changwon (Korea, Republic); R.S. Jang, Korea Iron & Steel Co.,Ltd, Changwon (Korea, Republic); S.G. Lim, Gyeongsang National University, Jinju (Korea, Republic)

Room	Saal 3	Saal 4
	Alloy Development III	Corrosion and Surface Treatment III
	Chair: R. Bormann, GKSS-Forschungszentrum Geesthacht GmbH (Germany)	Chair: D. Zander, Universität Dortmund (Germany)

8:30 **Microstructure and Mechanical Properties of Strip Cast Mg-Zn-Al alloys with Ca by Twin Roll Caster**

K. Matsuzaki (Sp), K. Hatsukano, M. Kato, T. Shimizu, K. Hanada, Y. Murakoshi, National Institute of Advanced Industrial Science and Technology, Tsukuba (Japan)

The Role of Si and Ca on New Wrought Mg-Zn-Mn Based Alloys

G. Ben-Hamu (Sp), D. Eliezer, Ben Gurion University of the Negev, Beer-Sheva (Israel); K.S. Shin, Seoul National University (Korea, Republic)

8:50 **Novel Magnesium Wrought Alloys for Light Weight Design Concepts in the Automotive Industry**

F. Riemelmoser (Sp), M. Kühlein, H. Kilian, M. Kettner, Leichtmetallkompetenzzentrum Ranshofen GmbH (Austria); P.J. Uggowitzer, ETH Zürich, Zurich (Switzerland)

Corrosion Behavior of Die-Cast AZ91D and MRI 153M Alloys in Alkaline and Neutral Chloride Media

S. Amira (Sp), D. Dube, R. Tremblay, E. Ghali, Laval University, Quebec City (Canada)

Room	Saal 3	Saal 4
	Alloy Development III	Corrosion and Surface Treatment III
	Chair: R. Bormann, GKSS-Forschungszentrum Geesthacht GmbH (Germany)	Chair: D. Zander, Universität Dortmund (Germany)
9:10	<p>Microstructural Evolution of a Mg-Al-Ca-Sn Alloy during Extrusion J. Dzwonczyk (Sp), M.A. Leeflang, J. Zhou, J. Duszczyk, Delft University of Technology (Netherlands)</p>	<p>Influence of the Alloy Composition on the Mechanical and Electrochemical Properties of Binary Mg - Ca - Alloys and its Corrosion Behaviour in Solutions at Different Chloride Concentrations T. Hassel (Sp), F.-W. Bach, C. Krause, Universität Hannover (Germany)</p>
9:30	<p>Microstructures and Mechanical Properties of Extruded AZ31 Mg Alloy Processed by Roll-compaction Process K. Kawabata (Sp), H. Oginuma, K. Kondoh, Osaka University (Japan)</p>	<p>Study on Chloridic Corrosion of Two Magnesium Alloys WE43 and WE54 R. Azari-Khosroshahi (Sp), N. Parvini Ahmadi, Sahand University of Technology, Sahand New Town Tabriz (Iran)</p>
9:50	<p>Improving the Properties of Magnesium Alloys by Equal Channel Angular Pressing Y. Estrin, Technische Universität Clausthal (Germany)</p>	<p>Highlight Nanoparticle-based Inorganic Coatings for the Corrosion Protection of Magnesium Alloys W. Fürbeth (Sp), F. Feil, M. Schütze, DECHEMA e.V., Frankfurt am Main (Germany)</p>

Room	Saal 3	Saal 4
	Alloy Development III	Corrosion and Surface Treatment III
	Chair: R. Bormann, GKSS-Forschungszentrum Geesthacht GmbH (Germany)	Chair: D. Zander, Universität Dortmund (Germany)

10:10 **Investigation of Structure and Properties of the Age-hardenable Mg-Sm Alloys after Severe Plastic Deformation**

L.L. Rokhlin (Sp), S.V. Dobatkin, T.V. Dobatkina, N.I. Nikitina, V.N. Timofeev, Baikov Institute of Metallurgy and Materials Science, Moskau (Russian Federation); M.V. Popov, Technological University, Moskau (Russian Federation)

Composite Coatings - The Newest Surface Treatment Technology for Magnesium

I. Ostrovsky, Palbam-Alonim AMTS, En-Harod (Israel)

10:30 **Break**

Room	Saal 3	Saal 4
	Microstructural Evolution I	Corrosion and Surface Treatment IV
	Chair: M. Sahoo, CAN-MET, Ottawa (Canada)	Chair: S. Amira, Laval University, Quebec City (Canada)

Highlight

- | | | |
|-------|--|--|
| 11:00 | <p>The Effect of Zinc and Gadolinium on the Precipitation Sequence and Quench Sensitivity of Four Mg-Nd-Gd-Zn Alloys
G.W. Lorimer (Sp), The University of Manchester (UK); L.R. Gill, University of Alberta, Edmonton (Canada); P. Lyon, Magnesium Elektron, Manchester (UK)</p> | <p>Coating and Surface Treatment of Magnesium-based Alloys and Composites
V. Neubert, A. Bakkar (Sp), Dr. Dölling und Dr. Neubert GmbH, Clausthal-Zellerfeld (Germany)</p> |
| 11:20 | <p>Secondary Precipitation Hardening in Magnesium Alloy WE54
Y.C. Su, B.M. Gable, B.C. Muddle, J.-F. Nie (Sp), Monash University, Melbourne, Victoria (Australia)</p> | <p>Investigation of the Passivation Behavior of Magnesium Alloys by Means of Cyclic Current-Potential Curves
T. Troßmann (Sp), K. Eppel, C. Berger, Technische Universität Darmstadt (Germany)</p> |
| 11:40 | <p>Structural Evolution on Thermal Treatments of EV31 Alloy
G. Riontino (Sp), D. Lusana, M. Massazza, A. Iozzia, Università di Torino (Italy); G. Barucca, P. Mengucci, A. di Cristoforo, Università Politecnica delle Marche (Italy); R. Ferragut, Politecnico di Milano (Italy); R. Doglione, Politecnico di Torino (Italy)</p> | <p>Anodizing of Magnesium Alloys
A. Berkani (Sp), Delft University of Technology (Netherlands); P. Skeldon, G.E. Thompson, The University of Manchester (UK); L.E. Fratila-Apachitei, I. Apachitei, J. Duszczek, Delft University of Technology (Netherlands)</p> |

Room	Saal 3	Saal 4
	Microstructural Evolution I	Corrosion and Surface Treatment IV
	Chair: M. Sahoo, CANMET, Ottawa (Canada)	Chair: S. Amira, Laval University, Quebec City (Canada)

- 12:00 **Microstructural Stability of Magnesium Alloys for Aerospace Applications**
S. Avraham (Sp), Technion, Haifa (Israel); B. Bronfin, Dead Sea Magnesium, Beer Sheva (Israel); M. Bamberger, Technion, Haifa (Israel); G. Arruebarena, Mondragon Goi Eskola Politeknikoa (Spain)
- 12:00 **Corrosion Resistance of Plasma-Anodized AZ91D Alloy: Effect of Additive**
C.-E. Barchiche (Sp), C. Juers, E. Rocca, J. Hazan, J. Steinmetz, Université Henri Poincaré - Nancy 1, Vandoeuvre-les-Nancy (France)
- 12:20 **The Refinement of Precipitate Distributions in Age Hardenable Mg-Sn Alloys Through Microalloying**
C.L. Mendis, C.J. Bettles, Monash University, Clayton (Australia); M.A. Gibson, CAST CRC, Clayton (Australia); S. Gorsse, ENSCP, Pessac (France); C.R. Hutchinson (Sp), Monash University, Clayton (Australia)
- Electroplating Processes with New Magnesium Alloys**
A. Dietz (Sp), G. Klumpp, Fraunhofer-Institut für Schicht- und Oberflächentechnik, Braunschweig (Germany)

Room	Saal 3	Saal 4
	Microstructural Evolution I	Corrosion and Surface Treatment IV
	Chair: M. Sahoo, CAN-MET, Ottawa (Canada)	Chair: S. Amira, Laval University, Quebec City (Canada)

12:40 **Microstructural Characterization of Die Cast Mg-Al-Sr (AJ) Alloy**
M. Kunst (Sp), A. Fischersworing-Bunk, BMW Group, München (Germany); C. Liebscher, U. Glatzel, Universität Bayreuth (Germany); G. L'Esperance, P. Plamondon, Ecole Polytechnique de Montreal (Canada); E. Baril, National Research Council, Boucherville (Canada); P. Labelle, Composites Development Centre of Quebec, St-Jerome (Canada)

The Role of Biological Environments on Magnesium Alloys as Biomaterials
A. Eliezer (Sp), Sami Shammooon College of Engineering, Beer-Sheva (Israel); F. Witte, Hannover Medical School (Germany)

13:00 Break

Room Saal 3

Plenary Session

Chair: E.A. Nyberg, Pacific Northwest National Laboratory, Richmond, WA (USA)

Plenary

14:20 **A Reassessment of the Grain Refinement Mechanisms of Magnesium Alloys**

D. StJohn (Sp), University of Queensland, Brisbane (Australia); P. Cao, University of Waikato, Hamilton (New Zealand); M. Qian, Brunel University, Uxbridge (UK); M.A. Easton, Monash Univ., Melbourne (Australia)

Plenary

14:50 **Wrought Mg Alloys for Civil Aircraft Application - A Process Chain Approach**

M. Kettner (Sp), U. Noster, H. Kilian, R. Gradinger, ARC Leichtkompetenzzentrum Ranshofen (Austria); W. Kühlein, AMAG Extrusion, Ranshofen (Austria); A. Drenstedt, SAG, Lend (Austria); F. Stadler, A. Lutz, AHC Oberflächentechnik, Kerpen (Germany); E. Ladstaetter, Fischer Advanced Composite Components, Ried (Germany)

Plenary Poster Session

15:30 **Oral Poster Presentations**

The posters that are marked with an asterix (*) in the poster programme on page 37 ff. will be presented in the lecture hall. Each presentation takes 3 minutes. After the presentation of all posters, the authors have the opportunity to discuss their poster in front of the poster panel.

17:00 **Poster Discussion**
in front of the poster panels

followed by **Poster Evening**
with drinks and snacks

Room	Saal 3	Saal 4
	Casting, Recycling, Melting I	Wrought Alloys I
	Chair: D. StJohn, The University of Queensland, St. Lucia (Australia)	Chair: B. Engl, MgF GmbH, Freiberg (Germany)

8:30 **Creation of Fine and Spherical Magnesium Crystals via Control of Nucleation and Growth Instabilities**
M. Qian, Brunel University, London (UK)

8:50 **The Role of Fluorine Solubility in the Protection of Molten Magnesium**
G. Tranell (Sp), Sintef Material & Chemistry, Trondheim (Norway); K. Aarstad, Norwegian University of Science and Technology, Trondheim (Norway); M. Syvertsen, SINTEF Materials and Chemistry, Trondheim (Norway); T.A. Engh, Norwegian University of Science and Technology, Trondheim (Norway)

The Dynamic Recrystallization of Commercially Pure Mg and Three Mg-Y Alloys
R. Cottam (Sp), J.R. Robson, G. Lorimer, University of Manchester (UK); B. Davis, Magnesium Elektron, Manchester (UK)

Data Correction for Constitutive Analysis of Wrought Magnesium Alloys Based on Compression Tests
F. Slooff (Sp), J.P. Boomsma, J. Zhou, J. Duszczuk, L. Katgermann, Delft Technical University (Netherlands)

Room	Saal 3	Saal 4
	Casting, Recycling, Melting I	Wrought Alloys I
	Chair: D. StJohn, The University of Queensland, St. Lucia (Australia)	Chair: B. Engl, MgF GmbH, Freiberg (Germany)

- 9:10 **Ceramic Foam Filtration of Magnesium Alloy Melt**
 B.S. You (Sp), Korea Institute of Machinery and Materials, Changwon (Korea, Republic); G.H. Wu, Shanghai Jiao Tong University (China); C.D. Yim, Korea Institute of Machinery & Materials, Changwon (Korea, Republic)
- Examination of the Deformation Behaviour of New Magnesium Wrought Alloys Near the Forging and Spinning**
 A. Löffler (Sp), S. Schumann, Volkswagen AG, Wolfsburg (Germany); K.U. Kainer, GKSS Research center Geesthacht GmbH (Germany); B. Bronfin, Dead Sea Magnesium Ltd., Beer Sheva (Israel)

- Highlight**
- 9:30 **Development of an Investment-Casting Process of Mg-Alloys for Aerospace Applications**
 G. Arruebarrena (Sp), I. Hurtado, University of Mondragon, Arrasate (Spain); J. Vainölä, VTT Industrial Systems, Espoo (Finland); S. Devenyi, Specail Valimo Oy, Espoo (Finland); J. Townsend, S. Mahmood, Stone Foundries Ltd., London (UK); A. Wendt, K. Weiss, RWP GmbH, Roetgen (Germany); A. Ben-Dov, Israel Aircraft Ind. Ltd., Tel-Aviv (Israel); A. Schröder, A. Pinkernelle, INFERTA GmbH, Magdeburg (Germany)
- A Study on the Microstructure of Strip Cast Magnesium**
 P. Rucki (Sp), H. Palkowski, H.-G. Brokmeier, S.-B. Yi, TU Clausthal, Clausthal-Zellerfeld (Germany)

Room	Saal 3	Saal 4
	Casting, Recycling, Melting I	Wrought Alloys I
	Chair: D. StJohn, The University of Queensland, St. Lucia (Australia)	Chair: B. Engl, MgF GmbH, Freiberg (Germany)

9:50 **Evaluation of Hot Tearing Susceptibility of Selected Magnesium Casting Alloys in Permanent Molds**

J.P. Thomson, M. Sadayappan, M. Sahoo (Sp), CANMET, Ottawa, Ontario (Canada); J. Weiss, Eck Industries, Manitowoc (USA)

Properties of Strips and Sheets of Magnesium Alloy AZ31 produced by Casting-Rolling Technology

R. Kawalla, M. Ullmann (Sp), M. Oswald, C. Schmidt, Freiberg University of Mining and Technology (Germany)

10:10 **Temperature Dependence of the Viscosity of Magnesium alloy AZ91 D with Additions of Calcium in Liquid State and Effect of Thermal Treatment of these Melts on the Structure that Forms after their Crystallization**

I.S. Abaturon, P.S. Popel (Sp), Ural State Pedagogical University, Ekaterinburg (Russian Federation); I.G. Brodova, V.V. Astafiev, Ural Branch of the Russian Academy of Sciences, Ekaterinburg (Russian Federation); L. Peijie, Tsinghua University, Beijing (China)

Single Pass Large Draught Rolling of some Magnesium Alloys below 473K by High Speed Rolling

T. Sakai (Sp), H. Utsonomiya, S. Minamiguchi, H. Koh, Osaka University, Osaka-Suita (Japan)

10:30 Break

Room	Saal 3	Saal 4
	Casting, Recycling, Melting II	Wrought Alloys II
	Chair: E.H. Han, Chinese Academy of Science (Germany)	Chair: J. Becker, Otto Fuchs KG, Meinerzhagen (Germany)
11:00	<p>Advances in Magnesium Injection Molding (Thixomolding®) M. Scharrer (Sp), A. Lohmüller, R.M. Hilbinger, H. Eibisch, R. Jennings, M. Hartmann, R.F. Singer, Neue Materialien Fürth GmbH (Germany)</p>	<p>Evaluation of Forming Behaviour and Tribological Properties of Magnesium Sheet-Metal Directly Rolled from Semi-Continuously Casted Feedstock B. Viehweger (Sp), M. Düring, A. Karabet, Brandenburgische Technische Universität Cottbus (Germany); H. Hartmann, U. Richter, Research and Quality Center Brandenburg GmbH,, Eisenhüttenstadt (Germany); G. Pieper, F. Newiak, GP innovation GmbH, Lübbenau (Germany)</p>
11:20	<p>Microstructure and Mechanical Properties of Rheo-diecast Mg-alloys S. Ji (Sp), G. Liu, Y. Wang, Z. Fan, Brunel University, Uxbridge (UK)</p>	<p>Investigations on Formability and Tribology of Magnesium Sheets with Regard to Warm Forming Process J. Hecht (Sp), M. Merklein, M. Geiger, Universität Erlangen-Nürnberg (Germany); A. Stich, Audi AG, Ingolstadt (Germany)</p>

Room	Saal 3	Saal 4
	Casting, Recycling, Melting II	Wrought Alloys II
	Chair: E.H. Han, Chinese Academy of Science (China)	Chair: J. Becker, Otto Fuchs KG, Meinerzhagen (Germany)
11:40	A New Squeeze Casting for Mg Wheel Production S. Long, J. Ling, F. Pan (Sp), Chongqing University (China)	Superplastic Forming of Magnesium Alloys: Composition and Microstructure Effects J.-J. Blandin (Sp), R. Boissiere, University of Grenoble, Saint Martin d'Hères (France)
12:00	Development of an AM50 Based Magnesium Recycling Alloy D. Fechner (Sp), C. Blawert, P. Maier, N. Hort, K.U. Kainer, GKSS, Geesthacht (Germany)	Highlight On the Superplastic Forming of the AZ31 Magnesium Alloy M. Khraisheh (Sp), F. Abu-Farha, University of Kentucky, Lexington (USA)
12:20	The Properties of Magnesium Alloy Strip produced by Melt Drag Process S. Nishida (Sp), M. Motomura, Waseda University, Shinjuku-ku Okubo (Japan)	Extrusion of Different AZ Magnesium Alloys S. Müller (Sp), K. Müller, T. Huichang, P. Wolter, W. Reimers, Technische Universität Berlin (Germany)

Wednesday, 8 Nov

Lectures

Room	Saal 3	Saal 4
	Casting, Recycling, Melting II	Wrought Alloys II
	Chair: E.H. Han, Chinese Academy of Science (China)	Chair: J. Becker, Otto Fuchs KG, Meinerzhagen (Germany)

- 12:40 **Casting-Rolling: A New Method of Magnesium Strip Production**
R. Kawalla (Sp), Technische Universität Bergakademie Freiberg (Germany); B. Engl, Magnesium Flachprodukte GmbH, Freiberg (Germany)
- 12:40 **Severe Plastic Deformation of AZ31**
S. Müller (Sp), K. Müller, W. Reimers, Technische Universität Berlin (Germany)
- 13:00 Break

Room	Saal 3	Saal 4
	Simulation, Modelling I	Mechanical Properties I
	Chair: F. Riemelmoser, ARC Leichtmetallkompetenzzentrum Ranshofen GmbH (Austria)	Chair: T. Wilks, Magnesium Elektron, Swinton, Manchester, (UK)

	Highlight	Highlight
14:20	Yielding of Magnesium: from Single Crystal to Structural Behavior D. Steglich (Sp), GKSS-Forschungszentrum Geesthacht GmbH (Germany); S. Graff, W. Brocks, GKSS Research Centre, Geesthacht (Germany)	Deformation Mechanisms and Ductile Failure of Magnesium and its Alloys Z. Keshavarz (Sp), Deakin University, Geelong (Australia); M.R. Barnett, X. Ma, Deakin University, Geelong, Victoria (Australia)
14:40	Microstructure Formation in Magnesium Alloys Investigated by Phase-Field Simulation J. Eiken (Sp), I. Steinbach, B. Böttger, RWTH Aachen, Access e.V. (Germany)	Dynamic Strain Ageing in Magnesium Alloys P. Lukac, Charles University, Faculty of Mathematics and Physics, Praha, Czech Republic; Z. Trojanova, Charles University, Faculty of Mathematics and Physics, Praha, Czech Republic
15:00	Effects of Calcium on Texture Evolution and Plastic Anisotropy of the Magnesium Alloy AZ31 T. Ebeling (Sp), C. Hartig, Hamburg University of Technology (Germany); J. Bohlen, D. Letzig, GKSS Research Centre, Geesthacht (Germany); R. Bormann, Hamburg University of Technology (Germany)	Behaviors of High Temperature Deformation and Texture Development of AZ31 and AZ61 under Uniaxial Compression L. Helis (Sp), K. Okayasu, H. Fukutomi, Yokohama National University (Japan)

Wednesday, 8 Nov

Lectures

Room	Saal 3	Saal 4
	Simulation, Modelling I	Mechanical Properties I
	Chair: F. Riemelmoser, ARC Leichtmetallkompetenzzentrum Ranshofen GmbH (Austria)	Chair: T. Wilks, Magnesium Elektron, Swinton, Manchester, (UK)

15:20 **Modelling Microstructure and Mechanical Properties of Thin-walled Magnesium Castings**

K. Weiß (Sp), A. Wendt, C. Honsel, RWP GmbH, Roetgen (Germany); G. Arruebarrena, I. Hurtado, Mondragon Goi Eskola Politeknikoa (Spain); J. Väinölä, VTT, Espoo (Finland); S. Mahmood, J. Townsend, Stone Foundries Limited, London (UK); A. Ben-Dov, Israel Aircraft Industries Ltd., (Israel); A. Schroeder, A. Pinkernelle, INFERTA GmbH, Magdeburg (Germany)

Method for Determination of Specific Damping Capacity Based on Relaxation Oscillations of Cantilever Beam in Magnesium Alloys

B. Landkof (Sp), A. Kotler, H. Abramovich, Technion-Israel Institute of Technology, Haifa (Israel)

15:50 **Coffee Break**

Room	Saal 3	Saal 4
	Post Processing	Mechanical Properties II
	Chair: P. Juchmann, Salz- gitter Magnesium-Tech- nologie GmbH (Germany)	Chair: M. Bamberger, Technion, Haifa (Israel)
16:10	<p>Microstructure and Mechanical Properties of Magnesium Alloys AZ31, AZ61 and AZ80 Joined by Laser Beam Welding</p> <p>R.S. Coelho (Sp), A. Kostka, A. Pyzalla, Max-Planck-Institute fuer Eisenforschung GmbH, Duesseldorf (Germany); S. Riekehr, M. Horstmann, M. Kocak, GKSS Research Center, Geesthacht (Germany)</p>	<p>Acoustic Emission Study of the Mechanical Anisotropy of AZ31 Magnesium Alloy Sheet</p> <p>P. Dobron (Sp), Charles University, Prague 2 (Czech Republic); J. Bohlen, GKSS-Research Centre, Geesthacht (Germany); F. Chmelik, P. Lukac, Charles University, Prague 2 (Czech Republic); D. Letzig, K.U. Kainer, GKSS-Research Centre, Geesthacht (Germany)</p>
16:30	<p>Electromagnetic Compression of Magnesium Tubes and Process-related Improvement of Wrought Alloys by Micro-alloying</p> <p>V. Psyk (Sp), A. Brosius, Universität Dortmund (Germany); C. Broer, M. Bosse, M. Schaper, Universität Hannover (Germany); M. Kleiner, Universität Dortmund (Germany); F.-W. Bach, Universität Hannover (Germany)</p>	<p>Surface Rolling on the High-Strength Wrought Magnesium Alloy AZ80</p> <p>P. Zhang (Sp), Shanghai Jiaotong University (China); J. Lindemann, C. Leyens, BTU Cottbus (Germany)</p>

Room	Saal 3	Saal 4
	Post Processing	Mechanical Properties II
	Chair: P. Juchmann, Salz- gitter Magnesium-Tech- nologie GmbH (Germany)	Chair: M. Bamberger, Technion, Haifa (Israel)

16:50 **Rotational Friction Wel-
ding of High Creep
Resistance Magnesium
Alloy**

G. Pinheiro (Sp), C.G.
Pankiewicz, J.F. dos San-
tos, K.U. Kainer, GKSS-
Forschungszentrum,
Geesthacht (Germany)

**Rolling of AM50
Magnesium Cast Alloy**

J. Göken (Sp), Universität
Kassel (Germany); I. Stu-
likova, B. Smola, Charles
University, Prague (Czech
Republic); K. Steinhoff,
Universität Kassel (Ger-
many); N. Hort, GKSS
Forschungszentrum,
Geesthacht (Germany); V.
Ocenásek, Research Insti-
tute for Metals, Odolena
Voda (Czech Republic)

Highlight

17:10 **Development of Face
Milling Process for Mg-
hybrid (Mg-Al, Mg-Sin-
tered Steel) Materials**

P. Ozsvath (Sp), A. Szme-
jkál, J. Takács, Budapest
University of Technology
and Economics (Hun-
gary); M. Eidenhammer,
F. Obermair, Profactor
Produktionsforschungs
GmbH, Steyr-Gleink
(Austria)

**Fracture Toughness
Behaviour of Pressure
Die Cast Magnesium
Alloys under Static and
Impact Loading**

G. Dietze (Sp), D. Rege-
ner, Otto-von-Guericke-
Universität Magdeburg
(Germany)

Room	Saal 3	Saal 4
	Post Processing	Mechanical Properties II
	Chair: P. Juchmann, Salz- gitter Magnesium-Tech- nologie GmbH (Germany)	Chair: M. Bamberger, Technion, Haifa (Israel)

- 17:30 **Efficient and Ecological Machining of Magnesium Hybrid Parts**
C. Sanz (Sp), E. Fuentes, Fundación Tekniker, Eibar (Spain); F. Obermair, Pro-factor, Steyr (Austria); L. Muntada, Brugarolas, Rubi (Spain)
- 17:30 **Influence of the Microstructure and Local Mechanical Properties of Magnesium Die Cast Components Made of MgAl6Mn on the Quality of the Results of Numerical Simulation**
E. Lieven (Sp), R. Koch, Takata-Petri AG, Aschaffenburg (Germany); W. Böhme, S. Schwarz, Fraunhofer Institut Werkstoffmechanik, Freiburg (Germany)
- 17:50 **Arc Brazing of Magnesium Alloy AZ31 with Steel DX 53Z**
G. Garg (Sp), J. Zschetsche, E. Simmchen, M. Schaper, U. Fuessel, Technische Universität Dresden (Germany); S. Pandey, Indian Institute of Technology, Delhi (India)
- 17:50 **Effect of Anodized Layer on Fatigue Behavior of AM60 Magnesium Alloy**
Y. Miyashita (Sp), Nagaoka National College of Technology (Japan); K. Sabrina, Y. Mutoh, Nagaoka University of Technology (Japan); T. Koike, Yamaha Motor Co., Ltd., Nagaoka (Japan)

18:10 End

Room	Saal 3	Saal 4
	Research Programmes I	Magnesium Matrix Composites
	Chair: K.U. Kainer, GKSS-Forschungszentrum Geesthacht GmbH (Germany)	Chair: N. Hort, GKSS-Forschungszentrum Geesthacht GmbH (Germany)

Highlight

8:30 **Corrosion and Protection of Magnesium Alloys: An Overview of Research Undertaken by IMR**

E.-H. Han, Chinese Academy of Sciences, Shenyang (China)

In Mould Heating of Continuous Carbon Fibre Preforms for reinforced High Pressure Die Casting Magnesium Parts

C. Oberschelp (Sp), G. Klaus, A. Bührig-Polaczek, RWTH Aachen (Germany); J. Werner, A. Langkamp, W. Hufenbach, Technische Universität Dresden (Germany); N. Hort, H. Dieringa, K.U. Kainer, GKSS-Research Centre, Geesthacht (Germany)

DFG*

8:50 **Quantitative Understanding and Modeling of Microstructural Formation by Solidification Technique of Magnesium Alloys**

G. Klaus (Sp), B. Böttger, J. Eiken, A. Bührig-Polaczek, I. Steinbach, RWTH Aachen (Germany); M. Ohno, J. Gröbner, R. Schmid-Fetzer, Clausthal University, (Germany)

Mechanical Behaviour of an Mg-8Li Alloy reinforced with SiC Particles

Z. Száraz (Sp), Z. Trojanova, Charles University, Prague (Czech Republic)

* Report on the Priority Programme SPP 1168 of the German Science Foundation DFG.

Room	Saal 3	Saal 4
	Research Programmes I	Magnesium Matrix Composites
	Chair: K.U. Kainer, GKSS-Forschungszentrum Geesthacht GmbH (Germany)	Chair: N. Hort, GKSS-Forschungszentrum Geesthacht GmbH (Germany)

- DFG***
- 9:10 **Creep Resistance of highly Calcium-alloyed AZ91**
D. Amberger (Sp), Universität Erlangen-Nürnberg (Germany); P. Eisenlohr, Max-Planck-Institut für Eisenforschung, Düsseldorf (Germany); M. Göken, Universität Erlangen-Nürnberg (Germany)
- Magnesium-hydroxylapatite Composites as an Approach to Degradable Biomaterials**
F. Witte (Sp), Medizinische Hochschule Hannover (Germany); P. Maier, C. Blawert, M. Störmer, N. Hort, GKSS Forschungszentrum, Geesthacht (Germany)
- DFG***
- 9:30 **Experimental and Numerical Investigation of Texture Development during Hot Rolling of AZ31**
C. Schmidt (Sp), R. Kawalla, Technische Universität Bergakademie Freiberg (Germany); T. Walde, Plansee AG, Reutte (Austria); A. Prakash, H. Riedel, Fraunhofer-Institut für Werkstoffmechanik, Freiburg (Germany)
- Thresholds in Creep Behaviour of Mg-alloy Matrix Composites with Short Alumina Fibres**
K. Milicka (Sp), F. Dobes, Academy of Sciences of the Czech Republic, Brno (Czech Republic)

* Report on the Priority Programme SPP 1168 of the German Science Foundation DFG.

Room	Saal 3	Saal 4
	Research Programmes I	Magnesium Matrix Composites
	Chair: K.U. Kainer, GKSS-Forschungszentrum Geesthacht GmbH (Germany)	Chair: N. Hort, GKSS-Forschungszentrum Geesthacht GmbH (Germany)

DFG*

9:50 **The Influence of Calcium and Cerium Mischmetal on the Deformation Behaviour of Mg-3Al-1Zn**

T. Laser (Sp), TU Hamburg-Harburg (Germany); M.R. Nürnberg, GKSS Research Centre (Germany); C. Hartig, TU Hamburg-Harburg (Germany); D. Letzig, GKSS Research Centre (Germany); R. Bormann, TU Hamburg-Harburg (Germany)

Anisotropy of Dilatation Characteristics in Mg and Mg4Li Fibre Composites

A. Rudàjevoá (Sp), P. Lukacz, Charles University, Prague (Czech Republic)

Application

Chair: G. Rosen, Palbam-Alonim AMTS, En Harod Ihud (Israel)

DFG*

10:10 **Development of Novel Microcrystalline Mg Alloys as Corrosion Protection Layers**

S. Mändl (Sp), Y. Bohne, D. Manova, Leibniz-Institut für Oberflächenmodifizierung, Leipzig (Germany); C. Blawert, M. Störmer, W. Dietzel, GKSS Forschungszentrum, Geesthacht (Germany)

Experimental Warm Hydroforming System for Mg AZ31 Alloy Sheet using a Low Melting Point Alloy as Forming Medium

M. Steffensen (Sp), J. Danckert, Aalborg University (Denmark)

10:30 **Break**

* Report on the Priority Programme SPP 1168 of the German Science Foundation DFG.

Room	Saal 3	Saal 4
	Research Programmes II	Application
	Chair: M. Schaper, Universität Hannover (Germany)	Chair: G. Rosen, Palbam-Alonim AMTS, En Harod Ihud (Israel)
11:00	<p>DFG*</p> <p>Influence of Cutting and Non-cutting Processes on the Corrosion Behavior and the Mechanical Properties of Magnesium Alloys</p> <p>M. Bosse (Sp), P. Alpers, F.-W. Bach, B. Denkena, Universität Hannover, Garbsen (Germany); N. Hammer, K. Weinert, ISF University Dortmund (Germany)</p>	<p>Aluminium Bolts in Magnesium Engine Components</p> <p>I. Bertilsson (Sp), Volvo, Göteborg (Sweden); A. Fischersworing-Bunk, BMW Group, Munich (Germany); T. Marx, Adam Opel GmbH, Rüsselsheim (Germany); F. Bergman, Volvo, Göteborg (Sweden); M. Kunst, J. Thiele, BMW Group, Munich (Germany); Z. Tan, Volvo, Göteborg (Sweden)</p>
11:20	<p>DFG*</p> <p>Development of Innovative Technologies for Joining Magnesium Alloys and Dissimilar Materials Related to Components</p> <p>S. Mücklich (Sp), Technische Universität Chemnitz (Germany); M. Horstmann, O. Hahn, Universität Paderborn (Germany); B. Wielage, Technische Universität Chemnitz (Germany)</p>	<p>Magnesium with Magnetic Properties for Sensory Use</p> <p>F.-W. Bach, M. Schaper, M. Rodmann, M. Nowak (Sp.), Universität Hannover, Garbsen (Germany)</p>

* Report on the Priority Programme SPP 1168 of the German Science Foundation DFG.

Room	Saal 3	Saal 4
	Research Programmes II	Mechanical Properties III
	Chair: M. Schaper, Universität Hannover (Germany)	Chair: G. Rosen, Palbam-Alonim AMTS, En Harod Ihud (Israel)

DFG*

11:40 **Corrosion Behaviour of a New AZ Based Secondary Alloy with improved Tolerance Limits against Impurities**
C. Blawert (Sp), E.D. Morales, W. Dietzel, K.U. Kainer, GKSS Forschungszentrum Geesthacht (Germany); C. Scharf, A. Ditze, Clausthal University (Germany)

Fatigue Strength of MRI 153 Die-cast Components
A. Esderts, C. Berger, P. David (Sp), J. Grimm, TU Clausthal, Clausthal-Zellerfeld (Germany)

Microstructural Evolution II

Chair: G. Lorimer, The University of Manchester (UK)

12:00 **Twinning in Wrought Mg Alloys**
A. Jäger (Sp), V. Gartnerova, Charles University of Prague (Czech Republic); T. Mukai, National Institute for Materials Science, Tsukuba (Japan); P. Lukac, Charles University of Prague (Czech Republic)

Microstructure-based Characterization of the Cyclic Deformation Behaviour of the Magnesium Die-cast Alloys MRI 153M and MRI 230D
B. Ebel-Wolf (Sp), F. Walther, D. Eifler, Technische Universität Kaiserslautern (Germany)

12:20 **Break**

* Report on the Priority Programme SPP 1168 of the German Science Foundation DFG.

Room	Saal 3	Saal 4
	Microstructural Evolution II	Mechanical Properties III
	Chair: G. Lorimer, The University of Manchester (UK)	Chair: P. Lukac, Charles University, Prague (Czech Republic)

13:20 **Flow Instabilities of Mg-Al4-Zn1 Alloy during High Strain-rate Deformation**
J. Dzwonczyk (Sp), F. Sloff, J. Zhou, J. Duszczak, Delft University of Technology (Netherlands)

13:40 **Microstructure and Mechanical Properties of rolled Magnesium Sheets for Deep-drawing Applications**
F.-W. Bach, M. Rodman (Sp), A. Roßberg, M. Hepke, Universität Hannover, Garbsen (Germany)

14:00 **The Influence of Strain Path on Texture Evolution in Magnesium Alloy AZ31**
T. Al-Samman (Sp), G. Gottstein, RWTH Aachen (Germany)

Highlight

Tensile-compressive Creep Asymmetry of Die Cast Magnesium Alloys AM50, AE44 and AJ62A
S. Xu (Sp), CANMET-Materials Technology Laboratory, Ottawa (Canada); M. Gharghouri, National Research Council Canada, Chalk River (Canada); M. Sahoo, CANMET-Materials Technology Laboratory, Ottawa (Canada)

Effects of Alloying Elements and Heat Treatment on Mechanical Properties of Mg-Zn Alloys
J.H. Hwang, K.S. Shin (Sp), Seoul National University (Korea, Republic); D. Eliezer, Ben-Gurion University of the Negev, Beer-Sheva (Israel)

Elaboration and Mechanical Behaviour of a Mg-based Bulk Metallic Glass
S. Puech (Sp), J.J. Blandin, University of Grenoble, Saint Martin d'Hères (France); J.L. Soubeyroux, CRETA/CNRS, Grenoble (France)

Room Saal 3

Plenary Session

Chair: K.U. Kainer, GKSS-Forschungszentrum Geesthacht GmbH (Germany)

Plenary

14:20 **AM-lite: An Innovative New Alloy Opens Fresh Opportunities for Magnesium Applications**

C. Kettler (Sp), T. Abbott, M. Murray, G. Dunlop, AMT Europe GmbH, Heidelberg (Germany); T. Fuest, G. Stoesser, MacDermid Industrial Solutions, Forst (Germany)

Plenary

14:50 **Development and Application of Wrought Magnesium Alloys in China**

F. Pan (Sp), Chongqing University (China); M. Yang, Chongqing Institute of Technology, Chongqing (China)

15:20 **Closing Address**

K.U. Kainer, GKSS-Forschungszentrum Geesthacht GmbH (Germany)

15:30 **End of the Conference**

Alloy Development

- A-31* **A New Look at the Mg-Al-Zn Family - Focus on Tailoring Properties through Composition Control**
A.L. Bowles (Sp), P. Bakke, H. Westengen, Hydro Aluminium, Porsgrunn (Norway)
- A-36 **Production of Mg-Ni Alloys under High Pressure and High Temperature for the use as Catalysts in Diamond Synthesis**
A. Sideris (Sp), G.S. Bobrovitchii, North Fluminense State University, Campos dos Goytacazes (Brazil)
- A-50* **Investigation of Mg-Al-Sr Phase Equilibria**
A. Janz (Sp), Technische Universität Clausthal, Clausthal-Zellerfeld (Germany); J. Gröbner, D. Mirkovic, TU Clausthal, Clausthal-Zellerfeld (Germany); M. Medraj, Concordia University, Montreal (Canada); J. Zhu, Y.A. Chang, University of Wisconsin, Madison (USA); R. Schmid-Fetzer, TU Clausthal, Clausthal-Zellerfeld (Germany)
- A-83* **Phase Composition and Creep Behavior of Mg-rare Earth-Mn Alloys with Zn Addition**
B. Smola (Sp), I. Stulíková, J. Pelcová, N. Zaludová, Charles University, Prague (Czech Republic)
- A-121 **Microstructural Characterization of Mg-Al-Sr Alloy**
T. Rzychon (Sp), A. Kielbus, Silesian University of Technology, Katowice (Poland); R. Cibis, NTP Ltd., Kedzierzyn-Kozle (Poland)
- A-124* **Hot Chamber Die Casting of Magnesium Alloys**
R. Cibis (Sp), Nowoczesne Technologie Produkcji Sp. zo. o., Kedzierzyn-Kozle (Poland); A. Kielbus, Silesian University of Technology, Katowice (Poland)

Alloy Development (cont.)

- A-148* Microstructure and Micromechanical Properties of as-cast Mg-Sn-Ca and Mg-Sn-Mn Alloys**
J. Bursik (Sp), Academy of Sciences of the Czech Republic, Brno (Czech Republic); V. Bursikova, Masaryk University, Brno (Czech Republic); Y. Jiraskova, Academy of Sciences of the Czech Republic, Brno (Czech Republic); T. Abu Leil, C. Blawert, W. Dietzel, N. Hort, K.U. Kainer, GKSS Forschungszentrum Geesthacht GmbH (Germany)
- A-149* Effect of Heat -Treatment on the Microstructure, Microhardness and Corrosion Behavior of Cast Mg-3Sn-2Ca Alloy**
J. Bursik, K. Zabransky (Sp), Y. Jiraskova, Academy of Sciences of the Czech Republic, Brno (Czech Republic); V. Bursikova, Masaryk University, Brno (Czech Republic); T. Abu Leil, C. Blawert, Y. Huang, W. Dietzel, N. Hort, K.U. Kainer, GKSS Forschungszentrum Geesthacht GmbH (Germany); K.P. Rao, City University Hong Kong, Kowloon (China)
- A-169* Investigation on Rare Earth Magnesium Alloys**
J. Meng (Sp), D.Q. Fang, D.P. Zhang, J. Wang, J.H. Zhang, D.X. Tang, L.M. Wang, H.J. Zhang, Chinese Academy of Sciences, Changchun (China)
- A-199 Mg-Al-RE Alloys For Die Casting**
T. Rzychon (Sp), A. Kielbus, Silesian University of Technology, Katowice (Poland); R. Cibis, NTP Ltd., Kedzierzyn-Kozle (Poland)

Simulation, Modelling

B-207 Molecular Dynamics Study of a Carbon Nanotube filled with Magnesium

A. Ilyin (Sp), S. Sarsembinov, N. Korobova, Kazakhstan National University, Almaty (Kazakhstan)

Microstructural Evolution

C-8 Grain Refining of an Mg-6Al-1Zn Alloy Produced by Large-strain Hot Rolling Process

A.I.Z. Farahat (Sp), Central Metallurgical R & D Institute, Cairo (Egypt); A.-E. El-Morsy, M. Waly, Central Metallurgical Research and Development Institute, Helwan, Cairo (Egypt)

C-18 Microstructural Evolution and Phase Formation in Novel Mg-Zn Based Alloys

M. Bamberger (Sp), Technion, Haifa (Israel); J. Keckés, Montanuniversität Leoben (Austria); A. Gorny, Technion, Haifa (Israel); B. Rashkova, G. Dehm, Montanuniversität Leoben (Austria); G. Levi, Technion, Haifa (Israel)

C-67* Influence of Production Technology and Heat Treatment on the Precipitation Processes in Mg-Y-Nd-Zn-Zr Alloy

J. Pelcova (Sp), B. Smola, I. Stulíková, Charles University, Prague (Czech Republic)

C-90 The Evolution of Dislocation Structure as a Function of Deformation Temperature in UFG Magnesium Determined by X-ray Diffraction

T. Fabian (Sp), Z. Trojanova, R. Kuzel, Charles University, Prague (Czech Republic)

Microstructural Evolution (cont.)

- C-94*** **Microstructure and Thermal Stability of Ultra Fine Grained Mg-4Tb-2Nd Alloy Prepared by High Pressure Torsion**
J. Cizek (Sp), I. Prochazka, B. Smola, I. Stulikova, M. Vlach, Charles University, Prague (Czech Republic); R.K. Islamgaliev, O. Kulyasova, Ufa State Aviation Technical University (Russian Federation)
- C-105** **Microstructure of Elektron 21 Magnesium Alloy after Heat Treatment**
A. Kielbus, Silesian University of Technology, Katowice (Poland)
- C-125** **Quantitative Examinations of Mg-Al Alloy After Heat Treatment**
J. Adamiec (Sp), A. Kielbus, J. Cwajna, Silesian University of Technology, Katowice (Poland)
- C-133** **Amorphous Precipitates Sandwiched by Long Period Stacking Structures in the Melt-quenched Mg98Cu1R1 (R=Y and Gd)**
K. Konno (Sp), M. Matsuura, M. Yoshida, Miyagi National College of Technology (Japan); M. Nishijima, K. Hiraga, Tohoku University, Sendai (Japan)
- C-153*** **Microstructural Evolution by Hot-Working of Extruded and Continuously Casted Mg-Wrought-Alloys AZ31 and AZ80**
B. Viehweger (Sp), Brandenburgische Technische Universität Cottbus (Germany); L. Schaeffer, Federal University of Rio Grande, Porto Alegre (Brazil); M. Düring, Brandenburgische Technische Universität Cottbus (Germany)

* Plenary oral presentation on Tue at 15:30 h

Microstructural Evolution (cont.)

- C-160*** **Texture Development in Different Routes ECAP Processed Mg-Si Alloys by Neutron Diffraction**
W. Gan (Sp), GKSS-Research Centre Geesthacht (Germany); H.-G. Brokmeier, Technische Universität Clausthal (Germany); M. Zheng, X. Qiao, S. Xu, K. Wu, X. Hu, Harbin Institute of Technology (China); B. Schwebke, A. Schreyer, K. Kainer, GKSS-Research Centre, Geesthacht (Germany)
- C-176** **Zirconium-rich Coring Structures in WE54 Alloy after Heat Treatment**
A. Kielbus, Silesian University of Technology, Katowice (Poland)

Mechanical Properties

- D-55** **Static and Dynamic Dent Resistance of AZ31 Magnesium Alloy Sheets**
J. Kaneko (Sp), M. Sugamata, E. Yukutake, Nihon University, Narashino (Japan)
- D-73*** **Microstructure and Deformation Behaviour of Mg-Li-Al Alloys**
Z. Drozd (Sp), Z. Trojanova, Charles University, Prague (Czech Republic)
- D-80*** **Mechanical Strength and Creep Properties of Heat Treated AZ Alloys**
S. Müller (Sp), B. Camin, T. Huichang, W. Reimers, Technische Universität Berlin (Germany)
- D-100** **Creep Behavior of Squeeze Cast and T5 Heat Treated Mg4Y2Nd1Sc1Mn**
F. Hnilica (Sp), Czech Technical University, Prague 2 (Czech Republic); V. Ocenásek, Research Institute for Metals Ltd., Panenske Brezany (Czech Republic); B. Smola, I. Stulikova, Charles University in Prague, Prague 2 (Czech Republic)

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- D-117** **Fatigue Crack Propagation Behavior of Mg-Al Alloys**
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B. Aboubakr (Sp), H. Nadir, University of Blida (Algeria)
- D-211** **A Matter which is called: IAM Mg**
B. Aboubakr (Sp), H. Nadir, University of Blida (Algeria)

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- D-214* **The Microstructure and Mechanical Property of Magnesium-Zinc-Yttrium-Zirconium Alloy Processed by Equal Channel Angular Pressing**
X. Shiwei (Sp), Nagaoka University of Technology (Japan); M.Y. Zheng, Harbin Institute of Technology (China); S. Karnado, Nagaoka University of Technology (Japan); W.M. Gan, K. Wu, Harbin Institute of Technology (China)

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- E-147* **Corrosion Resistance of an Electrodeposited Magnesium Layer from Grignard Reagents on Carbon Steel in NaCl 3%**
S.B. Hassen (Sp), E. Triki, ENIT, Tunis (Tunisia); L. Bouselmi, INRST, Tunis (Tunisia); P. Bercot, Université de Franche comté, Besançon (France); M. Rezrazi, ENIT, Tunis (Tunisia)
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T. Troßmann (Sp), K. Eppel, C. Berger, Technische Universität Darmstadt (Germany)

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K. Tada, Sanyu Seiki Co., Ltd., Tano-Gun (Japan)
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S. Nishida (Sp), M. Motomura, T. Yamazaki, Y. Ando, Y. Takano, Waseda University, Shinjuku-ku Okubo (Japan)

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M. Furui (Sp), H. Kitamura, H. Anada, University of Toyama (Japan); T.G.- Langdon, University of Southern California, Los Angeles (USA)
- H-71* Effect of Billet Temperature and Ram Speed on the Behaviour of AZ31 during Extrusion**
M. Leeflang (Sp), J. Zhou, J. Duszczyk, Delft University of Technology (Netherlands)
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T. Hassel (Sp), F.-W. Bach, Universität Hannover (Germany); A.N. Golovko, National Metallurgical Academy of Ukraine, (Ukraine)
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J. Swiostek (Sp), GKSS-Forschungszentrum Geesthacht GmbH (Germany); J. Bober, TU Hamburg-Harburg (Germany); C. Blawert, D. Letzig, K.U. Kainer, GKSS-Forschungszentrum Geesthacht GmbH (Germany)
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B.V. Ovsyannikov (Sp), V. Sapunzhi, E. Zharikova, Kamensk-Uralsky Metallurgical Works, Kamensk-Uralsky, Sverdlovsk Region (Russian Federation)

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D.L. Peng (Sp), Harbin Institute of Technology, Nagoya (Japan); K. Wu, M.Y. Zheng, W.X. Huang, X.J. Wang, Harbin Institute of Technology (China)
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R.G.d.S. Mussi (Sp), Chiba Institute of Technology (Japan); T. Motegi, F. Tanabe, Chiba Institute of Technology, Narashino (Japan); H. Kawamura, Chiba Institute of Technology (Japan); K. Anzai, D. Shiba, M. Suganuma, Nissei Plastic Industrial Co.Ltd., Sakaki (Japan)
- I-208 **The Magnesium.com Marketplace is Your Resource for Magnesium Trade**
E. Yordanova, Magnesium com., Sofia (Bulgaria)

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R. Schwerin (Sp), S. Joksch, Oemeta Chemische Werke GmbH, Uetersen (Germany)
- J-89* **Microstructure Features of Hot Rolled AZ31 Magnesium Alloy for Friction Stir Welding**
L. Commin (Sp), J.-E. Masse, ENSAM Mecasurf, Aix en Provence (France); M. Dumont, TECSEN, Marseille (France); L. Barrallier, ENSAM Mecasurf, Aix en Provence (France)
- J-109* **Effects of Strain Rate and Filler Alloy on the Properties of Laser Welded AZ31 Alloy Sheet**
Y. Durandet (Sp), W. Song, Swinburne University of Technology, Hawthorn (Australia); P. Cordini, Alstom LHB GmbH, Salzgitter (Germany); M. Brandt, Swinburne University of Technology, Hawthorn (Australia); A. Ostendorf, Laser Zentrum Hannover (Germany)

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J. Adamiec (Sp), A. Kielbus, J. Cwajna, Silesian University of Technology, Katowice (Poland)

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D. Mirkovic (Sp), R. Schmid-Fetzer, Technische Universität Clausthal (Germany)
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G. Wagner (Sp), M. Gutensohn, D. Eifler, Technische Universität Kaiserslautern (Germany)
- L-111* Grain Refinement in AZ31 Alloy by (SiC)p: Theoretical Calculation and Experiment**
R. Günther (Sp), C. Hartig, Technische Universität Hamburg-Harburg (Germany); N. Hort, GKSS Research Centre, Geesthacht (Germany); R. Bormann, Technische Universität Hamburg-Harburg (Germany)
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G. Vidrich (Sp), TU Clausthal (Germany); A. Schiffli, ARC LKR, Ranshofen (Germany); H. Ferkel, VW AG, Wolfsburg (Germany); Y. Estrin, TU Clausthal (Germany); F. Pravidic, H. Kaufmann, ARC LKR, Ranshofen (Germany); N. Hort, GKSS Forschungszentrum, Geesthacht (Germany)
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C. Fleck (Sp), A. Schildknecht, Technische Universität Berlin (Germany); K.A. Weidenmann, A. Wanner, D. Löhe, Universität Karlsruhe (Germany)


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W.-D. Müller (Sp), Charité Berlin (Germany); L. Nascimento, C. Fleck, TU Berlin (Germany); M. Fernandez, M. Corsico, INIFTA La Plata (Argentina)
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R. Neugebauer, C. Kraus (Sp), S. Dietrich, Fraunhofer-Institut für Werkzeugmaschinen und Umformtechnik, Chemnitz (Germany)
- L-184* **The MagForge Project: European Community Research on Forging of Magnesium Alloys**
W.H. Sillekens (Sp), TNO Science and Industry, Eindhoven (Netherlands); D. Letzig, GKSS Research Centre Geesthacht (Germany)
- L-192* **Thermodynamic Simulation of Blending Mg-Alloys by Thixomolding**
A. Kozlov (Sp), M.B. Djurdjevic, R. Schmid-Fetzer, Technische Universität Clausthal (Germany)

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H. Jordan, Magnesium Com., Sofia (Bulgaria)

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Social Programme

Monday, 6 November 2006

Welcome Reception

19:00 h



Institut für
Leichtbau und
Kunststofftechnik
of the Technical
University of
Dresden, Mar-

schnerstraße 32, 01307 Dresden.
During the evening, participants
will have the opportunity to join a
guided tour presenting the institu-
te. During the reception, beer and
pretzels will be offered.

Tuesday, 7 November 2006

Poster Evening with drinks and snacks

Following the poster session
(approximately 18:00 h)

Semper Opera

20:00 h



Concert (Johan-
nes Brahms, violin
concert, D-Dur
OP.77 and Lud-
wig van Beetho-
ven, Symphony

No. 5 C-Moll OP 67) in the Semper
Opera House for those who have
already purchased a ticket. Further
tickets may be available directly at
the opera house.

The Semper Opera is situated in
the immediate vicinity of the Con-
gress Center.

Photo Semper Opera by Christoph Münch

Social Programme

Wednesday, 8 November 2006

Conference Dinner

19:30 h



The Conference Dinner will take place in the picturesque ballroom of the "Ball- und Brauhaus Watzke", one of the most beautiful ballrooms throughout the Free State of Saxony.

The evening starts at 19:30 at Hausbräu im Ballhaus Watzke GmbH, Kötzschenbroder Straße 1, 01139 Dresden. The restaurant can be reached by public transport: tram 4, 9, 13 (stop: Altpieschen/Elbcenter).

Thursday, 9 November 2006

Frauenkirche Dresden

There will be two guided visits of the Frauenkirche Dresden. Times and further details are available at the conference office. The Frauenkirche is in walking distance to the congress center (10 mins).



The building of the Frauenkirche includes thousands of stones from the old church, frescoes of biblical scenes adorn the walls, meticulously repainted and faithful to the original designs. The visit to the „Church of Our Lady“ is an unforgettable experience. The tour will take approximately 50 mins.

At the end of the visit to the Frauenkirche, attendees have the possibility to join a city tour. Registration is at the conference office.

Sophienkeller

19:00 h

Space is pre-booked in the Sophienkeller of Dresden, a very beautiful restaurant in the center of Dresden. Those interested to join this extraordinary evening, should register at the conference office.

List of Exhibitors



Metallgießerei Wilhelm Funke GmbH & Co.

Röllinghäuser Str. 57
31061 Alfeld
<http://www.funke-alfeld.de>
E-Mail: info@w-funke.de

GKSS-Forschungszentrum Geesthacht GmbH

Max-Planck-Straße 1
21502 Geesthacht
E-Mail: contact@gkss.de
<http://www.gkss.de>

MgF Magnesium Flachprodukte GmbH

Agricolastraße 24
09599 Freiberg
E-Mail: engl@tk-mgf.de
<http://www.tks-mgf.de>


WILEY-VCH Verlag GmbH & Co. KGaA

Advanced Engineering Materials
Boschstraße 12
69469 Weinheim
E-Mail: info@wiley-vch.de
<http://www.wiley-vch.de>

Israel Export Institute

29, Hamered Street
68125 Tel Aviv

Registration Conditions



Registration and Cancellation Conditions

Cancellation before 1 September 2006 will be subject to a 50 EUR cancellation fee. After that date upon cancellation, 25% of the conference fee will be charged, and after 5 October 2006, the full conference fee will be charged. Speaker substitution may be made at any time.

The conference fees include the welcome reception, poster evening, lunch and refreshments during the official breaks. If more than one paper per speaker is submitted, speakers will be charged an extra administration fee of 100 EUR per additional paper.

Payment

Payment of all kinds of fees should be made in EUR by credit card or transfer to the below account.

Bank transfer

Please include the delegate's name and the invoice number on all money transfers. Since the bank charges amount to 15 EUR, we respectfully request participants from abroad to add this amount to the conference fee when making their bank transfer.

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