THERMEC'2025

INTERNATIONAL CONFERENCE on PROCESSING & MANUFACTURING OF ADVANCED MATERIALS

June 30 - July 4, 2025

University of Tours, France

CONFERENCE PROGRAM

Contents

General Information

Registration Desk
All delegates and companions should register for the conference and collect their name badges at the Registration Desk, which is situated in the Conference Foyer; on the ground floor at the Block F – FST Parc Grandmont at the University of Tours, France.

Sunday, June 29 2025: PRE-REGISTRATION and Welcome Reception-16:00 to 19:00

The Registration Desk will be opened from 16:00 to 19:00 in the Block F of the Faculty of Science and Technology at University of Tours, France. We strongly recommend that you please try to register on this day and collect the name badge and the catering tickets.

Monday, June 30 to Friday, July 4, 2025:

Registration Desk will be opened from 8:00 to 18:30 during the conference period, except on Friday July the 4th, when it will be opened until 11:30.

Identification Name Badge
Due to strict security reasons at the Conference venue, all participants and accompanying persons are kindly requested to wear their personal name badge during all Conference events, including the Conference Dinner on July the 3-rd.

Please note that security personnel will be placed at entry doors of the conference venue for the entire duration of the conference and will only allow entry if name badge is worn. THIS IS A STRICT SECURITY REQUIREMENT.

Plenary Lectures
Monday, June 30, 2025, from 9:00 to 9:30, Chaumont and Chambord lecture halls– F-block at the FST Campus (please see the campus map)

Tuesday, July 01, 2025, from 9:00 to 9:30, Chaumont and Chambord lecture halls– F-block at the FST Campus (please see the campus map)

Oral Sessions
Ten parallel oral sessions (A-J) will take place concurrently in 10 rooms. The Poster session will be held on Tuesday the 1-st of July, inside the Sports Hall. The location of the lecture rooms and posters areas are given in the floor plan included in this document.

The allocated rooms for the oral and poster sessions (A to K) are given in the table below. The location of the session rooms can be found in the campus plans included in this book.

The sessions are held in the following rooms:

Session	Room	Session	Room
A	Chambord (300 seats)	G	Loire (74 seats)
B	Chaumont (299 seats)	H	Berry (64 seats)
C	Chenonceaux (261 seats)	I	Cher (62 seats)
D	Amboise (242 seats)	J	Sologne (60 seats)
E	Villandry (215 seats)	K-POSTERS	Sports Hall
F	Blois (151 seats)		

Poster Session
Authors making POSTER presentation are requested to take their posters to the **Sports Hall**, where poster boards are located. Please affix your posters on the poster board under the allocated poster number, which is the same as the poster number given in the Final Program (in this document).

Maximum poster size allowed at THERMEC'2025 is A0 (841mm x 1,189 mm).

It is the responsibility of presenters to produce their posters within the above dimensions, to bring the posters to their allocated poster session, to display their poster under the allocated poster number listed in the Conference Program, and to remove their posters at the end of the poster session.

THERMEC Secretariat will not assume any responsibility for mailed posters.

All participants are encouraged to visit the poster sessions and authors will be available for discussions.

Session Chairpersons and Speakers
Chairpersons are requested to meet speakers of their sessions in the allotted session rooms at least 15 minutes prior to the commencement of the session. Speakers are requested to load their power point presentation files on the computer provided in the respective session room with the help of the session monitor.

Due to the tight schedule, the use of personal computers is not possible. Please contact your session Chairpersons for special requests.

The Program Committee would like to thank all Chairpersons for their time and effort in chairing sessions at **THERMEC'2025.** If, due to unavoidable circumstances, the Chairperson listed is not able to chair the allotted session, please contact Professors R. Shabadi, Prof. Benoit Ter Ovenacian, Dr. Ji Gang, Prof. Surya Yadav or Prof. M. Ionescu at the registration desk at least 24 hours prior to the start of your session, so that we can find an alternative arrangement.

Luncheons: June 30 - July 3, 2025
Luncheons are served from Monday, June 30 to Thursday July 3, in the area on the ground floor of the Block F – FST Parc Grandmont campus, between 12:30 and 14:30. This place is a few minutes' walk from the F-Block (the conference Foyer) passing through the lush green park of the Grandmont Campus. For admission to the dining hall please show your Conference identification badge.

To avoid crowding and excessive waiting during lunch, please adhere to the following schedule:

GROUP 1: Sessions A to E, Lunch Time: 12:30-13:30

GROUP 2: Sessions F to J, Lunch Time: 13:30-14:30

YOUR COOPERATION IN THIS MATTER WILL BE GREATLY APPRECIATED.

Coffee/Tea Breaks
Coffee breaks will take place from June 30 to July 4 in the mid-morning and mid-afternoon at locations close to the session rooms. On Friday July 4, there will be coffee served in the in the mid-morning coffee/tea, and there will be no lunch provided.

THERMEC Conference Gala Dinner & Awards

The Conference dinner will be held at the Daniel Bourdu hall at the Convention Centre in Tours, along with the **THERMEC** Award Ceremony to honour our peers from various countries on *Thursday, July 3,2025, 19:30 – 22:30*.

The Conference Dinner ticket will be provided to each full fee-paying participant at the time of registration. Student registration does NOT include the conference dinner. Please bring the dinner ticket, to be collected from you by the venue staff at the Convention Centre.

THERMEC Dinner is now full, and no more extra tickets are available.

Manuscript Submission

All registered participants may submit a 6-7 pages manuscript for inclusion in the Conference Proceedings. The submission must be carried out via the publisher's website platform (Trans Tech Publications www.scientific.net). A usual peer review process will take place after the conclusion of the conference, carried out by the Program Committee. In addition, the publisher will carry out the customary plagiarism check, and authors will be inform of this outcome. Please follow the manuscript formatting and submission procedure listed on the publisher's website. The authors who completed the submission process by the due date, will have their submission acknowledged by the publisher via email. The accepted manuscripts will be included in the Materials Science Forum (MSF) periodical/THERMEC2025 proceedings, which will be courier mailed to all registered participants by November 2025.

Message Board near Registration Desk

Personal Messages and Program changes will be announced on the message board located near the registration desk. We strongly suggest that you check the message board every day please.

Important announcements will be made from time-to-time if needed in the session rooms by the Chairpersons.

Automatic Teller Machines (ATM) Locations

Please note that the Campus Parc Grandmont Faculty of Science is on the outskirts of the city, and there is no ATM service available in the vicinity.

Exhibitors at THERMEC 2025

The following organizations are exhibiting at **THERMEC'2025**:

- ThermoCalc, Sweden
- MDPI, China/Spain
- Gleeble, France
- Zeiss (tbc)
- Netzsch (tbc)

The exhibitor's space at THERMEC´2025 is located at Foyers of Amphi Physic/Bio.

The mid-morning/afternoon coffee breaks will also take place there during the Conference days (except Friday July 4), in addition to the other locations near the session rooms.

Social Program

Please see the Registration Desk for any enquiries about the social program.

Acknowledgements
The following organizations supported **THERMEC'2025**, and the Committee expresses sincere thanks them.

- Dynamic Systems Inc (DSI), U.S.A.
- Trans Tech Publications, Switzerland
- PULSTEC Industrial Co.Ltd-Japan
- ThermoCalc
- MDPI – PR China/Spain
- MatCalc Engineering, Austria
- ThermoCalc- Sweden
- ZEISS, Germany
- Voestalpine

THERMEC'2025 - Distinguished Award Recipients

Brian Cantor

Professor of Materials at Oxford and Brunel Universities, UK
Director of the UN International Centre for Excellence in Circular Materials

Professor Brian Cantor is a world-renowned materials scientist and engineer and has been a successful manager and leader in many academic and industrial organisations. He is currently a Professor of Materials at Oxford and Brunel Universities, and a Chief Editor of the Springer-Nature journal High Entropy Alloys and Materials.

In the past, he has been Vice-Chancellor (President) of the Universities of Bradford and York, Head of Mathematical and Physical Sciences at the University of Oxford, a research scientist and engineer at GE Labs in the USA, and a consultant for Alcan, NASA and Rolls-Royce. At York, he doubled the size of the university and tripled its turnover; and at Bradford, he restructured the university to re-focus on its role as a leading technology university. He has also held senior non-executive roles as Chair of the National Science Learning Centre (now the National STEM Centre), the Wolfson Centre for Applied Health Research and the World Technology Universities Network; Vice-President of the Royal Academy of Engineering; and Trustee of the Science Museum Group of UK national museums, and the Marshall Scholarships Commission. He played a leading role in founding and building up (amongst other things) the Begbroke Science Park at Oxford, Oxford Innovation Ltd, the £0.75b Heslington East Campus at York, the Hull-York Medical School, and the UN International Centre of Excellence in Strategic Resource Management (ICE-SRM).

He has worked at other universities, been on the boards of spin-out companies and agencies, and received academic prizes, honorary professorships and fellowships in the UK, USA, China, Japan and India. He is well known for having invented the field of multicomponent high-entropy materials and for having discovered the "Cantor alloys". He has published over 300 books and papers, with over 21,000 citations and an h-index of almost 60. He was elected to be a Fellow of the Royal Academy of Engineering (FREng) as a "world authority on materials manufacturing", awarded by Queen Elizabeth a CBE for services to higher education in 2013, and was elected to be a Fellow of the Royal Society (FRS) in 2024.

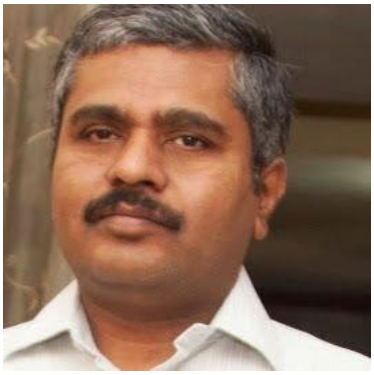
Jien-Wei Yeh

Distinguished Chair Professor, Department of Material Science and Engineering
Director, High Entropy Materials Centre
National Tsing Hua University, Taiwan

Professor Jien-Wei Yeh received PhD at Department of Materials Science and Engineering, National Tsing Hua University in 1986 and then became associated professor in the same department. He specialized in the fields of aluminum alloys, magnesium alloys and metal matrix composites and manufacturing engineering. But since 1995 he explored and researched high-entropy alloys and related materials. He named and defined high-entropy alloys, proposed four core effects and established fundamental principles of high-entropy alloys. He used casting, wrought, powder metallurgy and coating routes to show the production feasibility, promising properties and potential applications of high-entropy alloys. He also extended the high entropy concept to ceramics and polymers and advocated high-entropy materials; He held the first International Conference of High Entropy Materials in Tsing Hua university in 2016. He established the first high Entropy Materials Center in Tsing Hua in 2018. He is the chair of International High Entropy Materials Consortium since 2018. He is one of chief editors of High Entropy Alloys & Materials, Nature Springer since 2022. He has about 300 SCI papers published, including 230 papers on high-entropy and related materials up to the end of 2024. According to the Scopus on April 18, 2025, his total number of citations is > 54,000, H-index is 95. From the 2022, 2023 and 2024 annual reports by Stanford University based on the statistical analysis of Scopus citations, his scientific influence ranked world's second in the field of Materials. He has more than 50 patents on traditional materials and high-entropy materials, and transferred at least 10 patents to related industry for producing alloys with excellent properties. The industrial areas include smart machinery, green energy, bio-medical, defence and aerospace. He has been recognized as "Father of High-Entropy Alloys". He was elected as an Academician by Academia Sinica of Taiwan in 2024. He also has received many prestigious awards during his career, including the Industry-University Cooperation Award of Ministry of Education, Taiwan (2001), Ho-Chin-Tue Award of Metallurgy by Tung-Ho steel company (2003), Outstanding Research Award of Ministry of Science and Technology (2016), The highest honor of Materials Research Society of Taiwan: Lu Tze-Hung Memorial Award (2017), Science Contribution Awards of CTCI Foundation (2019), The 27th TECO Award (2020), The Executive Yuan Award for Outstanding Science and Technology Contribution (2021).

Satyam Suwas

Dean, Mechanical Science Division
Department Chair and Distinguished Professor
Department of Metallurgy, Indian Institute of Science
Bengaluru, India



Professor Satyam Suwas is a leading figure in materials science, currently serving as Dean at the Indian Institute of Science (IISc), Bangalore. Born on September 30, 1969, Prof. Suwas has built an illustrious career distinguished by pioneering research, academic leadership, and international recognition.

Prof. Suwas earned his Ph.D. and M.Tech. from the Indian Institute of Technology (IIT), Kanpur, and his M.Sc. from Banaras Hindu University. His research is internationally renowned, particularly in the fields of crystallographic texture, advanced materials, steels, light alloys, and severe plastic deformation. He has made significant contributions to understanding processing–texture–property relationships in structural and functional materials, deformation and thermo-mechanical processing, additive manufacturing, and the development of high-temperature materials for aerospace and other advanced applications.

He leads the Laboratory for Texture and Related Studies at IISc, focusing on microstructural engineering and its influence on material properties, employing advanced experimental and computational methods. His work spans a wide range of materials, including titanium and magnesium alloys, steels, refractory metals, shape memory alloys, and more. Notably, his research has advanced knowledge in areas such as electrical steels, titanium alloy processing, and the development of materials with superior mechanical and functional properties for industrial applications.

Prof. Suwas's scholarly impact is reflected in his impressive metrics: as of 2025, he has over 16,000 citations, an h-index of 88 (48 since 2020), and an i10-index of 315 (246 since 2020). He has authored more than 300 research papers and co-authored or edited several books, including a comprehensive textbook on crystallographic texture.

His career includes prestigious international appointments as a Humboldt Fellow and guest professor in Germany and France, and research collaborations in the United States. He has received numerous honors, such as the IIM GD Birla Gold Medal (2020), Metallurgist of the Year (2012) from the Ministry of Steel, Government of India, the Young Engineer of the Year Award (2003) from INAE, and the President of India, Dr. Shanker Dayal Sharma Gold Medal (1999) for all-round excellence at IIT Kanpur.

Prof. Suwas is a fellow of the Indian National Academy of Engineering and the National Academy of Sciences, India, and holds life memberships in several professional societies. He serves as an editor and reviewer for leading journals in the field and has played a key role in advancing materials engineering research and education in India and abroad.

Through his research, mentorship, and leadership, Professor Satyam Suwas continues to shape the future of materials science, with a lasting impact on both the academic and industrial communities.

Lindsay A. Greer

Professor of Materials Science, University of Cambridge, UK
President of the Cambridge Philosophical Society

Professor A. Lindsay Greer, FRS FREng, is a distinguished scholar in the Department of Materials Science and Metallurgy at the University of Cambridge, renowned for his ground-breaking contributions to the understanding of materials structure, nucleation processes, and metallic glasses. With a career spanning over four decades, his work has profoundly influenced both academic research and industrial applications.

A Cambridge alumnus, Prof. Greer earned his BA (1978), MA (1982), and PhD (1982) in Materials Science from the University of Cambridge. His doctoral research on metallic glasses laid the foundation for his lifelong exploration of amorphous metals and phase transformations. Joining Cambridge's faculty in 1986, he rose to a full professorship in 2000 and served as Head of Department from 2014 to 2019, driving strategic advancements in research and education.

Prof. Greer's pioneering work focuses on controlling nucleation and crystallization in materials. Key achievements include:
- Bulk Metallic Glasses: Developing novel alloys with exceptional strength and corrosion resistance, expanding their use in engineering and biomedical devices.
- Grain Refinement: Innovating techniques to enhance mechanical properties in alloys, critical for aerospace and automotive industries.
- Nanoscale Materials: Discovering "nanoparticle halos" to stabilize materials, published in Nature Materials (2003), a seminal paper with over 2,500 citations.
His research bridges fundamental science and real-world applications, collaborating with industry leaders like Rolls-Royce and Tata Steel to optimize materials for turbines, lightweight structures, and sustainable technologies.

Prof. Greer's excellence has been recognized globally:
- Griffith Medal and Prize (2011, IOM3) for contributions to materials science.
- Hume-Rothery Prize (2005, IOM3) for alloy research.
- Japan Institute of Metals International Award (2014) for advancements in metallic glasses.
- Fellow of the Royal Academy of Engineering (2006) and Royal Society (2023).
- Elected Fellow of multiple societies, including ASM International and the Institute of Physics.

A dedicated educator, Prof. Greer has mentored over 50 PhD students and received Cambridge's Pilkington Teaching Prize (2003) for pedagogical innovation. His leadership extended to directing the Cambridge Rolls-Royce University Technology Centre and advising national research councils.

Prof. Greer's work continues to shape materials science, driving advancements in nanotechnology, energy efficiency, and sustainable manufacturing. His legacy as a researcher, educator, and visionary leader cements his status as a luminary in his field, inspiring future generations of scientists.

Yoshitaka Adachi

Professor, Department of Materials Design Innovation Engineering, Nagoya University, Japan

Professor Yoshitaka Adachi is a globally recognized expert in materials science, with a distinguished career centered on the advancement of steel research and the integration of data science into materials design. He is currently Professor in the Department of Materials Design Innovation Engineering at Nagoya University, where he also leads the Green Structural Materials Informatics Division. Prof. Adachi received his Doctor of Engineering from Nagoya University and has held influential positions in both academia and industry, including as Principal Researcher at the National Institute for Materials Science and Senior Researcher at Sumitomo Metal Industries.

Prof. Adachi's scientific contributions have profoundly shaped modern steel research. He is renowned for pioneering the application of machine learning and materials informatics to the optimization of steel microstructures and mechanical properties. His work has elucidated the relationships between process, microstructure, and properties in steels, particularly through the development of inverse analysis models and advanced computational techniques.

Throughout his career, Prof. Adachi has authored over 140 peer-reviewed publications, with more than 4,700 citations, and an h-index of 33 and an i10-index of 77, underscoring his significant impact on the scientific community. His collaborative network spans leading researchers and institutions worldwide, including partnerships with the Max Planck Institute for Sustainable Materials and the Technical University of Denmark.

Prof. Adachi's excellence has been recognized by numerous prestigious awards, including the 2024 Academic Achievement Award from The Iron and Steel Institute of Japan, the 2024 Japan Institute of Metals Paper Award (Organizational Category), the Japan Heat Treatment Association Technology Award, the Nishiyama Memorial Award, and multiple Tawara and Sawamura Paper Awards. These honors reflect his leadership and innovation in both fundamental and applied materials science.

A dedicated educator and mentor, Prof. Adachi has supervised a substantial number of Ph.D. students, many of whom have advanced to successful academic and industrial careers. He is deeply committed to teaching, offering courses in materials design, computational materials science, and the application of informatics and machine learning to engineering. His mentorship emphasizes the integration of theory, computation, and practical problem-solving, preparing the next generation of materials scientists for leadership roles.

Prof. Adachi's influence extends beyond research and teaching; he has served as Director of the Iron and Steel Institute of Japan, the Japan Heat Treatment Technology Association, and the Japan Institute of Metals, and is a member of the Engineering Academy of Japan. His visionary leadership, groundbreaking research, and dedication to education have established him as a central figure in the global advancement of steel science and materials engineering.

Yoshihito Kawamura

Professor, Director of Magnesium Research Centre (MRC), Kumamoto University, Japan

Professor Yoshihito Kawamura is a globally acclaimed pioneer in materials science, specializing in magnesium alloy and bulk metallic glass (BMG) research. He has dedicated his career to advancing lightweight, high-performance materials for transformative applications in aerospace, automotive, and biomedical industries.

Prof. Kawamura earned his Ph.D. in Materials Science from Tohoku University, a hub for cutting-edge materials research. He joined Kumamoto University in 1994, where he now spearheads the Magnesium Research Center—a world-renowned institution driving innovation in magnesium-based technologies. His leadership at MRC has cemented Japan's position at the forefront of magnesium science, fostering collaborations with industry giants like Toyota, Honda, and Panasonic to translate research into sustainable solutions.

Prof. Kawamura's seminal work revolves around overcoming the historic limitations of magnesium alloys, such as low ductility and corrosion susceptibility. His breakthroughs include:

- High-strength Mg-Zn-Y alloys: Engineered for exceptional heat resistance and mechanical properties, now used in automotive and aerospace components.
- Mg-based Bulk Metallic Glasses (BMGs): Developed the world's first magnesium-based BMGs, achieving unprecedented strength and elasticity for biomedical implants and micro-devices.
- Novel fabrication techniques: Innovated rapid solidification and precision casting methods to optimize magnesium's industrial viability.

His research, documented in over 300 peer-reviewed papers, has redefined lightweight material design, earning him the title "Father of Modern Magnesium Alloys" among peers.

Prof. Kawamura's illustrious career has been celebrated with numerous accolades, including:

- JSPS Prize (Japan Society for the Promotion of Science, 2008) for pioneering materials science contributions.
- Ichimura Prize in Science (2016), recognizing his advancements in practical magnesium technologies.
- Japan Institute of Metals (JIM) Award for lifetime achievement in metallurgy.
- Fellow of the Japan Institute of Metals and Honorary Member of the Japan Light Metal Society, underscoring his leadership in the field.

Beyond academia, Prof. Kawamura serves as a key advisor for international research initiatives, including EU-Japan collaborations on green materials. He has chaired symposia at major conferences (e.g., TMS, THERMEC) and editorial roles for journals like Materials Transactions. Under his direction, the MRC has become a global hub for magnesium innovation, training future scientists and partnering with institutions worldwide.

THERMEC 2025 Program Matrix Table

	June 30		July 01		July 02		July 03		July 04	
Session	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**
A	Adv. Steels 1	Adv. Steels 2	Adv. Steels 3	Adv. Steels 4	Adv. Steels 5	Adv. Steels 6	Adv. Steels 7	Adv. Steels 8	9	10
B	Additive Manufacturing 1	Additive Manufacturing 2	Additive Manufacturing 3	Additive Manufacturing 4	Additive Manufacturing 5	Additive Manufacturing 6	Additive Manufacturing 7	Additive Manufacturing 8	9	10
C	Fusion & Reactor Mat 1	Fusion & Reactor Mat 2	HEA 3	HEA 4	HEA 5	HEA 6	HEA 7	HEA 8	9	10
D	Al Alloys 1	Al Alloys 2	Al Alloys 3	Al Alloys 4	Al Alloys 5	Al Alloys 6	Interfaces, GB, ICGBE 7	Interfaces, GB, ICGBE 8	Interfaces, GB, ICGBE 9	10
E	Mg Alloys 1	Mg Alloys 2	Mg Alloys 3	Mg Alloys 4	LPSO 5	Smart/Intel. Materials 6	Composites 7	Composites 8	9	10
F	High & UHT Mat. 1	High & UHT Mat. 2	High & UHT Mat. 3	UFG 4	Materials Performance 5	Materials Performance 6	Materials Performance 7	Materials Performance 8	Materials Performance 9	10
G	Welding 1	Welding 2	Welding 3	Welding 4	Cold Spray 5	Fuel Cells 6	Fuel Cells 7	Mat. Extreme Env. 8	Mat. Extreme Env. 9	10
H	Ti Alloys 1	Ti Alloys 2	Metallic Glasses 3	Metallic Glasses 4	Metallic Glasses 5	Modelling 6	Modelling 7	Modelling 8	Modelling 9	10
I	Nanomaterials Energy Applic. 1	Nanomaterials Energy Applic. 2	Nanomaterials Energy Applic. 3	Adv. Bioeng & Nano Medicine 4	Adv. Bioeng & Nano Medicine 5	Adv. Bioeng & Nano Medicine 6	Biomimetic Mat 7	Biomimetic Mat 8	9	10
J	Solid State Processing 1	Solid State Processing 2	Neutron & X-ray Scattering 3	Neutron & X-ray Scattering 4	Adv. Coatings 5	Adv. Coatings 6	7	8	9	10
K			3	POSTERS 4	5	6	7	8	9	10

Room Allocations

Session	Room	Session	Room
A	Chaumont	G	Loire
B	Chambord	H	Berry
C	Chenonceaux	I	Cher
D	Amboise	J	Sologne
E	Villandry	K	Sports Hall
F	Blois		

THERMEC'2025 Inaugural Session

Monday, June 30, 2025, 8:00 – 9:00

Venue: Chaumont and Chambord

- **Welcoming Address: Professor Caroline Richard: THERMEC´2025 Chairman, University of Tours, France**
- **Introductory Remarks: Professor Christof Sommitsch: Chair of THERMEC International Committee, Graz University of Technology, Austria**
- **Inaugural Address: President of University, Tours, France**
- **Vote of Thanks: Professor Claude Estournes: Program Vice Chair, University of Toulouse, France**
- **Conference Information: Professor Raj Shabadi**

Plenary Presentations

SESSION- PLENARY 1

June 30, 9:00 – 9:30

Venue: Chaumont and Chambord

Professor Alexis Deschamps
Grenoble INP – Phelma, France

High throughput microstructure characterisation: Mapping phase transformation kinetics in composition and processing space

Chairperson: Professor Yoshihito Kawamura

Kumamoto University, Japan

SESSION- PLENARY 2

July 01, 9:00 – 9:30

Venue: Chaumont and Chambord

Professor Roland Logé
EPFL - Lausanne, Switzerland

Architected microstructures and zero-defect tolerance in additive manufacturing of metals and alloys

Chairperson: Professor Christof Sommitsch

Gratz University of Technology, Austria

Oral Presentations

SESSION- A

Session: A1, Venue: Chaumont

Advanced Steels & TMP Microalloyed Steels (Prof. Y Adachi Symposium) 1

Session Chairs: Nobuo Nakada, Ed Pickering

A1 June-30 10:30 Keynote
*** Inverse steel design**
Yoshitaka Adachi
Nagoya University, Japan

A1 June-30 11:00
* Mechanism of pearlite colony formation via various orientation relationships between ferrite and cementite
Endo Shiori, Nobuo Nakada, Toshihiko Teshima, Makoto Kosaka
Institute of Science Tokyo, Japan

A1 June-30 11:20
* High-throughput mapping of phase transformation kinetics in steel
Hugo Van Landeghem, Imed-Eddine Benrabah, Marion Bregeault, Vuk Manojlovic, Olha Nakonechna, Sebastien Allain, Benoit Denand, Alexis Deschamps, Guillaume Geandier, Veijo Honkimaki, Muriel Veron, Hatem Zurob
SIMaP, University of Grenoble-Alpes, France

A1 June-30 11:40
* Austenite Plasticity and Martensite Microstructures
Indradev Samajdar, Saurabh Kumar, Namit Pai, Junaid Akhtar
IIT Bombay, India

A1 June-30 12:00
Microstructural characterisations of static strain ageing in C-Mn steel welds of the secondary circuit of pressurized water reactors
Ronan Riverie, Veronique Massardier, Sylvain Dancette, Ben Salem Ghassen, Deborah Clement, Marie Stephane
Framatome, France

A1 June-30 12:20
Impact of Non-Metallic Inclusions and Grain Structures Modified by Fast Heating Annealing on Tensile Properties and Fracture Modes in a V-microalloyed High-Mn TWIP Steel
Atef Hamada, Tuomas Alatarvas, Matias Jaskari, Walaa Abdelaal, Tarek Allam, Antti Jarvenpaa, Pentti Karjalainen
University of Oulu, Finland

A1 June-30 12:40
Unravelling precipitation kinetics in nanosteels using Small Angle Neutron Scattering
Zamran Zahoor Khan, Niels Van Dijk, Sven Erik Offerman, Steven R. Parnell
Delft University of Technology, Netherlands

Lunch break 13:00 - Sessions restart at 14:30

Session: A2, Venue: Chaumont

Advanced Steels & TMP Microalloyed Steels (Prof. Y Adachi Symposium) 2

Session Chairs: Yoshitaka Adachi

A2 June-30 14:30
* Investigation of metal embrittlement in galvanized quenching and partitioning steels
Christof Sommitsch, Matthias Wallner, Katharina Steineder, Reinhold Schneider
Graz University of Technology, Austria

A2 June-30 14:50
* Evaluating LME susceptibility in third-generation AHSS: The role of testing methodologies and silicon concentration
Katharina Steineder, Martin Gruber, Simone Kaar-Schickinger, Matthias Wallner, Korbinian Höger, Martin Arndt, Reinhold Schneider
University of Applied Sciences Upper Austria, Austria

A2 June-30 15:10
Effect of nitrogen in yielding behavior of austenitic stainless steels
Kento Hani, Genichi Shigesato, Toshihiro Tsuchiyama, Takuya Maeda, Shuichi Nakamura
Kyushu University, Japan

A2 June-30 15:30
* Dynamic recrystallization of 15-5 HP steel associated with the quantum mechanics and relativistic frequency parameter M and wavelength of electromagnetic spectrum
Juan Munoz-Andrade
Universidad Autonoma Metropolitana, Mexico

Session A2: Advanced Steels & TMP Microalloyed Steels (Prof. Y Adachi Symposium) 2
Coffee / Tea break 15:50 to 16:20

A2 June-30 16:20
Towards a comprehensive understanding of the effect of continuous annealing process conditions on the microstructure development of cold-rolled dual-phase (DP) steels and their correlations with mechanical and magnetic properties
Amaia Iza-Mendia, Denis Jorge-Badiola, Sergio Fernandez-Sanchez, Iosu Aramendi, Mikel Cuenca-Ariza, Ane Martinez-De Guerenu, Luis Vitores Valcarcel
Ceit-Member of Basque Research & Technology Alliance (BRTA), Spain

A2 June-30 16:40
Effect of intercritical annealing temperature and holding time to mechanical performance of hot-rolled medium manganese steel
Tuomas Perkio, Pekka Kantanen, Antti Kaijalainen
University of Oulu, Finland

A2 June-30 17:00 - *Student*
Heterogeneous deformation behavior of pre-strained 18%Ni martensitic steel
Ayumu Yamada, Takuro Masumura, Toshihiro Tsuchiyama, Eriko Shimoda
Kyushu University, Japan

Session: A3, Venue: Chaumont

Advanced Steels & TMP Microalloyed Steels (Prof. Y Adachi Symposium) 3

Session Chairs: Shoichi Nambu

A3 July-01 10:30 Keynote
*** Nanoprecipitates-strengthened ultrastrong stainless steel with excellent work hardening**
Zhongwu Zhang, Junpeng Li, Weiguo Jiang
Harbin Engineering University, China

A3 July-01 11:00
* Uncovering the interplay between thermo-mechanical processing parameters and microstructure of V, Cr-microalloyed steels
Elena Pereloma, Gholam Baqeri, Navjeet Singh, Andrii Kostryzhev, Chris Killmore
University of Wollongong, Australia

A3 July-01 11:20
Modelling the effect of prior martensite on the kinetics of bainite formation
Avila Daniel Dos Santos, Stefan Van Bohemen , Sven Erik Offerman, Maria Santofimia Navarro
Delft University of Technology, Netherlands

A3 July-01 11:40
Enhancing Cryogenic Strength of Austenitic Stainless Steels Through Thermo-Mechanical Controlled Processing and Nitrogen Alloying
Ali Smith, Frank Hoffmann, Mahesh Somani, Ahmed Abdelghany, Marta Muratori
RINA Consulting - Centro Sviluppo Materiali SpA, Italy

A3 July-01 12:00
Effect of Cold-Forming on Mechanical Properties of AHSS Steel
Tun Tun Nyo, Laura Autio, Juha Tulonen, Antti Kaijalainen
University of Oulu, Finland

A3 July-01 12:20
Microstructure and impact wear behavior of a V-Ti microalloyed carbide-containing high manganese steel
Yongjin Wang, Renbo Song, Siyao Bi
University of Science and Technology Beijing, China

A3 July-01 12:40
Laser heat treatments on spheroidized steels
Felipe Castro Cerda, Patricio Mendez
Universidad de Santiago, Chile

Lunch break 13:00 - Sessions restart at 14:30

Session: A4, Venue: Chaumont

Advanced Steels & TMP Microalloyed Steels (Prof. Y Adachi Symposium) 4

Session Chairs: Kuo-Cheng Yang, Zhongwu Zhang

A4 July-01 14:30
* Three-dimensional analysis of microstructure formation in the initial stage during martensitic transformation in low-carbon steel
Shoichi Nambu
The University of Tokyo, Japan

A4 July-01 14:50
* Difference in dislocation microstructure and mechanical property between as-quenched and deformation-induced martensite
Takuro Masumura, Toshihiro Tsuchiyama, Shota Yamasaki
Kyushu University, Japan

A4 July-01 15:10
Revealing the microstructure and mechanical properties of rapidly quenched and tempered 51CrV4 steel processed via a continuous induction line
Ahmed Abdelghany, Oskari Haiko, Antti Jarvenpaa, Antti Kaijalainen
University of Oulu, Finland

A4 July-01 15:30
A novel strategy to achieve uniform fine grains in carburised gear by tailoring the deformation gradient through the forging process
Wanli Sun, Haibin Wang, Chaolei Zhang
University of Science and Technology Beijing, China

Session A4: Advanced Steels & TMP Microalloyed Steels (Prof. Y Adachi Symposium) 4
Coffee / Tea break 15:50 to 16:20

A4 July-01 16:20 - *Student*
Thermal stabilization by prior deformation in metastable austenitic steel undergoing “gamma epsilon alpha” transformation
Manato Otaki, Takuro Masumura, Toshihiro Tsuchiyama, Yamasaki Shota
Kyushu University, Japan

A4 July-01 16:40
Influence of Mo and N Additions on the Precipitation and Tensile Properties Behaviors in Austenitic Stainless Steel during Aging
Seungkook Bang, Jongho Shin, Geunsu Jung, Dojin Cha, Youngwha Ma
Doosan University, South Korea

Session: A5, Venue: Chaumont

Advanced Steels & TMP Microalloyed Steels (Prof. Y Adachi Symposium) 5

Session Chairs: Elena Pereloma

A5 July-02 9:00 - Keynote
*** Relation between low elastic limit and mobile dislocation density in as-quenched martensitic steel**
Toshihiro Tsuchiyama, Yushi Takenouchi, Shuhei Wada, Yuto Ochiai, Takuro Masumura, Hiroshi Okano
Kyushu University, Japan

A5 July-02 9:30
* Effect of Annealing Process on Microstructures and Mechanical Properties of Cold-Rolled Martensitic Steels for Automotive Structural Parts
Kuo-Cheng Yang, J. F. Tu, T. F. Wu, P. C. Hsieh, P. H. Liu
China Steel Corporation, Taiwan

A5 July-02 9:50
Thermomechanical rolling of thick Nb-Ti-V-Ni high strength structural steel plate
Rorisang Nkarapa Maubane, Kevin Banks, Tracy Luthuli
University of Pretoria, South Africa

Session A5: Advanced Steels & TMP Microalloyed Steels (Prof. Y Adachi Symposium) 5
Coffee / Tea break 10:10 to 10:40

A5 July-02 10:40
Effect of EAF impurities on microstructure and mechanical properties of low-carbon steels
Anttu Hoikkaniemi, Oskari Haiko, Antti Kaijalainen
University of Oulu, Finland

A5 July-02 11:00 - *Student*
Carbides in ferritic steels: defects and atomic diffusion from AB-initio based studies
Adrien Lemercier, Chu-Chun Fu, Frederic Soisson, Jean-Luc Bechade
SRMP, France

A5 July-02 11:20
Assessing the Origins of Autogeneous Recrystallisation During the Austenitisation of Low-Alloy Steels: Comparing In-Situ EBSD and In-Situ Synchrotron XRD
Mark Taylor, Rhys Thomas, Albert Smith, Yahya Mozumder, Jack Donoghue, Philip Prangnell, Fabio Scenini, Christopher Hutchinson, Ed Pickering
University of Manchester, UK

A5 July-02 11:40
* On the static recrystallization characteristics and kinetics of austenitic stainless steels under development for LH2 storage applications
Mahesh Somani, Ahmed Abdelghany, Sumit Ghosh, Ali Smith, Marta Muratori, Frank Hoffmann
University of Oulu, Finland

A5 July-02 12:00
On the Chemical Boundary Engineering of Hot-Rolled Medium Mn Steel
Saeed Sadeghpour, Vahid Javaheri, Jukka Komi, Pentti Karjalainen
University of Oulu, Finland

A5 July-02 12:20
* A web application for predicting steel hardenability using artificial neural networks
Hai-Lin Chen, Yunpeng Ma, Qing Chen
Thermo-Calc, Sweden

A5 July-02 12:40
Engineering steel microstructures using ICME to meet industry goals
Savya Sachi, John Aristeidakis, Hoda Dini, David Linder, Ida Berglund
QuesTek Europe AB, Sweden

Lunch break 13:00 - Sessions restart at 14:30

Session: A6, Venue: Chaumont

Advanced Steels & TMP Microalloyed Steels (Prof. Y Adachi Symposium) 6

Session Chairs: Indradev Samajdar

A6 July-02 14:30
* Revealing the Mechanisms of Austenitisation in Low-Alloy Steels Using In-situ EBSD
Ed Pickering, Mark Taylor, Albert Smith, Jack Donoghue, Rhys Thomas, Christopher Hutchinson, Philip Prangnell, Fabio Scenini
University of Manchester and Henry Royce Institute, UK

A6 July-02 14:50
* Formation mechanism of detrimental grain boundary kappa-carbide during age hardening of austenitic high manganese lightweight steel
Dirk Ponge, Mohamed N. Elkot, Binhan Sun, Dierk Raabe
Max Planck Institute for Sustainable Materials, Germany

A6 July-05 15:10
* Solution nitriding of 304 stainless steel for hydrogen embrittlement resistance
Young-Je Kwon, Jee-Hyun Kang
Yeungnam University, South Korea

A6 July-02 15:30
Microstructure and precipitation evolution in the state of art seamless tube rolling mills
Ricardo N. Carvalho, Clelia R. Oliveira, Chynthia S. B. Castro, Neice F. Santos, Anderson C. Jesus, Josao Rocha, Paulo Haddad, Ronaldo Barbosa
CIT Senai, Brazil

Session A6: Advanced Steels & TMP Microalloyed Steels (Prof. Y Adachi Symposium) 6
Coffee / Tea break 15:50 to 16:20

A6 July-02 16:20
Hydrogen-related effects in austenitic steels: Contribution to deformation behavior and hydrogen embrittlement resistance
Ivan Gutierrez-Urrutia, Yuhei Ogawa, Akinobu Shibata
National Institute for Materials Science (NIMS), Japan

A6 July-02 16:40
Discovery of nano-scaled promising strengthening factor in 316L stainless steel fabricated by laser powder bed fusion
Fei Sun, Yoshitaka Adachi, Kazuhisa Sato, Takuya Ishimoto, Takayoshi Nakano, Yuichiro Koizumi
Nagoya University, Japan

A6 July-02 16:40
Internal Friction and Hydrogen Embrittlement of Steel
Sanjay Manda, Ajay S. Panwar, Indradev Samajdar
Indian Institute of Technology Bombay, India

Session: A7, Venue: Chaumont

Advanced Steels & TMP Microalloyed Steels (Prof. Y Adachi Symposium) 7

Session Chairs: Young-Je Kwon

A7 July-03 9:00
***** Evolution of the microstructure and properties of a steel subjected to a Q&P treatment including a galvanizing step
Jessica Calvo, Marcel Carpio, Omar Garcia, Juan Pablo Pedraza, Jose Maria Cabrera
Universitat Politecnica de Catalunya, Spain

A7 July-03 9:20
Effect of Mn concentration in Cementite on austenitization behavior of Fe-C-Mn Alloy
Kai Fujikura, Nobuo Nakada, Ryota Nagashima, Shohei Yabu
Institute of Science Tokyo, Japan

A7 July-03 9:40
* Thermomechanical processing of 0.17C-4Mn-0.8Al-0.5Si QP-treated steels based on deformation-continuous-cooling-transformation diagrams
Adam Grajcar, Adam Skowronek, Tullu Firew Kassaye, Oguz Gulbay, Alexander Gramlich, Ulrich Krupp
Silesian University of Technology, Poland

A7 July-03 10:00
Recent Development of Hot-rolled 780 and 980MPa AHSS for Automotive Lightweight Chassis
Jewoong Lee, Taejin Song, Sungil Kim, Youngroc Im
POSCO, South Korea

Session A7: Advanced Steels & TMP Microalloyed Steels (Prof. Y Adachi Symposium) 7
Coffee / Tea break 10:20 to 10:50

A7 July-03 10:50
On the conditions of pearlitic cementite nucleation at a migrating austenite-ferrite interface
Daniel Ogris, Johannes Kreyca, Ernst Gamsjaeger, Sabine Zamberger
Voestalpine Forschungsservicegesellschaft Donawitz GmbH, Austria

A7 July-03 11:10
Exploring Carbon Partitioning, Carbide Precipitation, and Bainite Formation During Q&P Processing in Medium-Carbon Steel Using In-Situ Synchrotron XRD
Aalipour Hafshejani Zeynab, Sumit Ghosh, Jukka Komi, Vahid Javaheri
University of Oulu, Finland

A7 July-03 11:30
A Novel Approach to Predict Martensitic Transformations in High-carbon Bearing Steels
Aysel Aysu Catal-Isik, Enrique Galindo-Nava, Lizeth Johana Sanchez-Camacho, Vikram Bedekar, Mangesh Vyankat Pantawane
University College London, United Kingdom

A7 July-03 11:50
Thermodynamic and Algorithmic Optimization of Medium Manganese Steel Composition Design, Non-Metallic Inclusion Analysis, and Microstructural Insights
Mahmoud Elaraby, Mohammed Ali, Mamdouh Eissa, Jukka Komi, Pentti Karjalainen, Henri Tervo, Tuomas Alatarvas, Ehsan Ghassemali, Jacob Steggo, Vahid Javaheri
University of Oulu, Finland

A7 July-03 12:10
Analysis on hydrogen embrittlement of SUS304 and SUS316 steels by In-situ X-ray diffraction using Synchrotron radiation during low temperature and high pressure H2 gas tensile testing with 0.3mm thin wall hollow specimen
Shiro Torizuka, Atsushi Ito
University of Hyogo, Japan

A7 July-03 12:30
Multi-scale and multi-modal microstructure imaging for in-situ studying creep damage and healing in ferritic steels at ID11/ESRF
Haixing Fang, Abdelrahman Hussein, Wolfgang Ludwig, Jonathan Wright, Sybrand Van Der Zwaag, Niels Van Dijk
European Synchrotron Radiation Facility, France

Lunch break 12:50 - Sessions restart at 14:30

Session: A8, Venue: Chaumont

Advanced Steels & TMP Microalloyed Steels (Prof. Y Adachi Symposium) 8

Session Chairs: Katharina Steineder

A8 July-03 14:30
Influence of the phase state variations on the impact toughness of lean alloyed 19â€“22 wt% Cr ferritic-austenitic stainless steels
Sampo Uusikallio, Mohammad Moallemi, Jukka Komi
University of Oulu, Finland

A8 July-03 14:50
Impact of Aluminium in comparison to Silicon on Liquid Metal Embrittlement of 3rd Generation AHSS
Korbinian Hoeger, Simone Kaar-Schickinger, Matthias Wallner, Reinhold Schneider, Katharina Steineder, Martin Gruber, Christof Sommitsch
Graz University of Technology, Austria

A8 July-03 15:10
Detecting iron in vanadium carbide nanoprecipitates by atomic-resolution scanning transmission electron microscopy techniques
Amir Sabet Ghorabaei, Bart J. Kooi
Zernike Institute of Advanced Materials, Netherlands

A8 July-03 15:30
Strain hardening behaviour of a metastable AISI 301LN austenitic stainless steel as a function of temperature
Charles Siyasiya
University of Pretoria, South Africa

Session A8: Advanced Steels & TMP Microalloyed Steels (Prof. Y Adachi Symposium) 8
Coffee / Tea break 15:50 to 16:20

A8 July-03 16:20
Analysis of white strip defects in the galvannealed coating surface of hot dip galvannealed DP steel
Guang Chen, Min Zhu, Weichen Mao
Baoshan Iron & Steel Co. Ltd, Shanghai, China

A8 July-03 16:40
Evolution of inclusions in physically simulated heat-affected zones of a weld metal used with a 500 MPa offshore steel
Henri Tervo, Marcell Gaspar, Judit Kovacs, Antti Kaijalainen, Vahid Javaheri, Johannes Sainio, Tuomas Alatarvas, Jukka Komi
University of Oulu, Finland

SESSION- B

Session: B1, Venue: Chambord

Additive Manufacturing 1

Session Chairs: Masakazu Tane, Fernando Carreno

B1 June-30 10:30 Keynote
* **Generating a Digital Twin of the Laser Powder Bed Fusion Process**
Dermot Brabazon
Dublin City University, Ireland

B1 June-30 11:00
* Co-sintering of LTCC-gold system: Coupled experimental, analytical and numerical approaches
Guy Antou, Nicolas Pradeilles, Nicolas Delhote, Alexandre Maitre
University of Limoges, France

B1 June-30 11:20
* Additive manufacturing of recycled Ti-6Al-4V powder by Fused Granular Fabrication (FGF)
Florian Pyczak
Helmholtz-Zentrum, Germany

B1 June-30 11:40
Effect of microstructural heterogeneity on slip localization in L-PBF processed AlFeCrX alloys
Carmen Cepeda-Jimenez, Farid Bahari-Sambran, Fernando Carreno, Alberto Orozco
Polytechnic University of Madrid, SpainJapan

B1 June-30 12:00
* Design of high entropy alloy with suppressed elemental segregation for laser powder bed fusion process
Ozkan Gokcekaya, Yong Seong Kim, Takayoshi Nakano
Osaka University, Japan

B1 June-30 12:20
Microstructure engineering of ultra-high strength martensitic steel produced by advanced manufacturing processes
Yahya H. Mozumder, Mark Taylor, Philip B. Prangnell, Ed J. Pickering, Fabio Scenini
University of Manchester, UKCanada

B1 June-30 12:40
* Phase selection during laser-powder bed fusion
Charles-Andre Gandin, Gildas Guillemot, Paul Martin
Mines Paris, France

Lunch break 13:00 - Sessions restart at 14:30

Session: B2, Venue: Chambord

Additive Manufacturing 2

Session Chairs: Takahiro Kunimine, Ozkan Gokcekaya

B2 June-30 14:30
* Electron Microscopy Studies on Orientation-Controlled 316L Austenitic Stainless Steel Produced by Laser Powder Bed Fusion
Kazuhisa Sato, Shunya Takagi, Satoshi Ichikawa, Takuya Ishimoto, Takayoshi Nakano
Osaka University, Japan

B2 June-30 14:50
* Low Cycle Fatigue Response of Additive Manufactured Advanced Structural Alloys: Insights into high performance alloy fatigue life
N C Santhi Srinivas, Chattopadhyay Kausik, Vasu Shreyasi, R. Kumar Pavan, Jaydeep Vishwakarma
Indian Institute of Technology, Varanasi, India

B2 June-30 15:10
* 3D Volume Construction Methodology for Cold Spray Additive Manufacturing
Hongjian Wu, Frank Gaertner, Thomas Klassen
Helmut Schmidt University, Germany

B2 June-30 15:30
Environmental applications of 3D printed metallic materials
Oriol Rius-Ayra, Tahchieva Alisiya Biserova, Nuria Llorca-Isern
University of Barcelona, Spain

Session B2: Additive Manufacturing 2
Coffee / Tea break 15:50 to 16:20

B2 June-30 16:20- *Student*
Influence of increasing chromium content on additively manufactured tool steels: microstructural and mechanical evolution before and after heat treatment
Nicole Ofner, Sabine Carmen Bodner, Peter Kunnas, Atacan Asci, Kevin Kutlenja, Andreas Stark, Philipp Habenreich, Christin Aumayr, Liang Wu, Christoph Turk, Jozef Keckes, Michael Meindlhumer
Leoben University, Austria

B2 June-30 16:40
Enhancing fatigue performance of additively manufactured H13 tool steel through surface finishing processes
Hassan, Hosseinlou Mohsen Shakeri, Matias Jaskari, Ahmed Abdelghany, Antti Jarvenpaa, Atef Hamada
University of Oulu, Finland

B2 June-30 17:00
Functionally graded materials by multi-layer friction stir (MLFS) deposition
Farzad Khodabakhshi, Sina Vaghefi, Aude Simar
University of Tehran, Iran

SESSION- B

B2 June-30 17:20
Temperature sensitive isotropic sintering model for 316L binder jetting parts
Alexander Abanobi, Etienne Martin
Polytechnic University of Montreal, Canada

Session: B3, Venue: Chambord

Additive Manufacturing 3

Session Chairs: Dermot Brabazon, Ken Cho

B3 July-01 10:30 Keynote
*** Innovative design of crystallographic textures and macroscopic shapes via metal additive manufacturing**
Takayoshi Nakano
Osaka University, Japan

B3 July-01 11:00
* Substrate tubing heater suitable for large volume 3D printing with extrusion of thermo-reversible hydrogel
Andreas Engels, Sandy Speck, Volker Schlegel, Hannes Jacobs, Rene Krenz-Baath, Andrea Boehme
*Technical University of Applied Sciences Wildau, Germany **

B3 July-01 11:20
Towards controlling 4D printing for developing innovative architectured microstructures
Laura Rose Perrin, Reza Esmaeilzadeh, Jamasp Jhabvala, Lucas Schlenger, Shruti Banait, Mathijs Van Der Meer, Roland Loge
Polytechnic University of Lausanne, Switzerland

B3 July-01 11:40
* Elastic properties of laser powder bed fusion processed Î²-phase Ti alloys
Masakazu Tane, Shota Higashino, Eisuke Miyoshi, Takuya Ishimoto, Takayoshi Nakano
Osaka University, Japan

B3 July-01 12:00
Novel cellular structure with phase-separation induced dislocation-network in Ti-Zr-Nb-Ta-Zr high entropy alloy fabricated by laser powder bed fusion
Daisuke Egusa, Han Chen, Ryosuke Ozasa, Masayuki Okugawa, Taisuke Sasaki, Takuya Ishimoto, Koizumi Yuichiro, Takayashi Nakano, Eiji Abe
University of Tokyo, Japan

B3 July-01 12:20
* Minimum ductility at intermediate temperatures of Al-Fe-Cr-X alloys processed by L-PBF
Fernando Carreno, Farid Bahari-Sambran, Alberto Orozco-Caballero, Carmen Cepeda-Jimenez
Polytechnic University of Madrid, Spain

B3 July-01 12:40
* Microstructural evolution and strengthening mechanisms in Ti-6Al-4V alloys processed via electron beam powder bed fusion
Kenta Yamanaka, Manami Mori, Neeraphat Kunbuala, Phacharaphon Tunthawiroon, Shota Kariya, Katsuyoshi Kondoh, Yusuke Onuki, Shigeo Sato
Tohoku University, Japan

Lunch break 13:00 - Sessions restart at 14:30

Session: B4, Venue: Chambord

Additive Manufacturing 4

Session Chairs: N C Santhi Srinivas, Hongjian Wu

B4 July-01 14:30
* Microstructure control of TiAl alloys using peculiar thermal history of additive manufacturing
Ken Cho, Hiroyuki Y. Yasuda, Masao Takeyama, Takayoshi Nakano
Osaka University, Japan

B4 July-01 14:50
Microstructure, Mechanical and Thermal Conductivity Properties of Pure Copper Fabricated by Metal Material Extrusion Additive Manufacturing Process
Kee-Ahn Lee, So-Yeon Park, Na-Yoon Yee, Michelle Baek
Inha University, South Korea

B4 July-01 15:10
* Influence of a modulated laser irradiation on the LPBF process stability, induced microstructures and mechanical properties of Al10SiMg alloy
Patrice Peyre, Pierre Hebrard, Bassem Barkia, Emilie Leguen, Ali Gokhan Demir, Francesco Galbusera, Leonardo Caprio
Polytechnic University of Milano, Italy

B4 July-01 15:30
Functionally graded wear-resistant lightweight steel manufactured by laser powder bed fusion deposition
Jin-Su Park, Joonoh Moon
Changwon National University, South Korea

Session B4: Additive Manufacturing 4
Coffee / Tea break 15:50 to 16:20

B4 July-01 16:20 - *Student*
Combinatorial design of lightweight steels using multi-nozzle direct energy deposition (DED)
Chahee Jung, Seungjin, Nam Chung Hyun, Heechan Jeong, Hyunjoo Choi, Su Sohn Seok
Korea University, South Korea

B4 July-01 16:40
* Effect of Surface Conditions on Mechanical Properties of IN718 and IN625 Manufactured by Additive/Subtractive Laser Powder Bed Fusion Technology
Sheida Sarafan, Priti Wanjara, Javad Gholipour, Sila Atabay, Josh Soost
National Research Council of Canada, Canada

B4 July-01 17:00
Effect of laser beam distribution on the glassy state of 3D printed Zr-based bulk metallic glass during in-situ synchrotron heat treatment
Sepide Hadibeik
University of Leoben, Austria

Session: B5, Venue: Chambord

Additive Manufacturing 5

Session Chairs: Andreas Engels, Masahiro Kusano

B5 July-02 9:00
* Towards the defect-tolerant design of laser powder bed-fused metal parts: example of Ti64 alloy
Vladimir Brailovski
Ecole de Technologie Superieure, Canada

B5 July-02 9:20
* Additive Manufacturing and Post-Processing to Produce Microstructure Electrodes and Application Potentials
Andrea Boehme, Torsten Doehler
Technical University of Applied Sciences Wildau, Germany

B5 July-02 9:40
Development and optimization of metastable beta titanium-based alloys by laser powder bed fusion for biomedical applications
Nolwenn Rince, Philippe Castany, Thierry Gloriant
National Institute of Applied Sciences Rennes, France

B5 July-02 10:00
Influence of temperature and print orientation on anisotropy sintering in binder jet stainless steels of 316 L and 17-4 PH
Khadijeh Esmati, Etienne Martin, Srinivas Pendurti, Arunkumar Natarajan
Polytechnic University of Montreal, Canada

Session B5: Additive Manufacturing 5
Coffee / Tea break 10:20 to 10:50

B5 July-02 10:50
Development of an environmentally friendly and low-cost binder for 17-4PH metal part printing via Fused Deposition Modeling
Sheyda Khazaee, Etienne Martin, Rachid Boukhili, Elie Bitar-Nehme, Jovan Kostenov, William Regnaud
Polytechnic University of Montreal, Canada

B5 July-02 11:10 - *Student*
Optimizing thermal cycles in Wire-Arc Additive Manufacturing: Investigating inter-pass time and the use of an external cooling system
Anas Rassane
Institut de Recherche Technologique Jules Verne, France

B5 July-02 11:30
Nano-scaled solidification microstructure characteristics in additively manufactured 316L stainless steel
Fei Sun, Yoshitaka Adachi, Kazuhisa Sato, Takuya Ishimoto, Takayoshi Nakano, Yuichiro Koizumi
Nagoya University, Japan

B5 July-02 11:50
* A Novel Strategy for the Control of Crystallographic Texture of Metals with Non-Cubic Crystal System via Powder Bed Fusion using a Laser-Beam of Metals
Ryosuke Ozasa, Koji Hagihara, Takayoshi Nakano
Osaka University, Japan

B5 July-02 12:10 - *Student*
Influence of hierarchical structure on mechanical properties of additive manufactured IN718 alloys
Kippei Yamashita, Ken Cho, Hiroyuki Y. Yasuda, Takuma Saito, Taisuke Sasaki, Sawaizumi Katsuhiko, Masayuki Okugawa, Koizumi Yuichiro, Takayoshi Nakano
Osaka University, Japan

B5 July-02 12:30
Applications of CALPHAD-based tools for welding and additive manufacturing
Alisson Da Silva Kwiatkowski, Andreas Markstrem, Amer Malik, Do Quang Minh, Johan Jeppsson
Thermo-Calc Software AB, Sweden

B5 July-02 12:50
* Hybrid additive manufacturing of HTCC passive components for hyper frequency applications
Vincent Pateloup, Herbert Knoblauch, Anna Junger
IRCER, France

Lunch break 13:10 - Sessions restart at 14:30

Session: B6, Venue: Chambord

Additive Manufacturing 6

Session Chairs: Takayoshi Nakano, Guy Antou

B6 July-02 14:30
* NiTi shape memory alloy by laser powder bed fusion: how manufacturing parameters influence the nature of the alloy and its mechanical properties
Yang Yang, Thierry Gloriant
National Institute of Applied Sciences Rennes, France

B6 July-02 14:50
The compensation of geometric errors during the design phase
Anass El-Qemary, Ikram, Kabbouri Said Boutahari, Mouhssine Chahbouni
University Sidi Mohamed Ben Abdellah, Morocco

B6 July-05 15:10
* Growth of Antiphase Domain in Laser-Irradiated Region and Superelasticity of Single-Crystal-Like Fe3Al Fabricated by Laser Powder Bed Fusion Process
Yuheng Liu, Tsubasa Sato, Masayuki Okugawa, Kazuhisa Sato, Hiroyuki Y. Yasuda, Takayoshi Nakano, Yuichiro Koizumi
Osaka University, Japan

B6 July-02 15:30
Investigating the Reaction Mechanisms and Structural Enhancements in Maraging Steel 300 Reinforced with In-Situ TiC+TiB2 via Laser Powder Bed Fusion
Biranchi Narayan Sahoo, Soni Harsh, Sardar Vallabhbhai
National Institute of Technology, India

Session B6: Additive Manufacturing 6
Coffee / Tea break 15:50 to 16:20

B6 July-02 16:20
Effect of Scanning Rotation Angle on the Properties of IN939 Fabricated by Laser Powder Bed Fusion
Merve Nur Dogu, Seren Ozer, Mustafa Alp Yalcin, Kemal Davut, Hengfeng Gu, Dermot Brabazon
Dublin City University, Ireland
B6 July-02 16:40

B6 July-02 17:00
Characteristics of Solidification by Super-Thermal Field in Powder Bed Fusion: Comparison with Conventional Rapid Solidification Processes
Yuichiro Koizumi, Masayuki Okugawa, Yuheng Liu
Osaka University, Japan

B6 July-02 17:20
Effect of additive manufacturing-induced metastable retained austenite and austenite reversion on the mechanical properties of CorraxÂ® stainless steel
Chuan Tsai, Hung-Wei Yen, Ming-Wei Wu
National Taiwan University, Taiwan

B6 July-02 17:40 - *Student*
Effect of chemical surface post-processing on the surface roughness of Niti fabricated by laser powder bed fusion
Meris Meric Ikiz
Dublin City University, Ireland

Session: B7, Venue: Chambord

Additive Manufacturing 7

Session Chairs: Ho Jin Ryu, Sheida Sarafan

B7 July-03 9:00
* Microstructures and Hardness of WC-Co and WC-HEA Cemented Carbides Additively Manufactured by the Multi-Beam Laser Directed Energy Deposition
Takahiro Kunimine, Wenheng Guo, Kaito Ebihara, Yorihiro Yamashita, Shintaro Yasui
Kanazawa University, Japan

B7 July-03 9:20
* Phase stability and thermal expansion property of super-invar alloy fabricated by laser powder bed fusion
Senlin Cai, Ryota Nagashima, Chai Yaw Wang, Sakaguchi Naoki, Nakada Nobuo
Institute of Science Tokyo, Japan

B7 July-03 9:40
Towards new high-strength and heat-resistant Al alloy design enabled by additive manufacturing
Gang Ji, Siming Ma, Ahmed Addad, Zhe Chen
University of Lille, France

B7 July-03 10:00
Laser additively manufacturing of steels
Qiyang Tan, Ju Yao, Jeffrey Venezuela, Chris Hutchinson, Mingxing Zhang
The University of Queensland, Australia

Session B7: Additive Manufacturing 7
Coffee / Tea break 10:20 to 10:50

B7 July-03 10:50
* Effect of building conditions on high-temperature tensile properties of IN738LC fabricated by laser powder bed fusion
Masahiro Kusano, Toshio Osada, Makoto Watanabe
National Institute for Materials Science Tsukuba, Japan

B7 July-03 11:10
Effect of heat treatment on the microstructure and impact toughness of PBF-LB manufactured 17-4 PH stainless steel
Renata De Oliviera Melo, Ji Gang, Grosjean Christophe, Baustert Eric, Tran Nhu-Cuong, Villaret Flore, Bouquerel Jeremie
UMR, France

B7 July-03 11:30
Evaluation of Porosity and Hardness in Aerospace-Grade Aluminium Alloys Processed by Friction Surfacing
Halil Ibrahim Erol, Umutcan Galletutan, Ahmetcan Gunayd, Sertac Altinok
Turkish Aerospace Industries, Turkey

B7 July-03 11:50 - *Student*
Effect of Build Orientation on Crystallographic Texture and Fatigue Performance of Selective Laser Melted Ti-6Al-4V ELI Parts
Mintu Pal, Anil Meena, Ashwin Polishetty
Indian Institute of Technology Madras, India

B7 July-03 12:10 - *Student*
Electropolishing of NiTi cardiovascular stents produced via laser powder bed fusion technique
Neha Agarwal, Muhannad Ahmed Obeidi, Dermot Brabazon
Dublin City University, Ireland

B7 July-03 12:30 - *Student*
Simulation based estimation of local heat build-up during Laser Powder Bed Fusion processing
Lucas Schlenger, Philip Depond, Gabe Guss, Roland Loge
Polytechnic University of Lausanne, Switzerland

B7 July-03 12:50
* Microstructure and mechanical properties of high strength Al-alloys produced by lase powder bed fusion
Maulik Patel, Richard Woods, Anthony Stones, Sven Vogel
University of Liverpool, UK

Lunch break 13:10 - Sessions restart at 14:30

Session: B8, Venue: Chambord

Additive Manufacturing 8

Session Chairs: Ryosuke Ozasa, Patrice Peyre

B8 July-03 14:30
* Improving High-Temperature Performance of Inconel 718 Using Ceramic Particle-Coated Superalloy Powders in Laser Additive Manufacturing
Wonjong Jeong, Chaerin Kim, Ho Jin Ryu
KAIST, South Korea

B8 July-03 14:50
* Additive Manufacturing of Cell-Based 3D Bone-Mimetic Collagen/Apatite Structures
Aira Matsugaki, Takayoshi Nakano
Osaka University, Japan

B8 July-03 15:10
* Microstructural and mechanical characterisation of additively manufactured S235 and 430L steel components by cold spraying
Chen Jiangnan
Helmut Schmidt University, Germany

B8 July-03 15:30
* Application examples of network tele-microscopy for additive manufacturing
Nagase Takeshi
University of Hyogo, Japan

Session B8: Additive Manufacturing 8
Coffee / Tea break 15:50 to 16:20

B8 July-03 16:20
Characterization and Effects of Anodized Aluminum Oxide Film on Additively Manufactured AlSi10Mg Alloy
Atef Hamada, Timo Rautio, Matias Jaskari, Tun Tun Nyo, Antti Jarvenpaa, Ahmed Abdelghany
University of Oulu, Finland

B8 July-03 16:40
Printability and Green Mechanical Properties of Binder jet Additive Manufactured Co-Cr-Mo Parts
Mohsen Moradi, Natarajan Shriya, Azzi Marwan, Bitar-Nehme Elie, Natarajan Arunkumar, Martin Etienne
Polytechnic University of Montreal, Canada

B8 July-03 17:00 - *Student*
Microstructural Evolution and Performance of LPBF Ti-6Al-4V Lattice Structures upon Hot Isostatic Pressing
Thadayil A. S. Kavunkara, Ahmad Farhadi, Shane Keaveney, Denis Dowling, Mert Celikin
Dublin City University, Ireland

B8 July-03 17:20- *Student*
Biomimetic 3D-printed polymer-ceramic composite scaffold for vascularized bone defect repair
Yuyao Liu, Marko Dobricic, Claudio Intini, Fergal J. O'Brien, Javier Llorca, Monica Echeverry
IMDEA, Spain

B8 July-03 17:40
Innovations in Wire Arc Additive Manufacturing: Hybrid Methods and Their Impact
Ganesan Gunasekaran
Indian Institute of Technology Bombay, India

SESSION- C

Session: C1, Venue: Chenonceaux

Materials & Technologies in Fusion, and Thermomechanical Treatment of Reactor Materials 1

Session Chairs: Long Cheng

C1 June-30 10:30 Keynote
*** Defect-Impurity/Solute Interactions in Irradiated Nuclear Materials Studied by Noble Microstructural Analysis Methods**
Yasuyoshi Nagai, Koji Inoue, Zhaokuan Zhang, Takeshi Toyama, Atsushi Kinomura, Yuji Hatano, Takashi Sawabe, Fumihiro Nakamori, Takeshi Sonoda
Tohoku University, Japan

C1 June-30 11:00
* Re-design of low-activation vanadium alloys based on impurity control for fusion reactor applications
Takuya Nagasaka, Takamasa Sugawara, Seiji Sakurai, Ken-Ichi Fukumoto, Yuji Yamauchi, Kazunari Katayama, Hideo Watanabe, Valentyn Tsisar
National Institute for Fusion Science, Japan

C1 June-30 11:20
* Downselection of Cladding Materials for Hydride Moderators
Erik Luther, Caitlin Kohnert, Mary O'Brien, Thomas Nizolek
Los Alamos National Laboratory, United States

C1 June-30 11:40
* In-situ EBSD phase transition analysis in ODS martensitic steels
Maissa Fekih, Denis Sornin, Lionel Germain, Julien Guyon, Nathalie Gey
Universite Paris-Saclay, France

C1 June-30 12:00
Development of NDE Infrastructure for Fusion Device Relevant Materials and Components at EPRI
James Wall, Brian Hohmann, Ryan Meyer, Paul Panetta
Electric Power Research Institute, United States

C1 June-30 12:20
* Thermo-mechanical properties evaluation in chromium-doped UO2
Adrien Terricabras, Miguel Pena, Maria Kosmidou, Rijul Chauhan, Christopher Butler, Joseph Serrano, Arjen Van Veelen, Sarah Finkeldei, Joshua White
Los Alamos National Laboratory, United States

C1 June-30 12:40
Definition of Cu-alloys and Steels uniform water corrosion laws for ITER Activated Corrosion Products study
Simone Noce, Dario Carloni, Andrea Colangeli, Frederic Dacquait, Marta Damiano, Davide Flammini, Nicola Fonnesu, Xavier Litaudon, Eugenio Lo Piccolo, Michele Lungaroni, Fabio Moro, Alberto Previti, Takayuki Shimaoka, Nicholas Terranova, Rosaria Villari
Italian National Agency for New Technologies, Italy

Lunch break 13:00 - Sessions restart at 14:30

Session: C2, Venue: Chenonceaux

Materials & Technologies in Fusion, and Thermomechanical Treatment of Reactor Materials 2

Session Chairs: Denis Sornin

C2 June-30 14:30
* Phase diagram of Ni-Si-Mn precipitates in reactor pressure vessel steels
Yoshitaka Matsukawa
Kumamoto University, Japan

C2 June-30 14:50
* Helium concentration dependence of retarded recrystallization in tungsten
Long Cheng, Jiaguan Peng, Yue Yuan, Guang-Hong Lu
Beihang University, China

C2 June-30 15:10
DTT Bolometry and Soft X-Rays Diagnostics Design Facing Engineering and Physics Requirements
Emmanuele Peluso, Andrea Belpane, Simone Noce, Silvia Palomba, Valentina D'agostino, Gerarda Apruzzese, Luca Boncagni, Lori Gabelleri, Pasquale Gaudio
University of Rome - Tor Vergata, Italy

C2 June-30 15:30
* Engineering of a Functionally Graded Interlayer to Reduce the Thermal Stresses inside the Plasma-Facing Components in a Fusion Reactor
Giacomo Dose, Selanna Roccella, Francesco Romanelli
University of Rome - Tor Vergata, Italy

Session C2: Materials & Technologies in Fusion, and Reactor Materials 2
Coffee / Tea break 15:50 to 16:20

C2 June-30 16:20
* Phase diagram of Ni-Si-Mn precipitates causing irradiation-induced embrittlement of nuclear reactors
Yoshitaka Matsukawa, Hideto Fujieda, Masayuki Terao, Sadahiro Tsurekawa, Hiroaki Muta, Fumihiro Nakamori, Hideki Yuya, Ryuta Kasada, Kenta Yoshida, Kiyohiro Yabuuchi, Masatake Yamaguchi, Nina Abad
Kumamoto University, Japan

C2 June-30 16:40
Microstructures and Irradiation Hardening in Low-activation Fe-Mn-Cr-Al-V-C Alloys
Kazuyuki Furuya, Koichi Tsuchiya, Eiichi Wakai
National Institute for Materials Science Tsukuba, Japan

Session: C3, Venue: Chenonceaux

High Entropy Alloys (Prof. Brian Cantor Symposium) 1

Session Chairs: Rajarshi Banerjee, Dan Miracle

8:20-8:30 Opening remarks from Brian Cantor

C3 July-01 8:30 Keynote
*** Strengthening multicomponent alloys with ordered precipitates: the role of partitioning and site occupancy**
Kamanio Chattopadhyay
Indian Institute of Science Bangalore, India

C3 **July-1 9:00 Keynote**
*** Great compositional discovery in materials history**
Jien-Wei Yeh
National Tsing Hua University, Taiwan

C3 July-01 9:30
* The compositional space of HEAs and CCAs: from immensity to narrow practical domains
Franck Tancret, Ali Benmansour, Rafael Herschberg, Dinesh Ram, Lisa Rateau, Koutheir Riahi, Mounzer Nasser, Mathieu Traversier, Didier Bardel, Jean Dhers , Anna Fraczkiewicz
Institut des Materiaux de Nantes Jean Rouxel, France

C3 July-01 9:50
* What role might high entropy alloys play in a circular economy?
Matthew Barnett, Stephane Gorsse
Deakin University, Australia

C3 July-01 10:10
* Plastic deformation behavior of single crystals of the equiatomic high- and medium-entropy alloys of the Cr-Mn-Fe-Co-Ni system
Le Li, Zhenghao Chen, Kyosuke Kishida, Haruyuki Inui
Kyoto University, Japan

Session C3: High Entropy Alloys (Prof. Brian Cantor Symposium) 1
Coffee / Tea break 10:30 to 11:00

C3 July-01 11:00
* Some insights into the high temperature phase stability of the BCC + B2 microstructure in aluminum containing refractory high entropy alloys
Vishal Soni, Rajarshi Banerjee
University of North Texas, United States

C3 July-01 11:20
* Impact of Grain Size on Strain-Induced Phase Transformation in a CrCoNi Multi-Principal Element Alloy
Francisco Coury, Gustavo Bertoli, Amy Clarke, Claudio Kiminami, Michael Kaufman
Universidade Federal de Sao Carlos, Brazil

C3 July-1 11:40
* Development of Bimodal-Grained Microstructure in Metastable Multicomponent Alloys via Reversion of Strain-Induced BCC Phase
Jeongho Han
Hanyang University, South Korea

C3 July-1 12:00
* Kinetics of Chemical Order Formation and Its Influence on Diffusivity in CrCoNi Medium Entropy Alloy
Shigenobu Ogata
Osaka University, Japan

C3 July-1 12:20
* Characteristic Dislocation Slips in Polycrystalline HfNbTiZr Medium Entropy Alloy
Nobuhiro Tsuji, Qian He, Shuhei Yoshida, Shinji Okajyo, Masaki Tanaka
Kyoto University, Japan

C3 July-1 12:40
* Diffusion in high-entropy alloys: sluggish or anti-sluggish? Lattice structure vs. chemical complexity
Sergiy Divinski
University of Muenster, Germany

Lunch break 13:00 - Sessions restart at 14:30

Session: C4, Venue: Chenonceaux

High Entropy Alloys (Prof. Brian Cantor Symposium) 2

Session Chairs: An-Chou Yeh, Koichi Tsuchiya

C4 July-01 14:30 - Keynote
*** Novel FeNiMnAlCr Multi-Principal Component Alloys**
Ian Baker
Darmouth College, United States

C4 July-01 15:00
* Transformation pathways and deformation mechanisms in refractory high entropy alloys
Hamish Fraser, Brian Welk, Paraic O'kelly, Gopal Viswanathan
The Ohio State University, United States

C4 July-01 15:20
* Elucidating the microstructural formation pathways in Refractory Metal High Entropy Alloys using in situ high energy diffraction
Nick Jones, S-T Yang, N. L. Church, G. J. Wise, R. P. Thompson, R. F. L. Mellor, H. J. Stone
University of Cambridge, United Kingdom

C4 July-01 15:40
* Creep behavior of a precipitation-strengthened A2-B2 refractory high entropy alloy
Alexander Kauffmann, Liu Yang, Sandipan Sen, Daniel Schliephake, Raja J. Vikram, Stephan Laube, Aparajita Pramanik, Ankur Chauhan, Martin Heilmaier
Karlsruhe Institute of Technology, Germany

Session C4: High Entropy Alloys (Prof. Brian Cantor Symposium) 2
Coffee / Tea break 16:00 to 16:30

C4 July-1 16:30
* The Role of Interstitials on Phase Metastability and Dislocation Pathways in BCC Refractory Multi-Principal Element Alloys
Daniel S. Gianola
University of California Santa Barbara, United States of America

C4 July-1 16:50
* Innovative design of high-performance multicomponent alloys: from disordered solid-solution alloys to chemically complex ordered intermetallics
Tao Yang, C. T. Liu, Bo Xiao
City University of Hong Kong, China

C4 July-1 17:10
* Optimizing Al content to eliminate the brittle phase in lightweight TiZrNbTa0.1Alx refractory high-entropy alloys
Wei-Bing Liao
Shenzhen University, China

C4 July-1 17:30
* An Assessment of the Viability of the Refractory Metal High Entropy Alloy AlMo0.5NbTa0.5TiZr for High Temperature Structural Applications
George Wise, Nicole Church, Hon Tong Pang, Robert Thompson, Howard Stone, Nicholas Jones
University of Cambridge, United Kingdom

C4 July-1 17:50
*Application APT to Understand High-Entropy Alloy and Materials
Gang Sha
Nanjin University of Science and Technology, China

C4 July-1 18:10 - *Student*
Plastic deformation of BCC medium-entropy alloys in the Ti-Zr-Nb system
Shu Han, Zhi Wang, Le Li, Kyosuke Kishida, Haruyuki Inui
Kyoto University, Japan

Session: C5, Venue: Chenonceaux

High Entropy Alloys (Prof. Brian Cantor Symposium) 3

Session Chairs: Ian Baker, Stephane Gorsse

C5 July-02 8:30 Keynote
*** Phase transformation and deformation behavior in a B2-base high-entropy alloy**
Peter. K. Liaw, Rui Feng, You Rao, Kaijun Yin, Chuan Zhang, Maryam Ghazisaeidi, Jian-Min Zuo, Ke An
The University of Tennessee Knoxville, USA

C5 July-02 9:00 Keynote
*** The power and beauty of Cantor's First Experiment. A 20-year retrospective**
Miracle Dan
Air Force Research Laboratory, United States

C5 July-02 9:30
* Hierarchical structures of submicron and nanoscale blocks evolved through deformation twinning in CrCoNiSi0.3 medium entropy alloy under ballistic impact
Jer-Ren Yang, Jia-Jun Chen, Po-Han Chiu, Tzu-Ching Tsao
National Taiwan University, Taiwan

C5 July-02 9:50
* Instrumented indentation studies on the hydrogenated high- and medium-entropy alloys
Jae-Il Jang
Hanyang University, South Korea

C5 July-02 10:10
* Characterization of a CoCrFeMnNi(Alx) alloy produced from ferroalloys and scraps with an industrial foundry process
Iban Vicario, Ester Villanueva, Joseba Albizuri, Maria Teresa Guraya, Gurutze, Arruabarrena Borja Escauriza
Fundacion Tecnalia Research & Innovation, Spain

Session C5: High Entropy Alloys (Prof. Brian Cantor Symposium) 3
Coffee / Tea break 10:30 to 11:00

C5 July-02 11:00
* ICME and Microstructure Informatics framework for the development of multicomponent alloys
M. R. Rahul
Indian Institute of Technology Dhanbad, India

C5 July-02 11:20
* Machine Learning-Assisted Design of Advanced Bilayer TBC Systems Using Multicomponent R2TiO5
Satoshi Kitaoka, Makoto Tanaka, Naoki Kawashima, Takafumi Ogawa, Taishi Ito, Kei Nakayama, Takeharu Kato, Norio Yamaguchi, Hiroaki Suzuki, Haruo Shibata, Akira Kawasaki
Japan Fine Ceramics Centre, Japan

C5 July-02 11:40
* Computational microstructural engineering for multi-phase HEAs
Yunzhi Wang, Shalini Konern, Kamalnath Kadirvel, Shiddhartha Ramprakash, Hamish Fraser
The Ohio State University, United States

C5 July-02 12:00
* Enhanced ductility via high-density nanoprecipitates driven by chemical supersaturation in a flash-heated precipitation-strengthened high-entropy alloy
Yang Zhang, Liyuan Liu, Zhongwu Zhang
Harbin Engineering University, China

C5 July-02 12:20
* Designing cobalt-free FCC high-entropy alloys: Microstructure, mechanical properties and radiation resistance
Wenyi Huo
National Centre for Nuclear Research, Poland

C5 July-02 12:40
* Laves Phases in Compositionally Complex Alloys: Microstructure and Mechanical Properties
Pinaki Bhattacharjee
Indian Institute of Technology Hyderabad, India

Lunch break 13:00 - Sessions restart at 14:30

Session: C6, Venue: Chenonceaux

High Entropy Alloys (Prof. Brian Cantor Symposium) 4

Session Chairs: Alexander Kauffmann, Nick Jones

C6 July-02 14:30 Keynote
*** Heterogeneous Structured High Entropy Alloys**
Hyoung Seop Kim
Pohang University of Science and Technology, South Korea

C6 July-02 15:00
* Hierarchical nanotwin-driven mechanism in cryogenicly-deformed CoCrFeNi HEA alloys
Tsaifu Chung, Po-Kai Chiu, Chien-Nan Hsiao, An-Chou Yeh
National Yang Ming Chiao Tung University, Taiwan

C6 July-02 15:20
* Advancements in high-entropy alloys through the liquid metal dealloying process
Soo-Hyun Joo
Dankook University, South Korea

C6 July-02 15:40
* Evolution of short-range order and its effects on yield strength in single crystals of the equiatomic Cr-Mn-Fe-Co-Ni high-entropy alloy
Yue Yu, Le Li, Zhenghao Chen, Kyosuke Kishida, Haruyuki Inui
Kyoto University, Japan

Session C6: High Entropy Alloys (Prof. Brian Cantor Symposium) 4
Coffee / Tea break 16:00 to 16:30

C6 July-02 16:30
* Mechanical Responses to Hydrogen in Entropy-Driven Alloys
Hung-Wei Yen, Yi-Ting Lin, Zen-Hao Lai, Yi-Hsuan Sun, Tzu-Chi Huang, Xianghai An, Che-Wei Tsai, Jui-Fan Tu
National Taiwan University, Taiwan

C6 July-02 16:50
* High Entropy Alloys for Applications in Hydrogen and Cryogenic Environments
Young Sang Na, Young-Kyun Kim, Jae-Ho Lee, Seung-Min Jeon
Korea Institute of Materials Science, South Korea

C6 July-02 17:10
* Deformation behavior of a 3D-printed high-entropy alloy
Dhruv Bajaj, Aihan Feng, Shoujiang Qu, Dongyang Li, Daolun Chen
Toronto Metropolitan University, Canada

C6 July-02 17:30
* Microstructures and Properties of CoCrFeMn High Entropy Shape Memory Alloys Produced by Laser Direct Energy Deposition
Wookjin Lee, Minsu Park
Pusan National University, South Korea

C6 July-02 17:50
* Effect of Boron Addition on High-Temperature Tensile Properties of FeCrCoMoNi high entropy alloys
Seonho Shin, Hyunjoo Choi, Jae Bok Seol, Hyokyung Sung
Kookmin University, South Korea

Session: C7, Venue: Chenonceaux

High Entropy Alloys (Prof. Brian Cantor Symposium) 5

Session Chairs: Peter Liaw, Krishanu Biswas

C7 July-03 8:30 Keynote
*** Effect of Stacking Fault Energy on Deformation Mechanism and Low-Cycle Fatigue Property in Co-Cr-Mo-Ni Medium Entropy Alloys**
Koichi Tsuchiya
National Institute for Materials Science, Tsukuba, Japan

C7 July-03 9:00
* Nanoprecipitate-strengthened high entropy alloys
Zhongwu Zhang, Yang Zhang
Harbin Engineering University, China

C7 July-03 9:20
*Analyses of Oxidation Behaviours with Alloy Components in High Entropy Alloys with Pack Cementation Coatings at High Temperatures
Jeong Seok Oh, Jini Park, Joon Sik Park
Hanbat National University, South Korea

C7 July-03 9:40
* High Hardness Nanotwinned High Entropy Alloys CoCrFeNi Thin Films with radiation resistance
Wei-Cheng Chang, Maulik Patel, Fan-Yi Ouyang
University of Liverpool, United Kingdom

C7 July-03 10:00
* Development of high entropy alloy thin films for energy-related research
Jyh-Wei Lee, Bih-Show Lou
Ming Chi University of Technology, Taiwan

Session C7: High Entropy Alloys (Prof. Brian Cantor Symposium) 5
Coffee / Tea break 10:20 to 11:00

C7 July-03 11:00
* High Entropy Nonlinear Dielectric System
Ying-Hao Chu
National Tsing Hua University, Taiwan

C7 July-03 11:20
* High-Entropy Alloys as Advanced Metal Hydrides for Efficient Hydrogen Storage
Ricardo Floriano
University of Campinas, Brazil

C7 July-03 11:40
* Development of Non-Equimolar CoCrCuFeNi High Entropy Alloys for Aerospace Brazing
Samuel Ross, Daniel Butcher, Shahin Mehraban, Caroline Goddard, Peter Cookson, Nicholas Lavery *Swansea University, United Kingdom*

C7 July-03 12:00
* The microstructural evolution of FCC high-entropy alloy after gas tungsten arc weld and friction stirring weld
Tsai Chewei, Yutaka S. Sato, Jien-Wei Yeh
National Tsing Hua University, Taiwan

C7 July-03 12:20
* Development of Ti based bio-high entropy alloys
Mitsuharu Todai, Nagi Takahashi, Neiro Tanaka, Daisuke Tanaka, Takeshi Nagase, Aira Matsugaki, Takayoshi Nakano
National Institute of Technology, Japan

C7 July-03 12:40
* Shape memory effect in CrMnFeCoNi high-entropy alloys with high Co/Ni ratio
Je In Lee, Jinsurang Lim, Hwiyun Jeong
Pusan National University, South Korea

Lunch break 13:00 - Sessions restart at 14:30

Session: C8, Venue: Chenonceaux

High Entropy Alloys (Prof. Brian Cantor Symposium) 6

Session Chairs: Hyoungseop Kim, An-Chou Yeh

C8 July-03 14:30
* Effect of Laves phase on hydrogen storage properties of BCC Ti-V-Nb-Cr-Mn multicomponent alloys
Katia Regina Cardoso, Leandro Bernardes Serrano, Larissa Nunes Hirata, Maria Moussa, Santos Sydney Ferreira, Jean-Louis Bobet
Federal University of Sao Paulo, Brazil

C8 July-03 14:50
* Short-range order in multiple principal element alloys: Thermally and mechanically activated
Jaebok Seol, Hyokyung Sung, Hyunjoo Choi, Wonseok Ko, Seoksu Sohn, Yoonuk Heo, Hyoungseop Kim
Kookmin University, South Korea

C8 July-03 15:10
* Development of High Specific Modulus Multicomponent Alloys with An FCC Structure
Mustafa Seker, Colin Freeman, Russell Goodall
The University of Sheffield, United Kingdom

C8 July-03 15:30
* Room temperature deformation of high entropy diborides
Zhi Wang, Zhenghao Chen, Kyosuke Kishida, Haruyuki Inui
Kyoto University, Japan

Session C8: High Entropy Alloys (Prof. Brian Cantor Symposium) 6
Coffee / Tea break 15:50 to 16:20

C8 July-3 16:20 - *Student*
Effect of Re and Ru on two-phase A2+B2 Ta-Mo-Ti-Cr-Al refractory high entropy alloys
Liu Yang, Sandipan Sen, Vikram Raja, Daniel Schliephake, Martin Heilmaier, Alexander Kauffmann *Karlsruhe Institute of Technology, Germany*

C8 July-3 16:35 - *Student*
Achieving remarkable strength and ductility through via nano-twinning enabled by L12 nano-precipitates in CoNiMoAl medium-entropy alloys
Minyoung Sung, Tae Jin Jang, Sang Yoon Song, Gunjick Lee, Kenhee Ryou, Sang-Ho Oh, Byeong-Joo Lee, Pyuck-Pa Choi, Jorg Neugebauer, Blazej Grabowski, Fritz Koermann, Yuji Ikeda, Alireza Zargaran, Seok Su Sohn
Korea University, South Korea

C8 July-3 16:50 - *Student*
Deciphering the operative mechanisms affecting the strain rate sensitivity in (FeCrNi)99Si1 medium entropy alloy during high-pressure torsion
Swati Mahato, Krishanu Biswas, Nilesh Prakash Gurao
Indian Institute of Technology, Kanpur, India

C8 July-3 17:05 - *Student*
Creep Strength of AlCoCrFeNi High-Entropy Alloy Fabricated by Spark Plasma Sintering
Naoki Ohgi, Ryota Honda, Lei He, Mie Kawabata, Tomoko Kuno, Kei Ameyama, Hiroshi Fujiwara, Takamoto Itoh
Ritsumeikan University, Japan

C8 July-3 17:20 - *Student*
Enhancing strength and hydrogen embrittlement resistance by discontinuous L12 precipitation in high-entropy alloy
Sang Yoon Song, Tae Jin Jang, Chang-Gi Lee, Dae Cheol Yang, Min Young Sung, Gunjick Lee, Jung Hun Han, Ju-Hyun Baek, Jin-Yoo Suh, Alireza Zargaran, Aparna Saksena, Baptiste Gault, Won-Seok Ko, Se-Ho Kim, Seok Su Sohn
Korea University, South Korea

C8 July-3 17:35 - *Student*
Towards multifunctionality in novel high entropy alloy by compositional variation and thermo-mechanical processing
Akshit Dutta, Ming-Hung Tsai, Saurabh Nene
Indian Institute of Technology Jodhpur, India

C8 July-3 17:50
Investigation of a Spinel Oxide Coating based on CoCuFeMnNi High-Entropy Alloy for SOFC application
An-Chou Yeh, Cheng-Ju Tsai, Hideyuki Murakami, Toda Yoshiaki, Fan-Yi Ouyang
National Tsing Hua University, Taiwan

18:10 Closing remarks from Brian Cantor

* *Invited Presentation*

SESSION- D

Session: D1, Venue: Amboise

Aluminium Alloys 1

Session Chairs: Hyoungwook Kim, Irmgard Weissensteiner

D1 June-30 10:30 Keynote
*** Application of Artificial Neural Networks for Microstructure Models ALFLOW and ALSOFT**
Knut Marthinsen, Daniel Preminger, Tomas Manik
Norwegian University of Science and Technology, Norway

D1 June-30 11:00
* Thermomechanical Testing and Precipitation Modelling of Al-Mg-Si Alloys for Hot Forming Applications
Ole Runar Myhr, Asle J. Tomstad, Calin D. Marioara, Tore Borrvik, Odd Sture Hopperstad
Hydro Aluminium, R&D Sunndalsra, Norway

D1 June-30 11:20
* Evaluation of slip behavior of mobile dislocations during in-situ tensile-testing TEM observation of Al-Mg-Si alloys
Shoichi Hirosawa, Daiki Inoue
Yokohama National University, Japan

D1 June-30 11:40
On the order-disorder transformation within a main hardening precipitate in Al-Mg-Si alloys
Lipeng Ding, Flemming Ehlers, Zhihong Jia
Nanjing Tech University, China

D1 June-30 12:00
Deformation induced precipitate evolution during thermomechanical processing of Al7068 alloy
Raja Nitish
Indian Institute of Technology Patna, India

D1 June-30 12:20
Five-fold symmetry structure inhibiting the growth of an otherwise perfect eta2 phase in Al-Zn-Mg-Cu alloys
Flemming Ehlers, Kaiyun Xiang, Lipeng Ding, Zhihong Jia
Nanjing Tech University, China

D1 June-30 12:40
Strengthening in-situ Fe-aluminide reinforced aluminum matrix composites through an optimized twostep thermal processing method; sintering and uniaxial forging
Tapabrata Maity
National Institute of Advanced Manufacturing Technology, India

Lunch break 13:00 - Sessions restart at 14:30

Session: D2, Venue: Amboise

Aluminium Alloys 2

Session Chairs: Ole Runar Myhr, Xiaodong Wu

D2 June-30 14:30 - Keynote
*** In-situ nanometallurgy in transmission electron microscopy**
Stefan Pogatscher, Thomas Kremmer, Matheus A. Tunes, Phillip Dumitraschkewitz
Montanuniversitat Leoben, Austria

D2 June-30 15:00
* Mechanical properties of aluminum clad sheets fabricated by roll bonding process for automotive application
Hyoungwook Kim, Dea-Han Jeong, Kwangjun Euh, Won-Kyeong Kim
Korea Institute of Materials Science, South Korea

D2 June-30 15:20
An assessment of the brazing performance of cast Al-Mn-Ni aluminum alloy
Xiaojie Jin, Huiying Zhu, Lai Chen, Guanglei Zhu, Xueyang Wang, Hiromi Nagaumi
Weiqiao Lightweight Research Center at Soochow, China

D2 June-30 15:40
Advanced Manufacturing and Characterization of High-Performance Aluminium Alloys
Chengyi Dan, Qiwei Shi, Shuwei Zong, Hongru Zhong, Yudong Zhang, Ji Gang, Chen Zhe, Haowei Wang
Shanghai Jiao Tong University, China

Session D2: Aluminium Alloys 2
Coffee / Tea break 16:00 to 16:30

D2 June-30 16:30 - *Student*
The effect of intensification pressure on the microstructure of non-heat treated HPDC AlSi9MnVZr alloy
Saria Akhtar, Shou-Mei Xiong
Tsinghua University, China

D2 June-30 16:50 - *Student*
Visualization of Dynamic Deformation Behavior of Al-Mg Alloys Using Electronic Speckle Pattern Interferometry
Yuto Takanezawa, Tomohiro Sasaki, Sanichiro Yoshida
Niigata University, Japan

Session: D3, Venue: Amboise

Aluminium Alloys 3

Session Chairs: Stefan Pogatscher

D3 July-01 10:30 Keynote
*** Interfacial Structure of Mg2Si in Al-Mg-Si Alloy**
Kenji Matsuda, Abrar Ahmed, Taiki Tsuchiya, Seungwon Lee, Susumu Ikeno
University of Toyama, Japan

D3 July-01 11:00
* The influence of continuous retrogression and re-ageing treatment on the mechanical properties, corrosion behaviour and microstructure of an Al-Zn-Mg-Cu alloy
Xiaodong Wu, Cao Lingfei, Guangjie Huang
Chongqing University, China

D3 July-01 11:20
Effects of ROI Selection and User-Defined Parameters on Cluster Analysis in Aluminum Alloys
Miyoung Lee, Jiwook Park, Dieter Isheim, David Seidman, Seokjae Lee, Jaehwang Kim
National University, South Korea

D3 July-01 11:40
Formation mechanism of dense and uniform structure during tailor welding of Aluminum Foam Structure preform
Ming-Jen Tan
Nanyang Technological University, Singapore

C3 July-01 12:00
A Novel Modelling Framework for the Portevin Le Chatelier Effect in AA5182 Alloy
Jianbin Xu, Bjorn Holmedal, Odd Sture Hopperstad, Tomas Manik, Knut Marthinsen
Norwegian University of Science and Technology, Norway

D3 July-01 12:20
Microstructure observation of Al-7%Si-Mg alloys in T6 condition
Taiki Tsuchiya, Seungwon Lee, Susumu Ikeno, Kenji Matsuda
University of Toyama, Japan

D3 July-01 12:40
Study on improving corrosion resistance of 6000-series alloys with high Cu content
Zibin Wu, Hiromi Nagaumi, Zhixin Feng, Haitao Zhang
Soochow University, China

Lunch break 13:00 - Sessions restart at 14:30

Session: D4, Venue: Amboise

Aluminium Alloys 4

Session Chairs: Chihiro Iwamoto

D4 July-01 14:30
* Impact of Microstructure of Aluminum Electrodes on the Performance of Aluminum-Based Batteries
Irmgard Weissensteiner, Ghadir Razaz
Montanuniversitat Leoben, Austria

D4 July-01 14:50
Precipitation Kinetics of Aluminum Alloys During SPD Processes Investigated by SAXS/WAXS
Elizabeth Mathew, Juergen Markmann, Chang Yin-Cheng Chan, Henry Ovri, Uceu Fuad Hasan Suhuddin, Julia Ivanisenko, Peter Staron, Benjamin Klusemann
Helmholtz- Zentrum Hereon, Germany

D4 July-01 15:10
* A novel model for of cluster nucleation during quenching of 6xxx Al alloys
Ernst Kozeschnik, Ya Li, Robert Kahlenberg
TU-Wien, Austria

D4 July-01 15:30
Microstructural evolution and mechanical behaviour of multiple-pass friction stir processed Al5083-SiC nanocomposite produced stir casting
Gaurav Rajan, Suhrit Mula
Indian Institute of Technology Roorkee, India

Session D4: Aluminium Alloys 4
Coffee / Tea break 15:50 to 16:20

D4 July-01 16:20 - *Student*
Simulation of self-healing in Al-Cu alloys
Christoph Doesinger, Anika Wiebogen, Marlene Eichlseder, Cecilia Poletti, Lorenz Romaner
Montanuniversitat Leoben, Austria

D4 July-01 16:40
Effects of Copper Content on Microstructure and Mechanical Properties of AlMgSi(Cu) Alloys
Konrad Zylka, Bartolomiej Plonka, Piotr Korczak, Krzysztof Remsak, Kamila Limanowka, Sonia Boczkal, Wojciech Szymaski, Dariusz Lesniak
Institute of Non-Ferrous Metals, Poland

Session: D5, Venue: Amboise

Aluminium Alloys 5

Session Chairs: Kenji Matsuda, Shoichi Hirosawa

D5 July-02 9:00
* Ultrasonic Bonding Process of Al
Chihiro Iwamoto
Ibaraki University, Japan

D5 July-02 9:20
* Insights for the design of high-performance secondary cast aluminium alloys
Maria Cecilia Poletti, Stefan Fortmueller, Bernhard Stauder, Ilse Letofsky-Papst, Raul Arrabal, Erwin Povoden-Karadeniz
Institute of Materials Science, Joining and Forming, Austria

D5 July-02 9:40
* Corrosion Behaviour and Microstructures of Directionally Solidified Al-Si Alloys
Alejandra Silvina Roman, Edgar Rolando Ibarrez, Paula Regina Alonso, Alicia Ares
Universidad Nacional de Misiones, Argentina

Session D5: Aluminium Alloys 5
Coffee / Tea break 10:00 to 10:30

D5 July-02 10:30
The combined effects of trace element Sn/Cu and double-step pre-aging on the precipitation kinetics of Al-Mg-Si alloys
Jingwei Zhao, Pizhi Zhao
Chinalco Materials Application Research Institute Co., Ltd., China

D5 July-02 10:50
Solute clustering and early-stage precipitation in Al-Mg-Si alloys
Chunan Li, Calin Marioara, Constantinos Hatzoglou, Sigmund Andersen, Randi Holmestad, Yanjun Li
Norwegian University of Science and Technology, Norway

D5 July-02 11:10
Effect of Er on the stability of precipitates in AlCuMgSiSc alloys after different homogenization treatment
Xingkai Hou, Shengping Wen, Wei Wu, Xiaolan Wu, Hui Huang, Kunyuan Gao, Xiangyuan Xiong, Bolong Li, Zuoren Nie, Shangshang Liang, Peng Qi
Beijing University of Technology, China

D5 July-02 11:30
Modeling precipitation evolution and intermetallics fragmentation in 6xxx Series Aluminum Alloys during industrial hot rolling
Seyyed Ezzatollah Moosavi, Cyril Cayron, Jonathan Friedli, Loic Aron, Zeqin Liang, Elisa Cantergiani, Roland Loge
Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland

D5 July-02 11:50
Effect of microalloying on precipitation strengthening and mechanical properties of Al-Mg-Si alloys
Yaoyao Weng, Lipeng Ding, Zhihong Jia
Nanjing Institute of Technology, China

D5 July-02 12:10
Design of easier separable Fe-containing intermetallics in Al-Si alloy by thermodynamic properties prediction and three-dimensional morphology regulation
Xiaozu Zhang, Dongtao Wang, Hiromi Nagaumi
Soochow University, China

D5 July-02 12:30
* Characterization of Directionally Solidified Al-Si Alloys
Edgar Rolando Ibarrez, Paula Regina Alonso, Alicia Ares
Universidad Nacional de Misiones, Argentina

Lunch break 12:50 - Sessions restart at 14:30

Session: D6, Venue: Amboise

Aluminium Alloys 6

Session Chairs: Maria Cecilia Poletti, Ernst Kozeschnik

D6 July-02 14:30
Study on grain refinement of high-purity aluminium by intermittent permanent magnet stirring technique
Jing Zou, Haitao Zhang, Hiromi Nagaumi
Soochow University, China

D6 July-02 15:00
Competitive nucleation of α-Al(MNFECR)Si dispersoids in Al-Mg-Si 6xxx alloys by adding indium
Zhen Li, Kang Gao, Jian Qin, Hiromi Nagaumi
Weiqiao Lightweight Research Center at Soochow, China

D6 July-02 15:20
* The Research and Application Trends Of Aluminum Alloy Automotive Body Sheet In China
Pizhi Zhao
CHINALCO Materials Application Research Institute Co., Ltd. Beijing, China

D6 July-02 15:40
Influence of Ag on microstructure and mechanical properties of as-cast Al-33Zn-2Cu high-zinc aluminum alloy
Haitao Zhang, Donghui Yang, Hiromi Nagaumi
Northeastern University, Shenyang, China

Session D6: Aluminium Alloys 6
Coffee / Tea break 16:00 to 16:30

D6 July-02 16:30
Effect of heat treatment and rolling process on microstructure and deformation behavior in Al-Si alloy
Toko Tokunaga, Hirono Reiji, Tsuyoshi Mayama, Koji Hagihara
Nagoya Institute of Technology, Japan

D6 July-02 16:50 - *Student*
Investigation on friction surfacing layers of AA2024 studs produced via friction extrusion
Pietro Aspes, Zina Kallien, Lars Rath, Uceu Suhuddin, Benjamin Klusemann
Helmholtz- Zentrum Hereon, Germany

Session: D7, Venue: Amboise

Interfaces, Grain Boundaries & ICGBE 1

Session Chairs: Sadahiro Tsurekawa, Masato Wakeda

D7 July-03 9:00 - Keynote
*** Atom-Resolved Observations of Grain Boundary Dynamics in Oxides**
Yuichi Ikuhara
The University of Tokyo, Japan

D7 July-03 9:30
* Structural change of Ga2O3 layer formed on GaN(0001) substrate under various fabrication conditions
Toshihide Nabatame, Yoshihiro Irokawa, Tomomi Sawada, Hiromi Miura, Manami Miyamoto, Yasuo Koide, Kazuhito Tsukagoshi
National Institute for Materials Science, Japan

D7 July-03 9:50
* Quantification of the grain boundary structure and determination of migration mechanisms
Luis Barrales-Mora, Gashaw Bizana
Georgia Institute of Technology, United States

D7 July-03 10:10
* Spintronic technologies for germanium devices
Kohei Hamaya
Osaka University, Japan

Session D7: Interfaces, Grain Boundaries & ICGBE 1
Coffee / Tea break 10:30 to 11:00

D7 July-03 11:00
* A Computational Approach to Design Thermally Stable Metal-Metal Interfaces
Bernard Gaskey, Cheryl Hawk, Robert Hackenberg, Claire Adams, David Field, John Carpenter
Los Alamos National Laboratory, United States

D7 July-03 11:20
Quantitative assessment of low temperature ausformed medium carbon nanobainitic steels
Sumit Ghosh, Kritika Singh, Mahesh Somani, Jukka Komi
University of Oulu, Finland

D7 July-03 11:40
* Plasmon loss imaging at grain boundaries obtained by STEM-EELS and the grain boundary dependence
Seiichiro Ii, Toru Hara
National Institute for Materials Science, Japan

D7 July-03 12:00
Graphite Crystallization in Austenitic Ductile Iron: Insights from TKD and TEM Diffraction
Tomasz Tokarski, Karolina Wojciak, Marcin Gorny, Jan Marosz
AGH University of Krakow, Poland

D7 July-03 12:20
* Automated in situ thermomechanical analysis of hexagonal materials under EBSD
Ines Addi, Pierre-Antoine Dubos, Baptiste Girault, Samuel Branchu, David Gloaguen
Nantes University, France

D7 July-03 12:40
Fabrication of Large-Scale Single-Crystal Copper Foils with Atomic-Scale Flatness via Muscovite-Assisted Method
Tzu-Ming Chan, Ying-Hao Chu
National Tsing Hua University, Taiwan

Lunch break 13:00 - Sessions restart at 14:30

Session: D8, Venue: Amboise

Interfaces, Grain Boundaries & ICGBE 2

Session Chairs: Ikuhara Yuichi, Toshihide Nabatame

D8 July-03 14:30 - Keynote
*** Structure-dependent electrical properties of grain boundaries**
Sadahiro Tsurekawa
Kumamoto University, Japan

D8 July-03 15:00
* Atomistic Modelling and Design of Mechanical Properties of Grain Boundaries in Alloys
Masato Wakeda
National Institute for Materials Science, Japan

D8 July-03 15:20
Precipitation and growth behavior of β0 phase in the α2/γ lamellar colonies of an intermetallic Ti-43.5Al-4Nb-1Mo-0.1B alloy
Limei Cha
Guangdong Technion-Israel Institute of Technology, China

D8 July-03 15:40
* Deformation behavior of magnesium bicrystals with 90°<10-10> and 90°<11-20> grain boundaries: Changing grain boundary character and boundary proximity
Kevin Bissa, Marcel Schreiber, Konstantin Molodov, Talal Al-Samman, Dmitri Molodov
RWTH Aachen University, Germany

Session D8: Interfaces, Grain Boundaries & ICGBE 2
Coffee / Tea break 16:00 to 16:30

D8 July-03 16:30
* Effect of low-angle grain boundary network on high cycle fatigue in grain boundary engineered 409L type ferritic heat resistant steel
Shigeaki Kobayashi, Daiju Kobori, Sadahiro Tsurekawa
Ashikaga University, Japan

D8 July-03 16:40 - *Student*
Recrystallization in ferritic stainless steels: experimental and modeling approaches
Julien Favre, Hennocque Louis, Nicolas Meyer, Sourisseau Thomas, Piot David, Montheillet Frank, Latu-Romain Laurence, Guillaume Kermouche
École des Mines de Saint-Étienne, France

D8 July-03 17:00
* Grain boundary segregation beyond the dilute limit with atomistic simulations and CALPHAD
Lorenz Romaner, Tobias Spitaler, Christoph Doesinger
Montanuniversitat Leoben, Austria

Session: D9, Venue: Amboise

Interfaces, Grain Boundaries & ICGBE 3

Session Chairs: Shigeto Nishitani, Seiichiro Ii

D9 July-04 9:00
* A Systematic Study of Grain Boundary Segregation in Nanocrystalline Alloys
Michael Chandross, Ian Winter, David Montes De Oca Zapiain, Yasir Mahmood, Fadi Abdeljawad, Mark Asta, John Curry
Sandia National Laboratories, United States

D9 July-04 9:20
* Effect of deformation twinning on the strength anisotropy in textured Ti: Insights from atomic simulations and slip transfer theory
Tomotsugu Shimokawa
Kanazawa University, Japan

D9 July-04 9:40
* Shift and delete effect on aluminum twist grain boundary energy
Shigeto Nishitani, Tomoyuki Tamura, Ryo Kobayashi Kwansei
Gakuin University, Japan

D9 July-04 10:00
* Atomic level revealing nitride multilayer deformation
Zhuo Chen, Yong Huang, Zaoli Zhang
Erich Schmid Institute of Materials Science, Austria

Session D7: Interfaces, Grain Boundaries & ICGBE 3
Coffee / Tea break 10:20 to 10:50

D9 July-04 10:50
* Gradient B2-BCT Transition and Interface Introduced by Deformation in Eutectic High-Entropy Alloy
Bingbing Zhao, Qingsong Shu, Xianping Dong, Lanting Zhang
Shanghai Jiao Tong University, China

D9 July-04 11:10 - *Student*
Plastic deformation propagation across grain boundaries in Fe-3%Si bicrystals: A comparative study of twist and tilt grain boundaries
Yoshitake Ichimura, Dmitri Molodov, Seiichiro Ii, Sadahiro Tsurekawa
Kumamoto University, Japan

D9 July-04 11:30
Grain boundary precipitation behavior of Ni-Cr phase in γ-Ni matrix in Ni-Cr binary alloys
Ryota Nagashima, Nobuo Nakada
Institute of Science Tokyo, Japan

D9 July-04 11:50
Recrystallization mechanisms activated during multi-pass forging of austenitic stainless steels
Hugo Latuner, Julien Favre, Aurelien Helstroffer, Gregory Inacio Da Rosa, Emeric Plancher, Pierre Joly, Guillaume Kermouche, Christophe Desrayaud
Framatom, France

D9 July-04 12:10
* Improved Indexing of Electron Backscatter Diffraction Patterns using Forward Modelling
Stuart Wright, William Lenthe, Matthew Nowell, Rene De Kloe
EDAX/Gatan, United States

D9 July-04 12:30
Focused Ion Beam sample preparation for Atom Probe Tomography
Limei Yang
University of Technology Sydney, Australia

SESSION- E

Session: E1, Venue: Villandry

Mg Alloys (Prof. Yoshihito Kawamura Symposium) 1

Session Chairs: Karl Ulrich Kainer, Jonghyun Kim

10:30-10:40 Opening remarks from Karl Kainer

E1 June-30 10:40 Keynote
*** Development of Advanced Magnesium Alloys**
Yoshihito Kawamura
Kumamoto University, Japan

E1 June-30 11:10
* Electropulsing Treatment for Mg alloys: Acceleration and Anisotropy
Taekyung Lee
Pusan National University, South Korea

E1 June-30 11:30
* Ignition characteristics and mechanical properties of Mg-Al-Ca-X alloys for electric vehicle applications
Jonghyun Kim, Yu Cao, Shuai Zhou, Bin Jiang, Fusheng Pan
Chongqing University, China

E1 June-30 11:50
* Development of Mg-Zn-Y Alloys with High Thermal-Conductivity and Mechanical Strength
Yunsheng Wang, Shinichi Inoue, Yoshihito Kawamura
Kumamoto University, Japan

E1 June-30 12:10
Development of corrosion resistance Mg alloy for Die casting component
Jun Ho Bae, Bong Sun You, Jae Yeon Kim, Young-Min Kim
Korea Institute of Materials Science, South Korea

E1 June-30 12:30
Effects of strain states induced by different wrought processes on microstructure evolution of AZ31 magnesium alloy
Hiromasa Yoshizumi, Satoru Maeda, Motohiro Yuasa, Hiroyuki Miyamoto, Hidetoshi Somekawa
Doshisha University, Japan

Lunch break 12:50 - Sessions restart at 14:30

Session: E2, Venue: Villandry

Mg Alloys (Prof. Yoshihito Kawamura Symposium) 2

Session Chairs: Taekyung Lee, Te-Cheng Su

E2 June-30 14:30 - Keynote
*** Towards Green Magnesium - Environmental Aspects of Magnesium Materials for the Transportation Industry**
Karl Ulrich Kainer
Germany

E2 June-30 15:00
* Asymmetric rolling to improve sheet formability of AM30 Mg alloy
Vamsi Krishna Pakki, Subodh Kumar, Satyam Suwas
Indian Institute of Science Bangalore, India

E2 June-30 15:20
Atomistic Insights into Grain Boundary-Solute Interactions and Texture Formation in Mg Alloys
Talal Al-Samman
RWTH Aachen University, Germany

E2 June-30 15:40
Synergistic effects of Rolling and Mixed rare earth (Er+Yb) additions on mechanical, corrosion and biocompatibility properties of Mg-Zn-Ca alloys for orthopedic applications
Divyanshu Aggarwal, Vamsi Krishna Pakki, Sachin Latiyan, Satyam Suwas, Kaushik Chatterjee, Rajashekhara Shabadi
University of Lille, France

Session E2: Mg Alloys (Prof. Yoshihito Kawamura Symposium) 2
Coffee / Tea break 16:00 to 16:30

E2 June-30 16:30 - *Student*
Microstructure changes due to additional elements and processability at room temperature in Mg-In alloy systems
Ryota Nagata, Ryuta Murakami, Yoshiki Tomura, Ryosuke Yamagata, Takaomi Itoi
Chiba University, Japan

Session: E3, Venue: Villandry

Mg Alloys (Prof. Yoshihito Kawamura Symposium) 3

Session Chairs: Yoshihito Kawamura, Yuehlien Lee

E3 July-01 10:30 Keynote
*** Combined 3DATP and HADDF studies of the microstructures of new generation magnesium alloys developed at Magnesium Research Centre, Kumamoto**
Kamanio Chattopadhyay, Sureandra Kumar Makineni, Dipanjan Kumar, Hemant Kumar
Indian Institute of Science Bangalore, India

E3 July-01 11:00
* Research on the microstructural evolution of injection molded AZ91 and ultralight LAZ561Ca magnesium alloys during solidification and heat treatment: multiscale characterizations and multiphase field modeling
Te-Cheng Su, Si-Yuan Hu, Ming-Hung Wu, I-An Chen, Lee-Han Wu, Hao-Chuan Huang, Kai-Yu
Liang National Taiwan University, Taiwan

E3 July-01 11:20
Plastic deformation of fine-grained pure magnesium and AZ series Mg alloys between 298K and 4K
Anna Kula, Michal Walag, Tomasz Tokarski, Piotr Noga, Marek Niewczas
AGH University of Science and Technology Krakow, Poland

E3 July-01 11:40
* Processing Strategies for Tailoring Strength and Ductility in Mg-Y-Zn Alloy
Drahomir Dvorsky, Schin-Ichi Inoue, Soya Nishimoto, Ayami Yoshida, J. Kubisek, L. Heller, Esther De Prado, Jan Duchov, Miroslav Ceavojsky, Dalibor Vojtech, Yoshihito Kawamura
Institute of Physics, Czech Republic

E3 July-01 12:00 - *Student*
Enhancing Energy-Based Fatigue Life Model for Wrought Mg Alloys through Machine Learning Integration
Jinyeong Yu, Seho Cheon, Seong Ho Lee, Sung Hyuk Park, Taekyung Lee
Pusan National University, South Korea

E3 July-01 12:20
* Extruded magnesium sodium chloride anodes for use in metal-air batteries
Soeren Mueller, Klara Otto, Janne Heydrich-Bodensieck
TU Berlin, Germany

E3 July-01 12:40
The effect of reinforcement morphology and extrusion processing on the wear behaviour of magnesium-SiC composite
Ali Reza Eviani, Morteza Tayebi
Iran University of Science and Technology, Iran

Lunch break 13:00 - Sessions restart at 14:30

Session: E4, Venue: Villandry

Mg Alloys (Prof. Yoshihito Kawamura Symposium) 4

Session Chairs: Kamanio Chattopadhyay

E4 July-01 14:30 - Keynote
*** Development of biodegradable magnesium implants from an engineer's perspective**
Norbert Hort, Bjoern Wiese, Petra Maier, Dmytro Orlov, Domonkos Tolnai
Helmholtz- Zentrum Hereon, Germany

E4 July-01 15:00
Microstructure evolution of twin-roll cast and hot-rolled WZ73 alloy during the finishing heat-treatment
Franziska Ueberschaer, Madlen Ullmann, Ulrich Prahl
TU Bergakademie Freiberg, Germany

E4 July-01 15:20
Specific resistance measurements for the development of Mg based alloys
Bjoern Wiese, Norbert Hort
Helmholtz- Zentrum Hereon, Germany

E4 July-01 15:40
* Orientation dependence of deformation behavior in tensile test of pure magnesium single crystals
Shinji Ando, Hiromoto Kitahara
Kumamoto University, Japan

Session E4: Mg Alloys (Prof. Yoshihito Kawamura Symposium) 4
Coffee / Tea break 16:00 to 16:30

E4 July-01 16:30 - *Student*
Anisotropy in Microstructurual Evolution in Pre-deformed AZ31 under directional EPT: A quasi in situ EBSD Analysis
Seho Cheon, Jinyeong Yu, Seong Ho Lee, Sung Hyuk Park, Taekyung Lee
Pusan National University, South Korea

16:50-17:00 Closing remarks from Yoshihito Kawamura

Session: E5, Venue: Villandry

LPSO/MFS Materials / Microstructure & Kink Strengthening 1

Session Chairs: Daisuke Egusa, Koji Hagihara

E5 July-02 8:30 - Keynote
*** Kink Boundary Migrations in LPSO-structured Mg Alloys**
Eiji Abe
University of Tokyo, Japan

E5 July-02 9:00
* Numerical Evaluation of Kink Band Formation in Anisotropic Solids
Tsuyoshi Mayama
Kumamoto University, Japan

E5 July-02 9:20
* Anisotropic mechanical property-induced ductilization (AMID) - A new mechanism to simultaneously improve the strength and ductility of multiphase alloys
Koji Hagihara, Tokunaga Toko
Nagoya Institute of Technology, Japan

E5 July-02 9:40
* Face-centered cubic lattice in Titanium synthesized by high-temperature and high-pressure treatment
Masafumi Matsushita, Tomoki Iio, Atsuki Yokota, Reina Utsumi, Yuki Nakahira, Hiroyuki Saito
Ehime University, Japan

Session E5: LPSO 1
Coffee / Tea break 10:00 to 10:30

E5 July-02 10:30
* Kink deformed microstructure in mille-feuille structured materials
Daisuke Egusa, Eiji Abe
Institute of Science Tokyo, Japan

E5 July-02 10:50
* Effects of microstructural factors on high temperature deformation behavior of Ti-based MAX phase ceramics
Ken-Ichi Ikeda, Eiichi Sei, Johtaro Muraoka, Seiji Miura, Koji Morita, Tohru S. Suzuki, Yoshio Sakka
Hokkaido University, Japan

E5 July-02 11:10
* Effects of strain components on effective kink band formation in Mg-Y-Zn alloys
Motohiro Yuasa, Hiromasa Yoshizumi, Hiroyuki Miyamoto, Hidetoshi Somekawa
Doshisha University, Japan

E5 July-02 11:30
Disclination and cooperative deformation at intersection of kink interface and slip deformation
Ryutaro Matsumura, Tomonari Inamura
Institute of Science Tokyo, Japan

E5 July-02 11:50
* A Comparative Investigation of the Formation Mechanism and Corrosion Behavior of Micro-Arc Oxidation-Treated AZ31 and AC84 Kumadai Magnesium Alloys
Chi-Hua Chiu, Shih-Yen Huang, Yu-Ren Chu, Yuehlien Lee
National Taiwan University, Taiwan

E5 July-02 12:10
Strength-ductility balanced by bimodal microstructures composed of kink-strengthening grains in a mille-feuille structured Mg-Al-Y Alloy
Han Chen, Kakeru Kubota, Daisuke Egusa, Michiaki Yamasaki, Eiji Abe
The University of Tokyo, Japan

E5 July-02 12:30
* Geometrical modeling of bent kinks: energy reduction and shape transition mechanisms
Xueyu Zhang, Ryutaro Matsumura, Yuri Shinohra, Tomonari Inamura
Institute of Science Tokyo, Japan

E5 July-02 12:50
Mathematical analysis of dislocations and disclinations in crystalline materials
Ryuichi Tarumi, Shunsuke Kobayashi
Osaka University, Japan

Lunch break 13:10 - Sessions restart at 14:30

Session: E6, Venue: Villandry

Smart/Intelligent Materials & Processes 1

Session Chairs: Raj Vaidyanathan, Hideki Hosoda

E6 July-02 14:30 Keynote
*** Smart Materials - Piezoelectric Polyvinylidene fluoride (PVDF) Composites for Biomedical Applications**
Fatima Zivic, Strahinja Milenkovic, Katarina Virijevic, Nenad Grujovic
University of Kragujevac, Serbia

E6 July-02 15:00
* Influence of thermo-mechanical processing conditions on phase transformation temperatures of Nitinol annuloplasty rings
Maria Beatrice Abrami, Marialaura Tocci, Carlo Guala, Annalisa Pola
Universita degli Studi di Brescia, Italy

E6 July-02 15:20
* Mechanical Properties of Au-Cu-Al Dual Phase Alloys for Biomedical Applications
Hideki Hosoda, Kang Wei Goo, Naoki Nohira, Wang-Ting Chiu, Masaki Tahara
Institute of Science Tokyo, Japan

E6 July-02 15:40
* Formulation of chitosan-based resists for an optimized eco-efficient photolithography process: focus on the ToF-SIMS characterization
Dipti Rani, Corinne Gablin, Magin Benedict Ferrer, Kylian Virieux, Isabelle Servin, Angeliki Sofia Foscolos, Stephane Trombotto, Olivier Soppera, Anastasia Soultati, Veroniki P. Vidali, Panagiotis Argitis, Yann Chevolot, Jean-Louis Leclercq, Didier Leonard
University of Lyon, France

Session E6: Smart/Intelligent Materials & Processes 1
Coffee / Tea break 16:00 to 16:30

E6 July-02 16:30
* Relationship between deformability and crystalline system of martensite phase in Au-Cu-Al
Yuki Matsuoka, Wakana Yamamoto, Kyoko Kubo, Dong-Keun Han, Naoki Nohira, Hideki Hosoda
Nara Women's University, Japan

E6 July-02 16:50
* Thermal, Mechanical, and Materials Aspects of a Shape Memory Alloy Stirling Heat Engine
Maria Chikhareva, Raj Vaidyanathan
University of Central Florida, United States

E6 July-02 17:10
Microstructures and Properties of Diffusion Layer Formed at Laminated Interface of Alumina-Particle Dispersed Magnesium Laminated Compacts Fabricated by MM/SPS Method
Shigehiro Kawamori, Yoshinori Nagai, Hiroshi Fujiwara
Tamagawa University, Japan

E6 July-02 17:30
Temperature un-uniformity caused by property of graphite die on SPS Process
Tatsuya Misawa, Yuji Kawakami, Masakazu Kawahara
Saga University, Japan

E6 July-02 17:50 - *Student*
Effect of grain size on shape memory properties of Cr20Mn20Fe20Co35Ni5 high-entropy alloy
Hwiyun Jeong, Je In Lee
Pusan National University, South Korea

E6 July-02 18:10 - *Student*
Machine learning multi-objective optimization design multi performances of Zn alloys and Mg alloys
Wei Gou, Zhang-Zhi Shi, Lu-Ning Wang
University of Science and Technology Beijing, China

E6 July-02 18:30
Dilatometric simulations of Al-based+Sn-based composite Phase Change Materials
Matteo Molteni, Elisabetta Gariboldi, Konstantin Naumenko
Politecnico Milano, Italy

Session: E7, Venue: Villandry

Composites (MMC, CMC) / Nanocomposites / Syntactic & Foams 1

Session Chairs: Veronique Gauthier-Brunet, Prosenjit Das

E7 July-03 8:00 - Keynote
*** Effect of Al2O3 Particle Size of Al2O3/Al Composites Fabricated by ARB Process on Microstructure and Mechanical Properties**
Gen Sasaki
Hiroshima University, Japan

E7 July-03 8:30 Keynote
*** Thermal Conductivity of Functionally Graded Aluminum-Alumina Composites: Experimental Study and Micro-XCT-based Numerical Simulations**
Michal Basista, Anil Sequeira, Witold Weglewski, Kamil Bochenek, Amrita Jain, Thomas Hutsch, Thomas Weissgaerber
Institute of Fundamental Technological Research, Poland

E7 July-03 9:00
* Development of high-performance laser devices using room-temperature bonding
Ichiro Shoji
Chuo University, Japan

E7 July-03 9:20
* Femtosecond laser polishing of pure copper and copper/diamond composites surfaces
Amelie Veillere, Jean-Francois Silvain, Yongfeng Lu, Emmanuel Loubre
Institut de Chimie de la Matière Condensée de Bordeaux, France

E7 July-03 9:40
* Hierarchical Structure Optimization of High-Strength Heat-resistant Titanium Matrix Composites and its Strength-ductility Synergistic Mechanism
Weijie Lyu
Shanghai Jiao Tong University, China

Session E7: Composites (MMC, CMC) / Nanocomposites / Syntactic & Foams 1
Coffee / Tea break 10:00 to 10:30

E7 July-03 10:30
Effect of the interface between coarse and fine grains on strength-ductility balance in dispersion-strengthened bimodal Al-Y_2O_3 nanocomposite fabricated via powder metallurgical route
Tatsuaki Sakamoto, Taichi Yamasaki, Yusuke Jinno, Shinya Shiga, Hiromichi Takebe
Ehime University, Japan

E7 July-03 10:50
Synthesis of zirconium carbide and zirconium diboride particles and fibers as building blocks for ultra-high Temperature ceramic matrix composites
Mathieu Maillard, Manon Juvin, Sovannara Prum, Zineb El Bouzidi, Jerome Andrieux, Pascal Reynaud
University of Lyon, France

E7 July-03 11:10
Nanoscale engineering of low-misfit TiB2/Al3(Sc,Zr)/α-Al multi-interface to improve strength-ductility synergy for direct energy deposited aluminum alloy
Yang Li, Gang Ji, Chen Zhe
Shanghai Jiao Tong University, China

E7 July-03 11:30
Study on the design and preparation of high strength and toughness of Be-Al material and the regulation of interface structure
Wenshu Yang, Gaohui Wu, Kuang Zeyang
Harbin Institute of Technology, China

E7 July-03 11:50
* Microstructural characterization and analysis of the mechanical properties of composite materials based on epoxy resin and glass fiber for their application in blades manufacturing
Erika O. Avila-Davila, Jorge A. Castillo-Hernandez, Yuri S. Hernandez-Demesa, Edgar E. Vera-Cardenas, Armando I. Martinez-Perez, Victor M. Lopez-Hirata, Hector J. Dorantes-Rosales
Tecnológico Nacional de México, Pachuca, Mexico

E7 July-03 12:10
Interface structure control and strengthening-toughening mechanism of graphene/Al composites
Boyu Ju, Jinpeng Sun, Pengfei Xi
Harbin Institute of Technology, China

E7 July-03 12:30
Global Reactive Synthesis and Additive Manufacturing: in-situ synthesis of near net-shape Aluminium Matrix Composites
Jerome Andrieux, Baptiste Forget, Bruno Gardiola, Camille Flament, Mathieu Soulier, Laurent Chaffron, Thierry Baffie, Olivier Dezellus
University of Lyon, France

E7 July-03 12:50 - *Student*
In-situ synthesis of AlN-reinforced hypereutectic Al-Si matrix composites by arc plasma melting for thermal management applications
Jeongwon Choi, Je In Lee
Pusan National University, South Korea

Lunch break 13:10 - Sessions restart at 14:30

Session: E8, Venue: Villandry

Composites (MMC, CMC) / Nanocomposites / Syntactic & Foams 2

Session Chairs: Amelie Veillere, Ichiro Shoji

E8 July-03 14:30 - Keynote
*** Fabrication, architecture design, and characterization of a new Al/graphite flakes-carbon fibre composite used for thermal management**
Jean-Francois Silvain
Institut de Chimie de la Matière Condensée de Bordeaux, France

E8 July-03 15:00
* Thermal properties of carbon-reinforced copper matrix composites produced by powder metallurgy route
Veronique Gauthier-Brunet, Melanie Charteau, Jean-Francois Silvain, Valerie Audurier, Anne Joulain
University of Poitiers, France

E8 July-03 15:20
* Sintering process analysis of aluminum matrix composites using machine learning
Kenjiro Sugio, Yuuki Shinohara, Yoshikazu Hayashi, Gen Sasaki
Hiroshima University, Japan

E8 July-03 15:40
* High-Frequency Electrical Transport and Electronic Properties of Graphene/Copper Composites
Yue Liu, Jiamiao Ni, Tongxiang Fan
Shanghai Jiao Tong University, China

Session E8: Composites (MMC, CMC) / Nanocomposites / Syntactic & Foams 2
Coffee / Tea break 16:00 to 16:30

E8 July-03 16:30
* Microstructural and Morphological Evolution of Novel In-Situ Al-15%Mg_2Si-4.5%Si Composite with Strontium Addition
Mohammed Kedir, Prosenjit Das
Indian Institute of Science, India

E8 July-03 16:50
Design, fabrication, and understanding the heat transfer behaviors of the high-thermal conductive copper-matrix composite materials
Fei Yang
University of Waikato, New Zealand

E8 July-03 17:10
Influence of diamond intrinsic thermal conductivity and particle size on the thermal conductivity of diamond/Al composites
Guoqin Chen, Pingping Wang
Harbin Institute of Technology, China

E8 July-03 17:30
Coordinated deformation and strengthening-toughening mechanisms of multilayer graphene/Al composites
Ziyang Xiu, Gaohui Wu, Boyu Ju
Harbin Institute of Technology, China

E8 July-03 17:50
Preparation of nano-TiB2 particle reinforcement Al composite through mechanically activated self-propagating high temperature synthesis
Zhilei Xiang, Wenchao Sun, Zian Yang, Yang Han, Xinshuo Gu, Ziyong Chen
Beijing University of Technology, China

E8 July-03 18:10
Investigation of microstructure and mechanical behaviour in functionally graded in-situ Al3BC/Al composite fabricated via solid-solid reaction
Debdas Roy
National Institute of Advanced Manufacturing Technology, India

SESSION- F

Session: F1, Venue: Blois

High & Ultra High Temperature Materials (Prof. Haruyuki Inui Symposium) 1

Session Chairs: Kyosuke Kishida, Alexandre Maitre

F1 June-30 10:30 Keynote
*** Microstructures and Mechanical Properties of Directionally Solidified TMSi2/TM5Si3(TM = Mo, Nb)-Based Eutectic Composites**
Kyosuke Kishida, Haruyuki Inui
Kyoto University, Japan

F1 June-30 11:00
* Improvement of high temperature strength of Cr-Co-Ni medium entropy alloy by precipitation of gamma-prime particles
Katsushi Tanaka, Keiki Yoshioka, Takeshi Teramoto
Kobe University, Japan

F1 June-30 11:20
* Grain boundary engineering in the cast & wrought Ni-based superalloy RenÃ© 41 with microalloying additions
Sophie Primig, Felix Theska, Steven Street, Michael Lison-Pick
University of NSW Sydney, Australia

F1 June-30 11:40
* Thermodynamic assessment and calculations of Mo-Si-B-Ti-C system for ultra-high temperature materials
Katsunari Oikawa, Nobufumi Ueshima
Tohoku University, Japan

F1 June-30 12:00
Synthesis, characterization and physical properties of a Ti2NbAlC1.82 ternary nanolaminated carbide
Sylvain Dubois, Mohammed Berrabah, Thierry Cabioch, Veronique Brunet, Patrick Chartier
University of Poitiers (Pprime), France

F1 June-30 12:20
Finite Element Analysis of the nanoindentation tests for evaluating Al2O3/Ni-base substrate interfacial failure stress
Chihiro Tabata, Taiyo Maeda, Toshio Osada, Shingo Ozaki, Kyoko Kawagishi, Shinsuke Suzuki
National Institute for Materials Science Tsukuba, Japan

F1 June-30 12:40
The effect of different C contents on the microstructure evolution and mechanical properties of Ti45Al6Nb alloy
Hongze Fang
Harbin Institute of Technology, China

Lunch break 13:00 - Sessions restart at 14:30

Session: F2, Venue: Blois

High & Ultra High Temperature Materials (Prof. Haruyuki Inui Symposium) 2

Session Chairs: Sophie Primig, Gabriel A. Lopez

F2 June-30 14:30
* Approach of the Spark Plasma Sintering mechanisms for boron phosphides-based ceramics
Alexandre Maitre, Yves Tahan, Nicolas Pradeilles, Olivier Rapaud, Yann Le Godec, Hicham Moutaabbid, Oscar Rojas, Cecile Genevois, Mathieu Allix
Institute of Research for Ceramics, France

F2 June-30 14:50
* Exploring Nb-based alloys for high-temperature structural applications
Ki-Seong Park, Krishnamohan Thekkepat, Du-Hyun Kim, Jae-Hyeok Shim, Seung-Cheol Lee, Seok Su Sohn, Jin-Yoo Suh, Shi-Hoon Choi, Geun Woo Lee
Korea Institute of Science and Technology, South Korea

F2 June-30 15:10
High-speed dry cutting performances of Ti(C, N)-(Ti, W, Re)(C, N)-(W-Re) cermet tools with core-rim microstructure against super stainless steel bars
Takashi Murakami, Jonny Herwan, Ichiro Ogura
National Institute of Advanced Industrial Science and Technology Tsukuba, Japan

F2 June-30 15:30
Synergistic enhancement of strength and toughness of Î²-Ti alloy with a fine grain: Effect of deformation temperature
Ruirun Chen
Harbin Institute of Technology, China

Session F2: High & Ultra High Temperature Materials 2
Coffee / Tea break 15:50 to 16:30

F2 June-30 16:30 - *Student*
Influence of grain boundary serration on creep properties in Nickel based superalloy Nimonic 80A
Ka Yeong Kim, Je In Lee
Pusan National University, South Korea

F2 June-30 16:50 - *Student*
Age-hardening behavior of Ni rich high entropy conventional alloy after cold rolling and flash annealing
Pooja Jangra, Akshit Dutta, Saurabh Nene
Indian Institute of Technology Jodhpur, India

Session: F3, Venue: Blois

High & Ultra High Temperature Materials (Prof. Haruyuki Inui Symposium) 3

Session Chairs: Jin-Yoo Suh, Katsushi Tanaka

F3 July-01 10:30
* TLP Bonding of dissimilar materials
Inaki Lopez-Ferreo, Laura Sanchez-Del Rao, Gonzalo Cofre, Melisa Saugo, Silvana Sommadossi, Boris Straumal, Cecilia Poletti, Gabriel A. Lopez
University of the Basque Country UPV/EHU, Spain

F3 July-01 10:50
* Removal and Immobilization of Impurities in Direct and Complete Recycling Method for Advanced Ni-base Single Crystal Superalloys
Kyoko Kawagishi, Chihiro Tabata, Satoshi Utada, Tadaharu Yokokawa, Shinsuke Suzuki, Hiroshi Harada
National Institute for Materials Science Tsukuba, Japan

F3 July-01 11:10
* Harnessing Nanostructure Control: Strategies for Enhanced Performance in Ni-based Superalloys
Vitor Rielli
University of NSW Sydney, Australia

F3 July-01 11:30
Plastic deformation property of miu-Fe7Ta6 topologically close-packed intermetallic compound
Zhenghao Chen, Kyosuke Kishida, Haruyuki Inui
Kyoto University, Japan

F3 July-01 11:50
Comparison of practical properties of various practical TiAl alloys for jet engine blades
Toshimitsu Tetsui, Kazuhiro Mizuta
National Institute for Materials Science, Japan

F3 July-01 12:10 - *Student*
Hot deformation capability and processing window of powder-HIPed TNM alloy with full lamellar microstructure
Xiaoxuan Xu, Yonghao Yu, Zilong Zhang, Yarong Wang, Guodong Wang, Hongchao Kou
Northwestern Polytechnical University, China

F3 July-01 12:30
High-temperature creep behavior of a Ni-20wt.%Cr Alloy: influence of specimen size and microstructure on deformation behavior
Jade Papin, Cendrine Folton, Yanick Ateba Betanda, Xavier Sauvage, Eric Hug
Laboratoire de Cristallographie et Sciences des Materiaux, France

Lunch break 12:50 - Sessions restart at 14:30

Session: F4, Venue: Blois

Ultra Fine Grained Materials 1

Session Chairs: Yi Huang, Hiroyuki Toda

F4 July-01 14:00 Keynote
*** Advancing High-Entropy Alloys Through Nanostructuring: Enhancing Mechanical Properties and Thermomechanical Behavior**
Megumi Kawasaki, Klaus-Dieter Liss
Oregon State University, United States

F4 July-01 14:30
Suppressing diffusion with the Schwarz crystal structure in Al alloys
Xiuyan Li
Institute of Metal Research Shenyang, China

F4 July-01 14:50
* Prevention of hydrogen embrittlement of HPT-processed ultra-high strength aluminium alloys by hydrogen-absorbing nanoparticles
Hiroyuki Toda, Yafei Wang, Hiro Fujihara, Nozomu Adachi, Yoshitaka Todaka
Kyushu University, Japan

F4 July-01 15:10
* Metastable Schwarz crystal structure in polycrystalline metals with extremely fine grains
Ke Lu, Xiuyan Li, Z.H. Jin
Institute of Metal Research Shenyang, China

F4 July-01 15:30
* Applying ultra-high shear strains to aluminium-graphene composites to achieve an exceptional strength-ductility combination
Yi Huang, Piotr Bazarnik, Malgorzata Lewandowska, Terence G. Langdon
Bournemouth University, United Kingdom

F4 July-01 15:50
* Dynamic Recovery as a Strengthening Mechanism
Amanda Carvalho, Roberto Figueiredo
Universidade Federal de Minas Gerais, Brazil

Session F4: Ultra Fine Grained Materials 1
Coffee / Tea break 16:10 to 16:40

F4 July-01 16:40
Strengthening Mechanisms of Heterogeneous Nano-Structured Stainless Steels and Copper Alloys
Hiromi Miura, Masakazu Kobayashi, Yoshiteru Aoyagi, Chihiro Watanabe
Toyohashi University of Technology, Japan

F4 July-01 17:00
Effect of Subgrain Boundary Distributions on Extra-Hardening of SPD-processed Al-3%Mg alloy
Taiki Morishige, Atsushi Kozaki, Tsutomu Tanaka
Kansai University, Japan

F4 July-01 17:20
Microstructure and mechanical properties of Mg and Mg / Nb alloys after severe plastic deformation by accumulative fold-forging
Farzad Khodabakhshi, Gerhard Wilde
University of Tehran, Iran

F4 July-01 17:40
Hot deformation behavior study of coarse grained and ultrafine grained QE22 magnesium alloy through development of Constitutive analysis and Johnson-Cook model
Biranchi Sahoo, Sonika Rajoria
Sardar Vallabhbhai National Institute of Technology Surat, India

F4 July-01 18:00
Microstructural Refinement and Mechanical Enhancement of Superduplex Stainless Steel Through High-Pressure Sliding
Alisiya Biserova-Tahchieva, Zenji Horita, Nuria Llorca-Isern, Jose Maria Cabrera
Universitat de Barcelona, Spain

Session: F5, Venue: Blois

Materials Performance / Functional & Structural Properties 1

Session Chairs: Lihe Qian

F5 July-02 9:00 - Keynote
*** Dynamic Embrittlement - Time-Dependent Intergranular Cracking of Ni-Base Superalloys at Elevated Temperatures**
Ulrich Krupp, Lars Baehren, Charleen Baumann, Thomas Seifert, Hans-Juergen Christ, Daniel Urban, Ken Wackermann
RWTH Aachen University,Germany

F5 July-02 9:30
* Micro-mechanical characterisation of resistances to hydrogen embrittlement and fatigue crack growth in type 304 stainless steel with nanotwin bundles
Yoji Mine, Kurumi Kawaguchi, Shohei Ueki, Kazuki Takashima
Kumamoto University, Japan

F5 July-02 9:50
* Prior Microstructure effects on Retained Austenite Phase Fraction and Stability in Advanced High Strength Steels
Melissa Thrun, Virginia Euser, Amy Clarke, Kester Clarke
Los Alamos National Laboratory, United States

Session F5: Materials Performance / Functional & Structural Properties 1
Coffee / Tea break 10:10 to 10:40

F5 July-02 10:40
Evolution of dislocation microstructure in cyclically deformed [001], [011], and [111] oriented copper single crystals
Toshiyuki Fujii, Tomotaka Miyazawa, Xiao-Wen Lei
Institute of Science Tokyo, Japan

F5 July-02 11:00
Synchrotron X-ray characterization of gradient microstructure and residual stress anisotropy in high-pressure torsion processed Inconel 718
Laxman Bhatta, Isshu Lee, Klaus-Dieter Liss, Megumi Kawasaki
Oregon State University, United States

F5 July-02 11:20
Tailoring Biodegradable Zinc Alloys: A Powder Metallurgy Approach
J. Kubasek, Anna Boukalova, David Necas, Peter Minarik, Drahomir Dvorsky, Eva Jablosnky
University of Chemistry and Technology, Czech Republic

F5 July-02 11:40
Numerical investigation of fatigue crack propagation in additively manufactured AA5087 sheets
Dominik Poeltl, Nikolai Kashaev, Benjamin Klusemann
Leuphana University of Lueneburg, Germany

SESSION- F

F5 July-02 12:00
Creep behaviour of laser powder bed fusion processed Hastelloy X
Shavi Agrawal, Chandan Kumar, Martin Heilmaier, S. Avadhanig, Satyam Suwas
Indian Institute of Science Bangalore, India

F5 July-02 12:20
The impact of surface properties on strain distribution in air-bending
Antti Kaijalainen, Aki-Petteri Pokka, Matias Jaskari, Juha Huuki
University of Oulu, Finland

F5 July-02 12:40 - *Student*
Mechanical and Thermal Properties of Harmonic Structure Composites with Ti-Ni Alloy and Copper
Kentaro Miyauchi, Mie Kawabata, Tomoko Kuno, Kei Ameyama, Hiroshi Fujiwara
Ritsumeikan University, Japan

Lunch break 13:00 - Sessions restart at 14:30

Session: F6, Venue: Blois

Materials Performance / Functional & Structural Properties 2

Session Chairs: Yoji Mine

F6 July-02 14:30
* Superior tensile and impact properties of a novel high-Mn austenitic steel at extremely low temperatures
Lihe Qian, Chaozhang We
Yanshan University, China

F6 July-02 14:50
The stress field dependency of martensitic transformation in metastable austenitic stainless steel
Ritsuki Morohoshi, Tomoya Kawabata, Masaharu Hatano
The University of Tokyo, Japan

F6 July-05 15:10
Crystal orientation change during simple shear deformation of Fe-3%Si
Naoki Wada, Genki Tsukamoto, Ken Kimura, Natsuko Sugiura
Nippon Steel Corporation, Japan

F6 July-02 15:30
Investigating the Influence of Trace Tantalum on the Microstructure and Mechanical Properties of Niobium Microalloyed Steels
Felipe Moreno Siqueira Borges De Carvalho, Ronaldo M. Lasmar, Livia L. O. Goulart, Marcelo S. Carvalho, Ana Paola V. Braga
Instituto de Pesquisas Tecnologicas, Brazil

F6 July-02 15:50
Microstructure and mechanical properties of high nitrogen austenitic stainless steels manufactured by PM-HIP Process and the effects of Nb addition
Byeongchan Lee, Joonoh Moon, Hyun-Uk Hong, Dongsoo Kim, Sehwan An
Changwon National University, South Korea

Session F6: Materials Performance / Functional & Structural Properties 2
Coffee / Tea break 16:10 to 16:40

F6 July-02 16:40
Effects of Prior Deformation at Cryogenic Temperature on Tensile Deformation Behavior of Heterogeneous Nano-Structured Austenitic Stainless Steel
Chihiro Watanabe, Norimitsu Koga, Hiromi Miura
Kanazawa University, Japan

F6 July-02 17:00 - *Student*
Production of Fe-6.5 %wtSi electrical steels sheets by conventional metallurgy for high-performance electric motors
Touria Badaoui, Anne-Laure Helbert, Vincent Ji, Emilie Berard, Yanick Ateba Betanda, Thierry Waeckerle
Institut de Chimie Moleculaire et des Materiaux d'Orsay, France

Session: F7, Venue: Blois

Materials Performance / Functional & Structural Properties 3

Session Chairs: Dongchan Jang

F7 July-03 9:00
* Corrosion-fatigue performance of friction-welded dissimilar joints
Stefano Rossi, Matteo Benedetti, Vigilio Fontanari
University of Trento, Italy

F7 July-03 9:20
Phase-field modelling of hydrogen embrittlement in metals
Antoine Ruffini, Gabriel Frank Bouobda Moladje, Alphonse Finel, Yann Le Bouar
University of Paris-Saclay, France

F7 July-03 9:40
Cyclic Hot Corrosion Behaviour of Single Crystal CMSX-4 in 60 Wt% Na2SO4 + 40 Wt% NaCl Corrodent Atmosphere at 800 Â°C
M. Arivarasu, Santhosh Kumar Vaiyapuri, Andrzej Nowotnik, Granyna Mrywka-Nowotnik
Vellore Institute of Technology, India

Session F7: Materials Performance / Functional & Structural Properties 3
Coffee / Tea break 10:00 to 10:30

F7 July-03 10:30
Microstructural refinement enhances hydrogen embrittlement resistance in high-strength martensitic steel
Xiaodong Lan, Kazuho Okada, Ivan Gutierrez-Urrutia, Akinobu Shibata
National Institute for Materials Science, Japan

F7 July-03 10:50
Environment-Assisted Cracking of Mg-Al-Zn Alloys in pH-Controlled Carbonate Buffer Solutions
Takumi Haruna
Kansai University, Japan

F7 July-03 11:10 - *Student*
Application of bi-modal milling process to fabricate harmonic structure materials
Seitaro Suzuki, Koki Yagi, Mie Kawabata, Hiroshi Fujiwara, Kei Ameyama
Ritsumeikan University, Japan

F7 July-03 11:30 - *Student*
Synthesis and characterization of an (Al-10Si-3Zn-2Cu)/Ti-6Al-4V interpenetrating phase composite with enhanced mechanical properties
Debashish Mohanta, Ravishankar Suman, Devesh Punera, Srikant Gollapudi
Indian Institute of Technology Bhubaneswar, India

F7 July-03 11:50 - *Student*
An Innovative Grain Refinement Strategy on Biomedical Ti-6Al-4V Alloy for Texture Annihilation
Ozgun Umut Tukac, David Browne, Mert Celikin
University College Dublin, Ireland

F7 July-03 12:10
Interfacial reactions in explosively welded AA1050/AZ31 multilayer plates during post-processing annealing
Henryk Paul, Sandra Puchlerska, Tomasz Tokarski
Institute of Metallurgy and Materials Science, Poland

Lunch break 12:30 - Sessions restart at 14:30

Session: F8, Venue: Blois

Materials Performance / Functional & Structural Properties 4

Session Chairs: Stefano Rossi

F8 July-03 14:30
* Interfacial plasticity of proton-irradiated nanotwinned metals
Dongchan Jang
Korea Advanced Institute of Science and Technology, South Korea

F8 July-03 14:50
Evaluation method for Mode II crack growth rates under rolling contact conditions based on fracture mechanics in railway wheel steels
Ryuta Kurosaka, Takanori Kato
Nippon Steel Corporation, Japan

F8 July-03 15:10 - *Student*
Effect of heat treatment process on microstructure and toughness at cryogenic temperature for 9%Ni steel
Rikiya Madambashi, Norino Kawagoe, Osamu Umezawa, Yoshinori Ono, Masayuki Komatsu
Yokohama National University, Japan

F8 July-03 15:30
* The effect of surface topography and stamping conditions on the frictional behavior of AA5182 aluminum automotive sheet
Li Li, Fu Lei, Kuanxin Liu, Pizhi Zhao
Chinalco Materials Application Research Institute Co., Ltd., China

Session F8: Materials Performance / Functional & Structural Properties 4
Coffee / Tea break 15:50 to 16:30

F8 July-03 16:30 - *Student*
Effects of Changes in Crystal Structure by Plastic Deformation on Corrosion Resistance of Magnesium Alloys
Ryo Hayasaka, Shoihiro Yoshihara, Riku Mitome, Yuki Honma, Takuma Kishimoto, Tsuyoshi Furushima
Shibaura Institute of Technology, Japan

F8 July-03 16:50 - *Student*
Lead-Free KNN-Based Piezoelectric Ceramics: Design and Mechanical Characterization
Jade Clement, Micka Bah, Isabelle Monot-Laffez, Caroline Richard
GREMAN, France

Session: F9, Venue: Blois

Materials Performance / Functional & Structural Properties 5

Session Chairs: Lina Yu

F9 July-04 9:00
* Prediction of Hardness in the Heat-Affected Zone of Multilayer Welded Stainless Steel Based on Dislocation Density Change Behavior
Lina Yu, Hiroyuki Hirata, Kazuyoshi Saida
Osaka University, Japan

F9 July-04 9:20
Microstructure, texture and magnetic properties of warm thermomechanical processed carbon free Fe-1.5% Si (Wt.%) non-oriented electrical steels
Ram Jee Soni, Palguna Yasam, Rajesh Korla, Alexey Gervasyev, Leo A.i. Kestens, Jaiprakash Gautam
University of Hyderabad, India

F9 July-04 9:40 - *Student*
Influence of Process Parameters Variation on Microstructure and Mechanical Properties of SLM-Printed 316L Stainless Steel
Mike Thomas Hauschultz, Maria Helene Friedo, Alessandra Palombi, Alessandra Varone, Ute Geissler, Andrea Boehme, Maria Richetta, Rene Krenz-Baath
Technical University of Applied Sciences Wildau, Germany

F9 July-04 10:00
* Electron Concept of Hydrogen Embrittlement and Hydrogen-Increased Plasticity of Metals
Valentin Gavriljuk, Vladyslav Shyvaniuk, Sergey Teus
Institute of Metal Physics, Ukraine

Session F9: Materials Performance / Functional & Structural Properties 5
Coffee / Tea break 10:20 to 10:50

F9 July-04 10:50 - *Student*
A unique high-temperature deformation mechanism in a CrMnFeCoNi alloy
Hibiki Kawano, Shuki Onoue, Mie Kawabata, Hiroshi Fujiwara, Kei Ameyama
Ritsumeikan University, Japan

F9 July-04 11:10 - *Student*
Evaluation of a Low-Cost System for Measuring Thermal Conductivity in 3D-Printed Metallic Structures
Maria Helene Friedo, Mike Thomas Hauschultz, Conrad Kallabis, Maria Richetta, Andrea Boehme, Rene Krenz-Baath
Technical University of Applied Sciences Wildau, Germany

F9 July-04 11:30
Performance Optimization of Epoxy-Based Nanocomposites with Hybrid Nanofillers and Rocca Oil: Mechanical, Tribological, and Analytical Insights
Husain Alfadhel
Ministry of Public Works, Kuwait

SESSION- G

Session: G1, Venue: Loire

Welding & Joining 1

Session Chairs: Namhyun Kang

G1 June-30 10:30 Keynote
*** Corrosion Fatigue Property of Steel/Aluminum Alloy Weld-Bonded Lap Joint in High Temperature and High Humidity**
Hisashi Serizawa
The University of Osaka, Japan

G1 June-30 11:00
* Synthesis Pathways for Joining Stainless Steel and Titanium Alloys
John Carpenter, Cheryl Hawk, Bernard Gaskey, Rose Bloom, Joseph Goodrich, Alex Prada
Los Alamos National Laboratory, United States

G1 June-30 11:20
* Lap friction stir welding of a TRIP steel grade with a Ni filler
Marie-Noelle Avettand-Fenoel, Toru Nagaoka, Roland Taillard
University of Lille, France

G1 June-30 11:40
Development of Advanced Orbital TIG welding for Utility pipe in Semiconductor factory
Hyosik Ham, Hunsung Yoon, Doojin Choi
Samsung Heavy Industries, South Korea

G1 June-30 12:00
Ultrasonic Bonding of Aluminum alloys to carbon fiber reinforced thermoplastic
Zheyuan Zhang, Tomohiro Sasaki, Takuya Yamada, Yuto Maeda, Hayao Hisamori
Niigata University, Japan

G1 June-30 12:20
Effects of Factors on Deformation-Induced Martensitic Transformation of Metastable Austenitic Weld Metals at Cryogenic Temperature
Shohei Uranaka, Eita Tochigi, Masaharu Hatano, Tomoya Kawabata
The University of Tokyo, Japan

G1 June-30 12:40
Application of electron beam welding in the production of TEMPALOY AA1 and T92 butt joints of pipes assigned for the energy industry
Krzysztof Kwiecinski, Hanna Purzynska, Michal Urzynicok, Adam Zielinski
Upper Silesian Institute of Technology, Poland

Lunch break 13:00 - Sessions restart at 14:30

Session: G2, Venue: Loire

Welding & Joining 2

Session Chairs: Hishahi Serizawa

G2 June-30 14:30 - Keynote
*** Friction Stir Technologies: Evolution of a Disruptive Process over 30 Years**
Rajiv Mishra
University of North Texas, United States

* TLP Bonding of dissimilar materials
L. López-Ferreño, G. Sánchez-Del Río, M. CofreV, S. Saugo, B. Sommadossi, M. C. Straumal, G.A. Poletti, G.A. López
University of the Basque Country UPV/EHU, Spain
G2 June-30 15:00

G2 June-30 15:20
Effect of friction between bonding tool and workpiece on bond microstructure in ultrasonic bonding of Aluminum alloys
Masanori Kitahara, Takuya Yamada, Tomohiro Sasaki, Yuki Eguchi, Yuto Maeda
Niigata University, Japan

G2 June-30 15:40
Overlap-Bonding between Aluminium and Copper through Friction Stir Processing
Abdulrahman Aljabri
Islamic University of Madinah, Saudi Arabia

Session G2: Welding & Joining 2
Coffee / Tea break 16:00 to 16:30

G2 June-30 16:30
Impact of post-weld heat treatment on microstructure, mechanical properties, and corrosion behavior of laser-welded Nb-microalloyed ferritic stainless steel
Mohamed Newishy, Ahmed W. Abdelghany, Mohammed Ali, Hanaa Soliman, Matias Jaskari, Antti Jarvenpaa, Atef Hamada
University of Oulu, Finland

G2 June-30 16:50
Friction Behaviour and Microstructure in Ultrasonic Bonding using Complex Vibrations
Tomohiro Sasaki, Shunri Yamagishi, Tomoaki Nakagawa, Shigeki Saito, Jun Mitsuyuki
Niigata University, Japan

G2 June-30 17:10
* Solidification of off-eutectic alloys
Jinfu Li, Qingyuan Qin, Lin Yang
Shanghai Jiao Tong University, China

SESSION- G

Session: G3, Venue: Loire

Welding & Joining 3

Session Chairs: Rajiv Mishra

G3 July-01 10:30 Keynote
*** Thermodynamical and experimental verification on the enhancement of tensile and impact properties of high strength low alloys steels and their welds**
Namhyun Kang, Seonghoon Yoo, Yoona Lee, Byungrok Moon, Junghyun Choi, Hyunjoon Park, Dae-Geun Nam
Pusan National University, South Korea

G3 July-01 11:00
Reinforcing FSW joints with mechanical interlock utilizing stamping holes
Takahiro Ohashi, Hamed Mofidi Tabatabaei, Tadashi Nishihara
Kokushikan University, Japan

G3 July-01 11:20
Effect of atmospheric condition in Electron beam welding of advanced high strength steel
Magnus Areskoug, Sasan Dadbakhsh, Amir Rashid
KTH Royal Institute of Technology, Sweden

G3 July-01 11:40
Prediction and control of welding distorsion in the aluminium basic element of vehicle structures
Jia Song, Xiaming Chen, Jiajie Zhang, Hiromi Nagaumi
Soochow University, China

G3 July-01 12:00
Microstructure and Mechanical Properties in Al-Cu Lap Joint by Dual Beam Laser Welding
Chaeeun You, Seong Min Yun, Yong Kim, Je In Lee
Pusan National University, South Korea

G3 July-01 12:20
Effect of Magnesium and Silicon on the Temperature Evolution and Mechanical Properties in Refill Friction Stir Spot Welding of Aluminum to Titanium
Lasse Malaske, Uceu Suhuddin, Benjamin Klusemann
Leuphana University Lüneburg, Germany

G3 July-01 12:40
Porosity suppression Using a Combination of Quasi-continuous and Oscillating Lasers in HPDC Al-Si Alloy Welds
Xiaming Chen, Luzhong Zhang, Kunlun Qin, Jia Song, Hiromi Nagaumi
Soochow University, China

Lunch break 13:00 - Sessions restart at 14:30

Session: G4, Venue: Loire

Welding & Joining 4

Session Chairs: Marie-Noelle Avettand-Fenoel

G4 July-01 14:30
Improved mechanical properties of Al-Cu laser lap joints by optimization of laser beam wobbling
Min Yun Seong, Eun Yun Chae, Yong Kim, Je In Lee
Pusan National University, South Korea

G4 July-01 14:50
High temperature deformation behaviour of high melting point alloys with ultrafine grained microstructure and its microstructural evolution during deformation
Lihui Wu, Dingrui Ni, Ning Li, Zongyi Ma
Institute of Metal Research, China

G4 July-04 15:10
Finite Element Modelling and Microstructural Analysis of Laser-Welded AM Inconel 718 Joints
Ali Khosravi, Atef Hamada, Sumit Ghosh, Mahmoud Khedr
University of Oulu, Finland

G4 July-04 15:30
* Reliable and strong overlap joining of copper and aluminium by using insert materials and lasers of two wavelengths
Yasuhiro Okamoto
Okayama University, Japan

Session G4: Welding & Joining 4
Coffee / Tea break 15:50 to 16:20

G4 July-01 16:20
Eliminating heat-affected zone of nuclear heat-resistant steel joint via low-temperature friction stir welding
Zhiwei Wang, Peng Xue, Dingrui Ni, Zongyi Ma
Institute of Metal Research, China

G4 July-01 16:40
Microstructure and Property of Aluminum/Iron Non-Uniform Heat Input Laser Welded Joints
Shuncun Luo, Honglin Mu, Hiromi Nagaumi, Xiaonan Wang, Zengrong Hu
Soochow University, China

Session: G5, Venue: Loire

Cold Spray 1

Session Chairs: Chang-Jiu Li, Ozan Ozdemir

G5 July-02 9:00 - Keynote
*** Enhancing the thermal cycling lifetime of YSZ thermal barrier coatings with air plasma sprayed NiCrAlY bond coat**
Yong-Sheng Zhu, Xiao-Tao Luo, Chang-Jiu Li
Xi'an Jiaotong University, China

G5 July-02 9:30
* Identification and Optimization of Geometric Features Significant for Nozzle Design in Cold Spray Additive Manufacturing using CFD and Artificial Neural Networks
Ozan Ozdemir, Ege Cura
Northeastern University, United States

G5 July-02 9:50
* Insights into the cold spray deposition of martensite materials for repair and coating applications
Harpreet Singh, Vinay Gidla, Ravi Kant
Indian Institute of Technology Ropar, India

Session G5: Coald Spray 1
Coffee / Tea break 10:10 to 10:40

G5 July-02 10:40
Sustainability Efforts in Cold Spray Processing
Danielle Cote, Kyle Tsaknopoulos, Ashton Lyon
Worcester Polytechnic Institute, United States

G5 July-02 11:00
* Microstructural and mechanical characterisation of additively manufactured S235 and 430L steel components by cold spraying
Jiangnan Chen, Alexander List, Frank Gaertner, Thomas Klassen, Max Guendel
Helmut Schmidt University Hamburg, Germany

G5 July-02 11:20
Copper-nickel alloy coating on cast iron by cold spray: microstructure and thermal analysis
Timothee Lauridant, Aya Rostom, Francois Brisset, Fazati Bourahima
CHPOLANSKY, France

Lunch break 11:40 - Sessions restart at 14:30

SESSION- G

Session: G6, Venue: Loire

Fuel Cells, Hydrogen Technologies, Batteries, Super capacitors 1

Session Chairs: Maria Luisa Di Vona, Jedeok Kim

G6 July-02 14:30 - Keynote
*** Preparation and application in oxygen reduction reactions of covalently linked MOF-PSU**
Maria Luisa Di Vona
University of Rome Tor Vergata, Italy

G6 July-02 15:00 - Keynote
*** Carbonaceous electrocatalytic materials for the oxygen reduction reaction**
Philippe Knauth
Aix Marseille University, France

G6 July-05 15:30
* Sulfonated Poly(phenylene sulfone)s Ionomers
Jedeok Kim
NIMS, Japan

G6 July-02 15:50
* Hydrogen-rich bond (N-H and B-H) for Energy Storage and Transfer
Zhenguo Huang
University of Technology Sydney, Australia

Session G6: Fuel Cells, Hydrogen Technologies, Batteries, Super capacitors 1
Coffee / Tea break 16:10 to 16:40

G6 July-02 16:40
Composite Anion Exchange Membranes containing a long-side chain ionomer and exfoliated Lamellar Double Hydroxides
Luca Pasquini, Riccardo Narducci
Aix Marseille University, France

G6 July-02 17:00
Structural, Microstructural and Thermoelectric properties of Al-doped Si-rich Higher Manganese Silicide
Dino R V Ashmi, Reeshma Rameshan, Bhuvanesh Srinivasan, Mythili Prakasam, Alain Largeteau, Suresh Perumal
Indian Institute of Technology Hyderabad, India

Session: G7, Venue: Loire

Fuel Cells, Hydrogen Technologies, Batteries, Super capacitors 2

Session Chairs: Bun Tsuchiya, Hiroki Miyaoka

G7 July-03 8:30 - Keynote
* Hydrogen absorption characteristics of lithium-cobalt oxide ceramics soaked in water at room temperature
Bun Tsuchiya, Keisuke Kataoka, Ryosuke Terasawa, Kohtaku Suzuki, Tomoko Sasaki
Meijo University, Japan

G7 July-03 9:00 - Keynote
*** Shaping and co-sintering of electrochemical devices by tape casting process and recent developments**
Pierre-Marie Geffroy, Jean-Marc Bassat
CNRS, France

G7 July-03 9:30
* Research on Ammonia Synthesis by Alkali Metal compounds
Hiroki Miyaoka, Koki Tsunematsu, Takayuki Ichikawa
Hiroshima University, Japan

G7 July-03 9:50
Investigating the Thermoelectric properties of Ga Substituted Higher Manganese Silicide
Reeshma Rameshan, Dino Ashmi R V, Bhuvanesh Srinivasan, Mythili Prakasam, Alain Largeteau, Suresh Perumal
Indian Institute of Technology Hyderabad, India

Session G7: Fuel Cells, Hydrogen Technologies, Batteries, Super capacitors 2
Coffee / Tea break 10:10 to 10:40

G7 July-03 10:40
* Electrochemical Synthesis of Ni-Co-W-Zr(P) Quinary Medium Entropy Alloy for Enhanced Hydrogen Evolution Reaction
Megha Unni, Nageena P, S. Dasaradha Ramarao, Muneeswaran Muniyandi, Wei Sha, Sudagar Jothi
Vellore Institute of Technology-Andhra Pradesh, India

G7 July-03 11:00
Enhancing the Electrochemical Stability of Aluminum Current Collectors for High-Voltage Lithium-Ion Batteries
Leo Mahe, Caroline Richard, Francois Tran Van
GREMAN, France

G7 July-03 11:20
A new high-entropy perovskite (LaNdSmSrBa)Co0.2Fe0.8O3-δ oxygen electrodes for reversible solid oxide cells
Cecile Autret-Lambert, Khawla Salmam, Antoine Thepin, Micka Bah, Jean-Marc Bassat, Jean Paul Salvetat, Julien Vulliet, Julie Pepin
GREMAN, France

G7 July-03 11:40
Thermoelectric Properties of Zn-Sb Thin Films Deposited by High-Power Impulse Magnetron Sputtering
Min-Chen Chuang, Cheng-Lung Chen, Ludwig Enzlberger, Silke Baler-Paschen, Paul Heinz Mayrhofer, Sheng-Chi Chen
Ming Chi University of Technology, Taiwan

G7 July-03 12:00
Self-healing electrolytes for stretchable Li-ion micro batteries
Sebastien Maria, Clement Chambrial, Marion Rollet, Marc Ramuz, Thierry Djenizian, Didier Gigmes
Institut de Chimie Radicalaire UMR, France

G7 July-03 12:20
Two-step hybridization of polypyrrole (PPy) with poly(3,4-ethylenedioxythiophene)(PEDOT) toward excellent thermoelectric performances
Djelloul Bekkar, Zakaria Sayah, Ahmed Mekki, Linda Nedjar, Cherif Younes Bourenane
Ecole Militaire Polytechnique, Algeria

G7 July-03 12:40
Investigation of the thermoelectric behavior of the ternary composite: Polypyrrole – Ionic liquid – Graphene
Djelloul Bekkar, Zakaria Sayah, Ahmed Mekki, Mohamed Ali Mokrani, Linda Nedjar, Houssem Chabane, Cherif Younes Bourenane
Ecole Militaire Polytechnique, Algeria

Lunch break 13:00 - Sessions restart at 14:30

Session: G8, Venue: Loire

Materials under Extreme Environments & Characterization 1

Session Chairs: Masashi Hasegawa, Sven Vogel

G8 July-03 14:30 - Keynote
*** High Pressure Synthesis and Compression Behaviour of Multicomponent Transition metal Nitrides and Phosphides**
Masashi Hasegawa
Nagoya University, Japan

G8 July-03 15:00 - Keynote
*** High temperature crystal structure of beta-uranium from neutron diffraction**
Sven Vogel, Yi Xie, Michael T. Benson, Jason M. Harp, Sven P. Rudin
Los Alamos National Laboratory, United States

G8 July-03 15:30
Application of Digital Image Correlation (DIC) at Cryogenic temperature: Deformation and Fracture Behavior of Metallic Materials (Al, Welding)
Jongwon Lee, Heeju Han, Seongjun Heo, Unhae Lee, Eunjin Lee, Hyomin Kim, Nokeun Park
Yeungnam University, South Korea

G8 July-03 15:50
* Exploring 2D graphene as atomic armor to protect uranium from ambient corrosion
Yongqiang Wang, Nolan Regis, Matt Chancey, Michael Pettes, Hisato Yamaguchi
Los Alamos National Laboratory, United States

Session G8: Materials under Extreme Environments & Characterization 1
Coffee / Tea break 16:00 to 16:30

G8 July-03 16:30
Development of a New Mn and N Alloyed Austenitic Stainless Steel and Its Weldability Evaluation for Cryogenic Applications
Geunsu Jung, Jongho Shin, Dojin Cha, Seungkook Bang, Younghwa Ma
Doosan Enerbility, South Korea

G8 July-03 16:40
* Enhancement of High-Temperature Oxidation Resistance of Fe-Cr-Al alloys Through Nanocrystalline Structure
Rajiv Kumar
Indian Institute of Technology Ropar, India

Session: G9, Venue: Loire

Materials under Extreme Environments & Characterization 2

Session Chairs: Shi-Hoon Choi, Alexandre Courac

G9 July-04 9:00 - Keynote
*** Effect of Rolling Reduction and Cryogenic Temperature on the Deformation and Recrystallization Behavior of Ta-10W Alloy**
Shi-Hoon Choi, Ki-Seong Park
Sunchon National University, South Korea

G9 July-04 9:30
* CALPHAD methodology for high-pressure synthesis: Phase diagram of Mg-C system by in-situ X-ray diffraction and phenomenological thermodynamics
Alexandre Courac, Vladimir Turkevich, Fabio Pietrucci, Masashi Hasegawa, Wilson Crichton, Yann Le Godec
University of Paris Sorbonne, France

G9 July-04 9:50
High pressure Spark Plasma Sintering of boron based nano-structured hard boron phosphide (BP, B12P2) for ballistic applications
Hicham Moutaabbid, Yann Le Godec, Alexandre Maitre, Yves Tahan, Nicolas Pradeilles, Olivier Rapaud, Pascal Fortrin
University of Paris Sorbonne, France

Session G9: Materials under Extreme Environments & Characterization 2
Coffee / Tea break 10:30 to 11:00

G9 July-04 11:00
Effects of alloying elements on marine corrosion resistance of structural steel
Borja Pena Quintero, Maribel Arribas, Inaki Perez, Mikel Merchan, Jose Carlos Garcia, Roberto Elvira, Jose Tomas San Jose
Tecnalia R&I, Spain

G9 July-04 11:20
Damage evolution in nanostructured ferritic alloys produced via various methods under high dose ion irradiations
Eda Aydogan, Jen Darsell, Wei-Ying Chen, Kayla Yano, Xiao Li, Caleb Massey, Lin Shao, Curt Lavender, Mark Rhodes, Justin Olson, Dalong Zhang, Iver Anderson, Stuart Maloy
Pacific Northwest National Laboratory, United States

G9 July-04 11:40
Can accelerated neutron irradiations replicate historical microstructural characteristics in U-Zr fuels?
Maria Okuniewski, Nicole Rodriguez Perez, Morgan Smith
Purdue University, United States

SESSION- G

G9 July-04 12:00
* Development of skutterudite-type thermoelectric materials using pressure induced self-insertion reaction
Chihiro Sekine, Sora Ozaki, Amran Hossain, Hirotada Gotou
Muroran Institute of Technology, Japan

SESSION- H

Session: H1, Venue: Berry

Ti Alloys/Aerospace Structural Metallic Materials 1

Session Chairs: Sergey Prikhodko

H1 June-30 10:30 Keynote
*** Texture dependence of fatigue in near-alpha titanium alloys**
Satyam Suwas, S. Tejanath Reddy
Indian Institute of Science Bangalore, India

H1 June-30 11:00
* In situ assessment of the influence of omega on the properties of metastable beta Ti alloys
Nick Jones, N. L. Church, C. E. P. Talbot, O. G. Reed
University of Cambridge, United Kingdom

H1 June-30 11:20
Fretting damage mechanisms mediated by α precipitates and β crystallographic textures in a metastable β titanium alloy
Ke Hua, Yanlin Tong, Yue Cao, Haifeng Wang
Northwestern Polytechnical University, China

H1 June-30 11:40
Effects of heat treatments on the microstructure, phase development and mechanical properties of PMD additively manufactured ternary and quaternary Ti-Cu-based alloys with Fe and Cr additions
Christian Edtmaier, Ella Staufer
TU Wien, Austria

H1 June-30 12:00
High temperature oxidation behavior of lightweight and formable high entropy alloys
Aditya Balpande, Sanika Deshmukh, Saurabh Nene
Indian Institute of Technology Jodhpur, India

Lunch break 12:20 - Sessions restart at 14:30

Session: H2, Venue: Berry

Ti Alloys/Aerospace Structural Metallic Materials 2

Session Chairs: Satyam Suwas, Nick Jones

H2 June-30 14:30
* Fabrication and Thermomechanical Processing of Titanium-Based Laminates for Enhanced Performance under High Dynamic Impact
Sergey Prikhodko, Victor Samarov, Eric Eyerman, Chris Melnyk, Evander Ramos, Dmytro Savvakin, Pavlo Markovsky
University of California Los Angeles, United States

H2 June-30 14:50
* High fatigue limit / tensile strength ratio of beta-type Ti-Cr alloy for biomedical applications
Masaaki Nakai, Kosuke Ueki, Takahisa Shiraishi, Takanori Kiguchi
Kindai University, Japan

H2 June-30 15:10
Electropulsing effects on microstructural evolution in cold-rolled Grade 2 titanium sheet
Seong Ho Lee, Jinyeong Yu, Seho Cheon, Jong Woo Won, Jong Un Lee, Taekyung Lee
Pusan National University, South Korea

H2 June-30 15:30
Heterogeneous Beta structure significantly improves work hardening properties of metastable Beta titanium alloy
Guodong Wang, Hao Yang, Mingxiang Zhu, Xiaoxuan Xu, Xiangyi Xue, Hongchao Kou
Northwestern Polytechnical University, China

Session H2: Ti Alloys/Aerospace Structural Metallic Materials 2
Coffee / Tea break 15:50 to 16:20

H2 June-30 16:20
Influence of Extrusion and Annealing on the Microstructure and Strength of an α-Titanium Alloy
Vaibhav Kumar, Shreshtha Ranjan, Vishal Kumar, S. Banumathy, Nitish Bibhanshu
Indian Institute of Technology Ropar, India

SESSION- H

Session: H3, Venue: Berry

Metallic Glasses/Bulk Metallic Amorphous Materials (Prof. Lindsay Greer Symposium) 1

Session Chairs: Junji Saida, Michael Zehetbauer

H3 July-01 10:30 Keynote
*** Nearly Fifty Years of Metallic Glasses**
Lindsay A. Greer
University of Cambridge, United Kingdom

H3 July-01 11:00
* Atomic cooperativity at deformation of metallic glasses
Takeshi Egami
University of Tennessee and Oak Ridge National Laboratory, United States

H3 July-01 11:20
* Influence of Strain Rate on the Deformation Behavior of Pt-Cu-Ni-P Bulk Metallic Glass
Shuhan Zhang, Jenny Hay, Kurt Johanns, Aaron Stein, Amit Datye, Udo Schwarz
Yale University, United States

H3 July-01 11:40
* Cryogenic Thermal Cycling of Metallic Glasses: From Concept to Applications
Yonghao Sun
Institute of Physics, Chinese Academy of Sciences, China

H3 July-01 12:00
* Relevance of the Structure and Dynamics of High Temperature Metallic Liquids to Glass Formation
Ken Kelton
Washington University in St. Louis, United States

H3 July-01 12:20
* Rapidly Annealed High-Bs Soft Magnetic FeCo-Based Amorphous and Nanocrystalline Ribbons for High Temperature Applications
Ivan Skorvanek, Branislav Kunca, Jozef Marcin, Peter Svec
Institute of Experimental Physics, Slovak Academy of Sciences, Slovakia

H3 July-01 12:40 - *Student*
Processing of a Zr-based bulk metallic glass
Manon Bornand
University of Grenoble Alpes, France

Lunch break 13:00 - Sessions restart at 14:30

Session: H4, Venue: Berry

Metallic Glasses/Bulk Metallic Amorphous Materials (Prof. Lindsay Greer Symposium) 2

Session Chairs: Frans Spaepen, Udo Schwarz

H4 July-01 14:30 - Keynote
*** Formation of gradient rejuvenation structure in Zr-based bulk metallic glass and its effect on ductility improvement**
Junji Saida, Wookha Ryu, Masaki Sugisawa, Keisuke Tabaru, Rui Yamada
Tohoku University, Japan

H4 July-01 15:00 - Keynote
*** Development and Industrialization of Soft Magnetic Fe-based Bulk Glassy Alloy Group**
Akihisa Inoue, Fanli Kong, He Men
Josai International University, Japan

H4 July-01 15:30
* Undercooling Governing Chemical Heterogeneity and Glass-forming Ability of Bulk Metallic Glasses
Jurgen Eckert
Montanuniversitat Leoben, Austria

H4 July-01 15:50
* SPD as a tool to improve the plasticity of Bulk Metallic Glasses
Christian Ebner, Benjamin Escher, Simon Pauly, Christoph Gammer, Pierre Denis, Caroline Meylan, Christian Rentenberger, Jurgen Eckert, Hans Fecht, A. Lindsay Greer, Michael Zehetbauer
University of Vienna, Austria

Session H4: Metallic Glasses (Prof. Lindsay Greer Symposium) 2
Coffee / Tea break 16:10 to 16:40

H4 July-01 16:40
Identification of Deformation Elements in Metallic Glasses through Frozen Atom Analysis
Yoshinori Shiihara, Takuya Iwashita
Toyota Technological Institute, Japan

H4 July-01 17:00
From nano-patterned Pt-based metallic glass to copper oxide foam formation
Florian Spieckermann, Fei-Fan Cai, Baran Sarac, Adnan Akman, Selin Gümrükçü, Lukas Schweiger, Martin Hantusch, Jan Schroers, Andreas Blatter, Annett Gebert, Jurgen Eckert
Montanuniversitat Leoben, Austria

Session: H5, Venue: Berry

Metallic Glasses/Bulk Metallic Amorphous Materials (Prof. Lindsay Greer Symposium) 3

Session Chairs: Annett Gebert, Yonghao Sun

H5 July-02 9:00 - Keynote
*** The Crystal-Melt Interface in the Hard Sphere System**
Frans Spaepen
Harvard University, United States

H5 July-02 9:30
* Metallic glasses as prospective biomaterials for miniaturized implants
Mariana Calin, Jurgen Eckert, Annett Gebert
Leibniz Institute for Solid State and Materials Research, Germany

H5 July-02 9:50
* Impact of porosity on the mechanical properties of Zr-based Metallic Glasses fabricated by Laser Powder Bed Fusion (L-PBF)
Jean-Jacques Blandin, Camille Pauzon, Muhammad Fakhry Hatta, Merlin Kempf, Remi Daudin
Grenoble INP, CNRS, SIMAP, France

Session H5: Metallic Glasses (Prof. Lindsay Greer Symposium) 3
Coffee / Tea break 10:10 to 10:40

H5 July-02 10:40
* Surface designs to improve the biocompatibility of Ti-based bulk metallic glasses
Annett Gebert, Nora Fernandez Navas, Viktoriia Shtefan, Ute Hempel, Mariana Calin
Leibniz Institute for Solid State and Materials Research, Germany

H5 July-02 11:00
* On the design of biocompatible β-Ti-based alloys for bone implants by ab initio and cellular potts model
Christina Lekka, Annett Gebert, Mariana Calin
University of Ioannina, Greece

H5 July-02 11:20
* Amorphous Materials Examined with a Multifaceted Approach
Hirokazu Masai
National Institute of Advanced Industrial Science and Technology (AIST), Japan

H5 July-02 11:40
Development of Biocompatible, Toxic-Free Zr-Based Metallic Glass Alloys for Long-Term Biomedical Applications
Fereshteh Sourani, Parthiban Ramasamy, Elham Sharifikolouei, Jurgen Eckert
Erich Schmid Institute of Materials Science, Austria

H5 July-02 12:00
Porosity control in Additively Manufactured metallic glass by laser rescanning studied with synchrotron X-ray Computed Tomography
Camille Pauzon, Remi Daudin, Pierre Lhuissier, Xavier Bataillon, Pierre Lapouge, Pierre Hubrard, Patrice Peyre, Frederic Coste, Lucas Varoto, Elodie Boller, Muhammad Fakhry Hatta, Jean-Jacques Blandin
SIMaP laboratory, France

H5 July-02 12:20 - *Student*
Insights on the heterogeneous to homogenous flow transition in a Zr-based metallic glass
Merlin Kempf, Remi Daudin, Marc Fivel, Gerhard Wilde, Lukas Musiol, Jean-Jacques Blandin
University of Grenoble Alpes, France

H5 July-02 12:40
Dynamic relaxation processes of amorphous alloys: Theoretical view and experimental validation
Jichao Qiao
Northwestern Polytechnical University, China

Lunch break 13:00 - Sessions restart at 14:30

Session: H6, Venue: Berry

Modelling & Simulation 1

Session Chairs: Yoshiteru Aoyagi, Jorg Neugebauer

H6 July-02 14:30 - Keynote
*** Deep Generative Model to extract process-structure-property linkage in low-carbon steel**
Junya Inoue
The University of Tokyo, Japan

H6 July-02 15:00
* Dissecting physics of carbon ordering in bcc iron
Osamu Waseda, Tilmann Hickel, Patrice Chantrenne, Julien Morthomas, Michel Perez, Jorg Neugebauer
Max-Planck-Institute for Sustainable Materials, Germany

H6 July-05 15:20
* Representing texture in surrogate models of crystal plasticity to predict material behaviour and quantify uncertainty
Matthew Peel, Hugh Dorward, Sina Safari, Mahmoud Mostafavi
University of Bristol, United Kingdom

H6 July-02 15:40
* Influence of impurity atoms on the diffusivity and spatial evolution of vacancy in aluminum alloys
Xuezhou Wang, Chunan Li, Yijiang Xu, Yanjun Li
Norwegian University of Science and Technology (NTNU), Norway

Session H6: Modelling & Simulation 1
Coffee / Tea break 16:00 to 16:30

H6 July-02 16:30
* Pairwise comparison algorithms in alloy design: machine learning tools for the mining of non-standard, human expert or textual data
Franck Tancret, Lisa Rateau, Rafael Herschberg, Kornelia Jamiolkowska, Maciej Zawistowski, Gerard Ramstein, Edern Menou, Anna Fraczkiewicz
Institut des Materiaux de Nantes Jean Rouxel, France

H6 July-02 16:50
* Phase field model of modification of microstructure of Novel Al-15Mg2Si-4.5Si composite by addition of Strontium during semi-solid processing
Indrani Mukherjee, Prosenjit Das
Indian Institute of Science, India

H6 July-02 17:10 - Student
Finite element simulation strategies for cold pilgering process
Anes Marir, Katia Mocellin, Pierre Montmitonnet, Florian Lyonnet, Jean-Luc Doudoux
Centre de Mise en Forme des Materiaux, France

H6 July-02 17:30
Research of hot deformation behavior of 7B75 aluminum alloy and the material constitutive model
Fu Lei, Li Li
Chinalco Materials Application Research Institute Co., Ltd., China

Session: H7, Venue: Berry

Modelling & Simulation 2

Session Chairs: Yoon Suk Choi, Ernst Kozeschnik

H7 July-03 8:30 - Keynote
*** Testing Theories and Simulations on Phase Coarsening by Experiments**
Kegang Wang
Florida Institute of Technology, United States

H7 July-03 9:00
* Multiscale Finite Element Simulation on Effect of Groove Shape on Strain Distribution in Caliver Rolling
Yoshiteru Aoyagi, Haruki Ohashi, Chihiro Watanabe, Hiromi Miura
Tohoku University, Japan

H7 July-03 9:20
* A meso-scale model to predict flow stress and microstructure during hot deformation of IN718WP
Nilesh Kumar, Franz Miller Branco Ferraz, Ricardo Buzolin, Esmaeil Shahryari Shahryari, Maria Cecilia Poletti, Surya Yadav
Indian Institute of Technology Varanasi, India

H7 July-03 9:40
* Mechanical stability analysis of edge dislocations near nanometal surface
Hiroyuki Shima, Yoshitaka Umeno, Takashi Sumigawa
University of Yamanashi, Japan

Session H7: Modelling & Simulation 2
Coffee / Tea break 10:00 to 10:30

H7 July-03 10:30
The effect of precipitate chemistry on hydrogen-enhanced decohesion in Ni-based alloys: An ab initio study
Nina Damm, Daniel Scheiber, Lorenz Romaner, Vsevolod Razumovskiy
Materials Center Leoben Forschung GmbH, Austria

H7 July-03 10:50
Modelling combined hardening mechanisms in alloys through the analysis of dislocation percolation
Rafael Schouwenaars
Universidad Nacional Autonoma de Mexico, Mexico

H7 July-03 11:10
Identification of the stochastic hot forming model based on the inverse analysis for the four types of compression tests
Danuta Szeliga, Natalia Jazdzewska, Jan Kusiak, Piotr Oprocha, Maciej Pietrzyk, Pawe Potorski, Pawe Przybylowicz
AGH University of Krakow, Poland

H7 July-03 11:30
Numerical modelling of precipitation kinetics in Al alloys during solid-state processing
Rupesh Chafle, Susanne Henninger, Peter Staron, Benjamin Klusemann
Helmholtz-Zentrum Hereon, Germany

H7 July-03 11:50
A computational framework for modeling and predicting the mechanical behavior of materials applied to martensitic steels
Ake Jansson, Bartek Kaplan, Thomas Barkar, Armin Salmasi
Thermo-Calc Software AB, Sweden

H7 July-03 12:10
Finite Element Analysis of a Nickel-Titanium Lattice Structure: Mechanical Performance and Deformation Behaviour
Mehran Bahramyan, Suzanne Little, Dermot Brabazon
Dublin City University, Ireland

H7 July-03 12:30 - *Student*
Application of an Activation-function modified Norton law to predict the two-step minima creep deformation observed in Incoloy 800H
Carlos Rojas-Ulloa, Fan Chen, Victor Tuninetti, Amedeo Di Giovanni, Olivier Pensis, Alexandre Vendramini, Laurent Duchene, Anne Habraken
University of Liege, Belgium

H7 July-03 12:50
Phase-field modelling of oxide growth on chromium-rich alloys
Valentin Bellaich, Antoine Ruffini, Alphonse Finel, Yann Le Bouar, Guillaume Parry
University of Paris-Saclay, France

Lunch break 13:10 - Sessions restart at 14:30

SESSION- H

Session: H8, Venue: Berry

Modelling & Simulation 3

Session Chairs: Kegang Wang, Matthew Peel

H8 July-03 14:30 - Keynote
* Microstructure-Based Fatigue Life Prediction Approaches for Hypo-Eutectoid Steels: Uniaxial and Non-Uniaxial Fatigues Lives, and Their Variabilities
Yoon Suk Choi, Jonghoon Shin, Dae-Geun Nam
Pusan National University, South Korea

H8 July-03 15:00
* Simple flow rules for three-phase viscoplastic materials
Frank Montheillet, David Piot
Mines Saint-Etienne, France

H8 July-03 15:20
Finite element modelling of electromagnetic heating
Katariina Lehtola, Joonas Ilmola, Jari Larkiola
University of Oulu, Finland

H8 July-03 15:40
* An Implicit Approach to Phase Field Modeling of Alloy Solidification
Chris Newman
Los Alamos National Laboratory, United States

Session H8: Modelling & Simulation 3
Coffee / Tea break 16:00 to 16:30

H8 July-03 16:30
A deep-learning based surrogate model for the numerical simulation of casting process
Jinwu Kang, Qichao Zhao, Jiwu Wang, Yahui Yang
Tsinghua University, China

H8 July-03 16:50
* Predicting Thermodynamic and Thermophysical Properties Using Machine Learning
Hai-Lin Chen, Qing Chen
Thermo-Calc, Sweden

H8 July-03 17:10 - *Student*
Application of Thermodynamic Extremal Principle to the Sintering of Irregular Powder Particles
Max Weiner, Matthias Schmidtchen, Ulrich Prahl
Technische Universitat Bergakademie Freiberg, Germany

H8 July-03 17:30
* Effect of Interstitial Elements (B, C, N, O) on Tetragonality of L10 FeNi: A first-Principles Study
Jae-Hoon Jang, Hary K. D. H. Bhadeshia
Korea Institute of Materials Science, South Korea

Session: H9, Venue: Berry

Modelling & Simulation 4

Session Chairs: Junya Inoue, Osamu Waseda

H9 July-04 8:30 - Keynote
*** Utilizing Automated Workflows and Thermodynamic Models to Compute Ab Initio Bulk and Defect Phase Diagrams**
Jorg Neugebauer, Marvin Poul, Ali Tehranchi, Jing Yang, Mira Todorova, Jan Janssen, Tilmann Hickel
Max-Planck-Institut for Sustainable Materials, Germany

H9 July-04 9:00
Stochastic scaling of time step in a full-scale Monte Carlo Potts model
Sang-Ho Oh, Chan Lim, Byeong-Joo Lee
Pohang University of Science and Technology (POSTECH), South Korea

H9 July-04 9:20
Multiscale Modeling and Simulation of Manufacturing Process for Ni-Based Single-Crystal Superalloys
Qingyan Xu, Yeyuan Hu
Tsinghua University, China

H9 July-04 9:40
* Strengthening and softening mechanisms of a dual-heterostructured steel: A coupled crystal plasticity and damage phase field study
Xu Zhang, Shaorong Liu
Southwest Jiaotong University, China

Session H9: Modelling & Simulation 4
Coffee / Tea break 10:00 to 10:30

H9 July-04 10:30
Experimental Studies and Simulation of TRIP-TWIP Roll Bonding
Jennifer Mantel, Matthias Schmidtchen, Mikhai Seleznev, Anja Weidner, Horst Biermann, Ulrich Prahl
TU Bergakademie Freiberg, Germany

H9 July-04 10:50
Data-driven estimation of tensile properties of alloys using instrumented indentation method
Ta-Te Chen, Ikumu Watanabe, Yoshitaka Adachi
Nagoya University, Japan

H9 July-04 11:10
Thermodynamics properties of Ti2Al-M-ternary V-VIB groups O-phase alloys from first-principles calculations
Zeinab Heidaripebdani, Rebecca Janisch, Florian Pyzcak
Helmholtz-Zentrum Hereon, Germany

H9 July-04 11:30
Generalized stacking fault energy in multi-component Co-based L12 precipitates
Yingchun Tang, Song Lu, Levente Vitos, Florian Pyczak
Helmholtz-Zentrum Hereon, Germany

H9 July-04 11:50
Modelling of precipitation processes in multicomponent alloys
Sylvain Ducottet, Charles-Andre Gandin, Michel Bellet, Gildas Guillemot, Yancheng Zhang
Centre de Mise en Forme des Materiaux, France

SESSION- I

Session: I1, Venue: Cher

Nanomaterials for Structural & Energy Applications 1

Session Chairs: Takahiro Maruyama, Hiroki Kondo

I1 June-30 10:30 Keynote
*** Plasma Synthesis of 3D Graphene-Based Materials and their Applications**
Mineo Hiramatsu, Keigo Takeda
Meijo University, Japan

I1 June-30 11:00
* Amorphous Gallium Oxide Memristor for High-temperature Electronics
Akira Sakai
Osaka University, Japan

I1 June-30 11:20
* Engineering of ceramic oxides microstructures using low temperature sintering processes
Claude Estournes, Julien De Landtsheer, Nicolas Albar, Melanie Rousselle, Geoffroy Chevallier, Alicia Weibel, Florence Ansart, Guillaume Fradet, Catherine Elissalde, Thomas Herisson De Beauvoir
CIRIMAT, Universite de Toulouse, France

I1 June-30 11:40
* Nanocomposites of reduced graphene oxide for 2D symmetric micro-supercapacitor with high energy storage performances
Catherine Debiemme-Chouvy, Adnane Bouzina, Nada Marzouq, Ozlem Sel, Hubert Perrot
Laboratoire Interfaces et Systemes Electrochimiques, France

I1 June-30 12:00
* Precision metal patterning via femtosecond laser-induced thermochemical reaction without excessive precipitation from glyoxylic acid metal complex solution
Mizue Mizoshiri
Nagaoka University of Technology, Japan

I1 June-30 12:20
Employing Shear Punch Testing to Investigate Thermomechanical Properties of Nanocrystalline Brass
Oliver Petry, Karsten Durst, Sebastian Bruns, Naeimeh Fakhar
Technical University of Darmstadt, Germany

I1 June-30 12:40
Self-Assembled Growth of 3D Nanostructures for High Electrochemical Performance by RF Magnetron Sputtering
Ki-Chul Kim
Mokwon University, South Korea

Lunch break 13:00 - Sessions restart at 14:30

Session: I2, Venue: Cher

Nanomaterials for Structural & Energy Applications 2

Session Chairs: Mineo Hiramatsu, Hideki Sato

I2 June-30 14:30
* In situ XAFS study on chemical states of transition-metal catalyst during single-walled carbon nanotube growth under conventional CVD conditions with ethanol and C2H2 feedstock
Takahiro Maruyama, Jumpei Horiuchi, Shinya Mizuno, Kamal Sharma, Takahiro Saida
Meijo University, Japan

I2 June-30 14:50
* Some Issues Related to the Formation of GaN-based Nanopillar LEDs on Multicrystalline Si Substrates
Yuichi Sato
Akita University, Japan

I2 June-30 15:10
* Data-driven analysis and control of plasma-enhanced deposition of functional carbon materials
Hiroki Kondo, Takayoshi Tsutsumi, Kenji Ishikawa, Makoto Sekine, Masaru Hori
Kyushu University, Japan

I2 June-30 15:30
* Surface Chemical Modification of BaTiO3 Nanocubes for Controlling Physical-Chemical Functions
Tohru Sekino, Yonghyun Cho, Yoshifumi Kondo, Yeongjun Seo, Sunghun Cho, Tomoyo Goto
Osaka University, Japan I2 June-30 15:40

Session I2: Nanomaterials for Structural & Energy Applications 2
Coffee / Tea break 15:50 to 16:30

I2 June-30 16:30
A Novel Understanding for Plastic Deformation and Mechanical Amorphization of Amorphous and Crystalline Silica under Electron-Beam Irradiation
In-Suk Choi
Seoul National University, South Korea

I2 June-30 16:50
* Low-dimensional Nanocomposites for Proton Exchange Membrane Fuel Cell and Other Energy Applications
Daniel H.C. Chua
National University of Singapore, Singapore

I2 June-30 17:10
* Novel Gas Sensing Selectivity Defined by Response Behavior
Shu Yin
Tohoku University, Japan

Session: I3, Venue: Cher

Nanomaterials for Structural & Energy Applications 3

Session Chairs: Catherine Debiemme-Chouvy, Tohru Sekino

I3 July-01 10:30
* Growth and Magnetic Characteristics of Iron-filled Carbon Nanotubes
Hideki Sato, Yuji Fujiwara
Mie University, Japan

I3 July-01 10:50
* Robust high-capacity all-solid-state Lithium-ion batteries enabled with nanoparticulate anodes produced by plasma spraying
Makoto Kambara, Sora Kyutoku, Tsubasa Hagiwara, Toshimi Tanaka, Masashi Dougakiuchi
Osaka University, Japan

I3 July-01 11:10
* Superatom–Like β–FeSi2 Core/Si Shell Quantum Dots via Self-Assembly and Self-Alignment Processes
Katsunori Makihara
Nagoya University, Japan

I3 July-01 11:30
* Monolithic Integration of Eu-doped GaN/InGaN Quantum Wells for Full-color Micro-LEDs with Enhanced Red Emission
Yasufumi Fujiwara
Ritsumeikan University, Japan

I3 July-01 11:50
* Hydrogen desorption from GeH nanosheets under ultrahigh vacuum ambient towards germanene synthesizing
Masashi Kurosawa, Kazuho Matsumoto, Masaaki Araidai, Shigehisa Shibayama, Mitsuo Sakashita, Osamu Nakatsuka
Nagoya University, Japan

I3 July-01 12:10
* Low-temperature synthesis of graphene usable in the harsh environment of liquids for energy applications
Masaki Tanemura, Muzzammil Bin Ngatiman, Nur Sahiera Binti Abd Rohim, Naoko Yoshida, Jiaxin Yan, Daniel Chua, Wei Ming Lin, Toru Asaka, Yazid Yaakob, Yong Yang, Mohd Zamri Mohd Yusop
Nagoya Institute of Technology, Japan

I3 July-01 12:30 - *Student*
Optimization of Hydrogen Alarm Sensor on Semiconductor Basis
Ronald Werner, Paolo Prosposito, Andrea Boehme, Rene Krenz-Baath
Technical University of Applied Sciences Wildau, Germany

Lunch break 12:50 - Sessions restart at 14:30

Session: I4, Venue: Cher

Advanced Materials for Bioengineering Applications & Nano Materials for Medicine

Applications 1

Session Chairs: Monica Rendon Echeverry, Guangyin Yuan

I4 July-01 14:30 - Keynote
*** Functional Coatings by Low Vacuum Plasma for the Innovation in Regenerative and Reparative Medicine**
Pascale Chevallier, Carlo Paternoster, Francesco Copes, Andranik Sarkissian, Diego Mantovani
Laval University, Canada

I4 July-01 15:00
* Elastomer patterning and stacking process for stretchable multilayer electronic circuit based on laser-induced photo-thermal effect
Hojeong Jeon
Korea Institute of Science and Technology, South Korea

I4 July-01 15:20
* Widening the scope for non-noble metal initiation of electroless copper deposition
Andrew Cobley
Coventry University, United Kingdom

I4 July-01 15:40
The Total Stress Approach to Martensitic Transformations in Superelastic Ti-Nb Alloys
Nicole Church, Nicholas Jones
University of Cambridge, United Kingdom

Session I4: Advanced Materials for Bioengineering Applications 1
Coffee / Tea break 16:00 to 16:30

I4 July-01 16:30
Deposition of nanoparticles in lattice structures: example of antibacterial ZnO nanowires
Laurent Weiss, Malobi Seth, Samantha Soule
University of Lorraine, France

I4 July-01 16:50 - *Student*
Investigation of Microstructure Evolution and Cytocompatibilities of ODS Modified Ti64 Alloy: A Comparative Study of Y-Zr-O and Y-Hf-O Oxides
Merve Yesim Yalcin, Merve Nur Dogu, Betul Govercin, Dermot Brabazon, Mert Celikin
University College Dublin, Ireland

Session: I5, Venue: Cher

Advanced Materials for Bioengineering Applications & Nano Materials for Medicine

Applications 2

Session Chairs: Diego Mantovani, Yuncang Li

I5 July-02 9:00 - Keynote
*** Breakthrough of strength and ductility trade-off in biodegradable Mg alloys by drawing at elevated temperatures for bone implants**
Guangyin Yuan
Shanghai Jiao Tong University, China

I5 July-02 9:30
* Effect of Surface Modifications on the Biological Response of Additively Manufactured Metallic Implants
Monica Rendon Echeverry, Jesus Ordono, Oscar Contreras-Almengor, Nafiseh Mollaei, Javier Llorca, Federico Sket, Jon Molina-Aldareguia
Institute IMDEA Materials Madrid, Spain

I5 July-02 9:50
* Advanced methods of engineering materials surface properties modification towards functional and biomedical application
Marcin Adamiak, Anna Wozniak, Oktawian Bialas, Augustine Appiah, Hana Mamo
Silesian University of Technology, Poland

Session I5: Advanced Materials for Bioengineering Applications 2
Coffee / Tea break 10:10 to 10:40

I5 July-02 10:40
Microstructure development of a Zn-based biodegradable alloy during laser shock peening
Jaroslav Capek, Jan Pinc, Jan Kaufman, Jan Brajer, Toms Studecky, Jiri Kubasek
Institute of Physics of the Czech Academy of Sciences, Czech Republic

I5 July-02 11:00
High plasticity Zn-Mn alloy and effects of further alloying
Zhang-Zhi Shi, Meng Li, Xiang-Min Li, Lu-Ning Wang
University of Science and Technology Beijing, China

I5 July-02 11:20
Gelation, Vitrification and Shrinkage of Thermoset Polymers – Methods for Investigation and Modelling
Paul Ludwig Geiss, Melanie Schumann
Technische Universitat Kaiserslautern Landau, Germany

I5 July-02 11:40
Bioresorbable ultrafine-grained Zn stabilized with nanometric ZnO dispersoids
Martin Balog, Peter Krzik, Moara Marques De Castro, Andrea Skolakova, Jan Pinc, Jiri Kubasek, Francisca M. Seabra, Yujie Zhao, Roberto Figueiredo
Institute of Materials and Machine Mechanics, Slovakia

I5 July-02 12:00
Influence of Si and process parameters on the microstructure and properties of continuously annealed low C-Nb-Ti strip steel
Kevin Banks, Dannis Maubane, Muthoiwa Netshilema
University of Pretoria, South Africa

I5 July-02 12:20 - *Student*
Hot deformation behaviour and microstructure evolution of degradable Zn-0.8Mn alloy
Meng Li, Zhang-Zhi Shi, Lu-Ning Wang
University of Science and Technology Beijing, China

I5 July-02 12:40
Semi-solid Extrusion for Small Tube Manufactured of Magnesium Alloys
Zouwei Liang, Hisaki Watari, Hotaka Tozuka, Toshio Haga, Toru Shimizu
Tokyo Denki University, Japan

Lunch break 13:00 - Sessions restart at 14:30

Session: I6, Venue: Cher

Advanced Materials for Bioengineering Applications & Nano Materials for Medicine Applications 3

Session Chairs: Hojeong Jeon, Andrew Cobley

I6 July-02 14:30
* Biodegradable zinc matrix composites for bone implant materials
Yuncang Li
RMIT University Melbourne, Australia

I6 July-02 14:50
* Enhancing Antibacterial Efficacy: Leveraging Stimuli-Responsive Mechanisms to Modulate Reactive Oxygen Species in Nanoparticle Design
Kelvin Yeung
The University of Hong-Kong, China

I6 July-05 15:10
* Nanotopographical Surface Engineering and Corrosion Resistance Enhancement of Ti-based Bulk Metallic Glass through Alkaline Chemical Treatment
Yohan Douest, Kirti Tiwari, Benoit Ter-Ovanessian, Paola Rizzi, Damien Fabregue, Jerome Chevalier, Nicolas Courtois
University of Lyon, France

I6 July-02 15:30
Severe Plastically Deformed Microstructure Engineered Mg-Zn-Zr-RE Alloy Developed as Biodegradable Implant Material
Vasanth Shunmugasamy, Bilal Mansoor
Texas A&M University, United States

Session I6: Advanced Materials for Bioengineering Applications 3
Coffee / Tea break 15:50 to 16:20

I6 July-02 16:20
The Influence of Au on the Transformation Behaviour of Metastable β Titanium Alloys for Biomedical Applications
Nicole Church, Ayush Prasad, Nicholas Jones
University of Cambridge, United Kingdom

I6 July-02 16:50 - *Student*
In vitro response of bioabsorbable zinc-based composites for implantology
Francisca M. Seabra, Moara Marques De Castro, Martin Balog, Peter Krizik, Martina Takacova, Jana Lapinovva, Eliska Svastova, Vojtech Hybasek, Jiri Kubasek
Institute of Materials and Machine Mechanics, Slovakia

I6 July-02 17:10
Design and Mechanical Evaluation of Ti-6Al-4V Lattice Structures for Biomedical Implants
Maria Najera, Miguel Araya, Timo Rautio, Teodolito Guillen, Antti Jarvenpaa
Instituto Tecnologico de Costa Rica, Costa Rica

Session: I7, Venue: Cher

Biomimetic Materials, Nanostructured Biomaterials, Medical Devices, Materials for Health & Regenerative Medicine 1

Session Chairs: Giuseppina Raffaini, Naofumi Ohtsu

I7 July-03 9:00 - Keynote
*** Biodegradable zinc alloys with potent osteogenicity, antibacterial ability, and antitumor efficacy for bone-implant applications**
Cuie Wen
RMIT University Melbourne, Australia

I7 July-03 9:30
* Enhancing Non-Viral Gene Delivery: Strategies for Improved Efficiency and Performance
Gabriele Candiani
Politecnico di Milano, Italy

I7 July-03 9:50
* Contact-free Micro- and Nano-Deformation in inorganic and organic systems via Electronic Speckle Pattern Interferometry
Andreas Foitzik, Kai-Henning Lietzau, Carsten Stollfuss, Josefine Gottschalk, Erik Krumnow, Thomas Vogt, Willi Sixt, Serguei Arkhipov
University of Applied Sciences Wildau, Germany

I7 July-03 10:10
Control of Bone Microstructure Formation: Role of Soluble Proteins Secreted by Osteocytes
Tadaaki Matsuzaka, Aira Matsugaki, Takayoshi Nakano
The University of Osaka, Japan

Session I7: Biomimetic Materials 1
Coffee / Tea break 10:30 to 11:00

I7 July-03 11:00
* Synthesis of Inorganic Semiconductor Films with Narrow Bandgap Responsive to Visible LEDs and Their Photo-Response
Masato Ueda, Jinsoo Lee
Kansai University, Japan

I7 July-03 11:20
* Electrochemical Bio-Interface Devices for Advanced Medical Applications via Ion Transport
Seung-Kyun Kang
Seoul National University, South Korea

I7 July-03 11:40
Structure and dissolution behavior of ZnO-containing phosphate invert glasses prepared by liquid phase method
Sungho Lee, Akiko Obata
National Institute of Advanced Industrial Science and Technology, Japan

I7 July-03 12:00
* Novel prospective in design of Mg alloys for implantology: in vitro and in vivo assessment of degradation of Mg-Zn-Ca-Y-Mn alloys
Anna Dobkowska, Diana Martinez, Shinichi Inoue, Yoshihito Kawamura, Wojciech Swieszkowski
Warsaw University of Technology, Poland

I7 July-03 12:20
Fabrication of Co-Cr-W-Ni alloys with a unique heterogeneous microstructure utilizing carbide precipitation
Kosuke Ueki, Tomoki Nakajima, Kyosuke Ueda, Masaaki Nakai, Takayuki Narushima
Kindai University, Japan

I7 July-03 12:40 - *Student*
Structure of Ta2O5 containing phosphate invert glasses prepared by liquid phase method
Hayato Asano, Minori Takahashi, Akiko Obata, Makoto Sakurai, Fukue Nagata, Sungho Lee
National Institute of Advanced Industrial Science and Technology, Japan

Lunch break 13:00 - Sessions restart at 14:30

Session: I8, Venue: Cher

Biomimetic Materials, Nanostructured Biomaterials, Medical Devices, Materials for Health & Regenerative Medicine 2

Session Chairs: Gabriele Candiani, Anna Dobkowska

I8 July-03 14:30
* Hybrid organic/inorganic materials for drug release systems as new generation of biomaterials: a molecular dynamics study
Giuseppina Raffaini
Politecnico di Milano, Italy

I8 July-03 14:50
* Pulsed anodization process to form a biocompatible layer on superelastic NiTi alloy surface
Naofumi Ohtsu, Ryota Kawakami, Mitsuhiro Hirano
Kitami Institute of Technology, Japan

I8 July-03 15:10
* Filtration Media-Assisted Centrifugal Fabrication of Multilayer Biodegradable Polymer Microneedles
Ha Young Choi, Sang Ihn Han, Honggu Chun, Myoung-Ryul Ok
Korea Institute of Science and Technology, South Korea

I8 July-03 15:30
* Experimental and computational studies on delamination-induced loosening behavior of acetabular cup by cyclic load
Yuichi Otsuka
Nagaoka University of Technology, Japan

Session I8: Biomimetic Materials 2
Coffee / Tea break 15:50 to 16:20

I8 July-03 16:20
* Effect of Zr on the microstructure, corrosion behavior and cytotoxicity of ZnZr and MgZr binary alloys as biodegradable materials
Fatiha Challali, Diego Mantovani, Frederic Chaubet, Teresa Simon-Yarza, Philippe Djemia, Cristiano Poltronieri
University of Paris Sorbonne, France

I8 July-03 16:40
* Argon plasma etching process to fabricate the antibacterial nanopillars on stainless steel surface
Mitsuhiro Hirano, Naofumi Ohtsu, Ryota Kawakami
Kitami Institute of Technology, Japan

I8 July-03 17:00
Enhancing wear resistance and biological performance of the biomedical Ti-6Al-4V alloy through PEO Treatment in TMO-rich electrolyte
Diego Correa, Karine Coan, Carlos Roberto Grandini, Katia Barbaro, Marco Fosca, Julietta Rau, Sophia Tsipas
Sao Paulo State University (UNESP), Brazil

I8 July-03 17:20 - *Student*
Desalination Membrane Strategy Using Ion-Exchange Membranes for Marine Farms
Myung-Kyun Choi, Jieun Han, Seung-Kyun Kang
Seoul National University, South Korea

SESSION- J

Session: J1, Venue: Sologne

Solid State Processing of Materials / Innovative Manufacturing Process 1

Session Chairs: Jean-Marc Heintz, Seung-Kyun Kang

J1 June-30 10:30
* Processing of Amorphous Oxide Semiconductors and Future Prospects
Keisuke Ide
Institute of Science Tokyo, Japan

J1 June-30 10:50
Forming of Multifunctional Corrugated Cup using Roller Ball Die
Yasunori Harada, Shota Okada
University of Hyogo, Japan

J1 June-30 11:10
Eliminating the Need for Post-Forming Annealing: Advancements in NSF Technology for Austenitic Stainless Steels
Alberto Murillo, John Damilola-Sunday, Phillip Krawec, Eduardo Garcia, Carl Slater
University of Deusto, Spain

J1 June-30 11:30
Evaluation of Strain Distribution of Perforated Sheet in Circular Cup Deep Drawing
Shoichiro Yoshihara, Tomoki Nakagawa, Osamu Hasegawa, Hisashi Nishimura
Shibaura Institute of Technology, Japan

J1 June-30 11:50 - *Student*
Enhancing Mechanical Properties of Mg-Zn-Ca Alloys via Texture Modification in Multi-Pass Constrained Friction Processing
Ting Chen, Banglong Fu, Uceu Suhuddin, Jorge Dos Santos, Jean Pierre Bergmann, Benjamin Klusemann
Helmholtz-Zentrum Hereon, Germany

J1 June-30 12:10 - *Student*
In-situ observation and quantitative evaluation of dendritic silver precipitates growth inside borosilicate glass substrate
Miyuka Kono, Hirofumi Kawamura, Souta Matsusaka, Sho Itoh, Hirofumi Hidai
Chiba University, Japan

J1 June-30 12:30
* Deformation Effects on Microstructure and Mechanical Properties of a High-Entropy Alloy, CuCoFeMnNi: Impact of Rolling Path and Temperature
Nitish Bibhanshu, Satyam Suwas
Indian Institute of Technology Ropar, India

Lunch break 13:10 - Sessions restart at 14:30

SESSION- J

Session: J2, Venue: Sologne

Solid State Processing of Materials / Innovative Manufacturing Process 2

Session Chairs: Keisuke Ide

J2 June-30 14:30
* Improving sintering ability of alumina through gel casting process
Jean-Marc Heintz, Laurie Gauzere, Clemence Besnard-Pontoreau, Samuel Couillaud
Institut de Chimie de la Matière Condensée de Bordeaux (ICMCB), France

J2 June-30 14:50
Application of electron beam welding in the production of TEMPALOY AA1 and T92 butt joints of pipes assigned for the energy industry
Krzysztof Kwiecinski, Hanna Purzynska, Michał Urzynicok, Adam Zieliński
Łukasiewicz Upper Silesian Institute of Technology, Poland

J2 June-30 15:10
Development of advanced tool pin geometries for Friction Stir Spot Welding (FSSW) by means of Selective Laser Melting (SLM)
Eduardo Garcia, I. Varas, Alberto Murillo-Marrodan, Beatriz Achiaga
University of Deusto, Spain

J2 June-30 15:30
* Effect of friction stir welding on the microstructure and precipitation behaviour of new generation cast (Al-Zn-Mg)-Fe alloys
Ranjit Bauri, Manish N. Borse
Indian Institute of Technology Madras, India

Session J2: Solid State Processing of Materials 2
Coffee / Tea break 15:50 to 16:20

J2 June-30 16:20 - *Student*
Low temperature sintering of ink-spray BST layers for fabrication of an electromagnetic shutter
Hugo Labarrere, Nicolas Penin, Philippe Pouliguen, Jean-Marc Heintz
Institut de Chimie de la Matière Condensée de Bordeaux (ICMCB), France

J2 June-30 16:40 - *Student*
Microstructure evolution in two-step friction extrusion of aluminium alloys
Yin-Cheng Chan Chang, Uceu Suhuddin, Harikrishnasinh Rana, Benjamin Klusemann
Helmholtz-Zentrum Hereon, Germany

J2 June-30 17:00
Development of a large shear induced severe plastic deformation process
Govind Kumar, Satyam Suwas, Satish V. Kailas, Laszlo Toth
Indian Institute of Science Bangalore, India

J2 June-30 17:20
* Growth of nanometric amorphous Ni silicide upon rapid thermal anneal: nonlinear reactive diffusion
Dominique Mangelinck, Clara Delwail, Frederic Mazen, Sylvain Joblot
Institut Matériaux, Microélectronique Nanosciences de Provence (IM2NP), France

J2 June-30 17:40
Development of Hot Forging Process for Turbine Disk using an Open-Die Forging Press
Dojin Cha
Doosan University, South Korea

Session: J3, Venue: Sologne

Neutron Scattering & X-Ray Studies of Advanced Materials 1

Session Chairs: Yohei Onodera, David Collins

J3 July-01 10:30 Keynote
*** Structure and dynamics in densified silica glasses**
Shinji Kohara
National Institute for Materials Science, Japan

J3 July-01 11:00
* Quantitative Analysis of Complex Defect Structures created by Advanced Manufacturing using X-Ray Diffraction
Levente Balogh, Lucas Ravkov, Donald Brown, Ondrej Muransky
Queen's University, Canada

J3 July-01 11:20
* In-Operando Analysis of Carbide Formation and Stress Generation during Low Pressure Carburizing by High-Energy Synchrotron X-ray Diffraction
Jeremy Epp, Ogan Baris Tapar, Michael Zuern, Jens Gibmeier, Antonio Carlos De F. Silveira, Matthias Steinbacher, Norbert Schell
Leibniz Institute for Materials Engineering, Germany

J3 July-01 11:40
Accuracy Study on X-ray Stress Measurement using Fourier Analysis of Debye-Scherrer Ring
Shouichi Ejiri, Hiroaki Ohba, Toshihiko Sasaki
Iwate Medical University, Japan

J3 July-01 12:00
Observation of Impact Fracture on Heterogeneous Nanostructured Stainless Steel and Titanium by Using Synchrotron Radiation
Masakazu Kobayashi, Yojiro Oba, Hiromi Miura, Chihiro Watanabe, Shogo Furuta
Toyohashi University of Technology, Japan

J3 July-01 12:20
Grains ain't misbehaving or going wild? A spontaneous activation of grain boundaries initiating abnormal grain growth!
Klaus-Dieter Liss, Pingguang Xu, Ayumi Shiro, Shuoyuan Zhang, Eitaro Yukutake, Takahisa Shobu, Koichi Akita
University of Tennessee, United States

J3 July-01 12:40
* Navigating the X-ray Computed Tomography Landscape: Tools and Techniques for 3D and 4D Imaging
Nikolaus Cordes
Los Alamos National Laboratory, United States

Lunch break 13:00 - Sessions restart at 14:30

Session: J4, Venue: Sologne

Neutron Scattering & X-Ray Studies of Advanced Materials 2

Session Chairs: Levente Balogh, Jeremy Epp

J4 July-01 14:30
* Per-Grain behaviour in polycrystalline alloys during stress induced phase transformations
David Collins, James Ball
Cambridge University, United Kingdom

J4 July-01 14:50
* Observation of a zirconium oxide crystal nucleus in the initial nucleation stage in aluminosilicate glass by X-ray multiscale analysis
Yohei Onodera, Yasuyuki Takimoto, Hiroyuki Hijiya, Qing Li, Hiroo Tajiri, Toshiaki Ina, Shinji Kohara
National Institute for Materials Science, Japan

J4 July-01 15:10
* Transient phenomena in additive manufacturing of Ni-base alloys investigated by synchrotron X-ray scattering
Benjamin Wahlmann
Friedrich Alexander University Erlangen, Germany

J4 July-01 15:30
How rapid quenching and reheating influences phase transformations in advanced gamma-TiAl alloys
Andreas Stark
Helmholtz-Zentrum Hereon, Germany

J4 July-01 15:50
* Real-time Neutron Diffraction to Support Interpretation of DSC Results on Zr-2.5Nb for Reactor Pressure Tubes
Sven Vogel, Amy I. Fluke, Daniel J. Savage, Toshiro Tomida
Los Alamos National Laboratory, United States

Session J4: Neutron Scattering 2
Coffee / Tea break 16:10 to 16:40

J4 July-01 16:40
X-ray fluorescence Holography Study on Ferroelectric Materials under an Electric Field
Koji Kimura, Hiroshi Toyama, Seiji Nakashima, Hiroo Tajiri, Makoto Iwata, Halubai Sekhar, Naohisa Happo, Koichi Hayashi
Nagoya Institute of Technology, Japan

J4 July-01 17:00 - *Student*
Stress-induced orthorhombic O phase in TiAl alloys
Xu Liu, Lin Song, Florian Pyczak, Andreas Stark, Li Wang, Xiang Guo, Tiebang Zhang
Northwestern Polytechnical University, China

J4 July-01 17:20
Probing deformation behavior of a refractory high-entropy alloy using in situ neutron diffraction
Wenli Song, Yuanbo Zhou, Yanchun Zhao, Dong Ma
Lanzhou University of Technology, China

J4 July-01 17:40
Long-range magnetic order in icosahedral quasicrystals
Ryuji Tamura
Tokyo University of Science, Japan

Session: J5, Venue: Sologne

Advanced Protective Coatings 1

Session Chairs: Dongyi Seo, Hiroaki Nishikawa

J5 July-02 9:00
* Compositionally complex refractory metal nitride coatings: the effects of V, Nb and Ta on their structure and mechanical properties
Frantisek Lofaj, Lenka Kvetkova, Petra Hviscova, Marian Mikula, Tomas Fiantok, Tomas Roch, Dmitry Albov
Institute of Materials Research, Slovakia

J5 July-02 9:20
Revealing fretting wear resistance mechanism under liquid lead-bismuth eutectic of Cr-Al-C composite coatings fabricated by laser cladding
Yue Cao, Hua Ke, Haifeng Wang
Northwestern Polytechnical University, China

J5 July-02 9:40
Development of an intumescent inorganic coating on steel substrates
Wilfried Cyrille N'cho, Ameni Gharzouni, Sylvie Rossignol
IRCER, France

Session J5: Advanced Protective Coatings 1
Coffee / Tea break 10:00 to 10:30

J5 July-02 10:30
Electropolishing to Surface Treatment of Hastelloy X Manufactured by Laser Powder Bed Fusion
Hyunbin Jo, Taejin Kwon, Jinsung Bae, Hyunsik Kim, Donghyun Kim, Junghoon Lee
Pukyong National University, South Korea

J5 July-02 10:50
Optimized Potential Distribution Enhancing Corrosion Resistance of C/Metal Coated Bipolar Plates Used in Proton Exchange Membrane Fuel Cells
Qian Hu, Xian-Zong Wang
Northwestern Polytechnical University, China

J5 July-02 11:10
* Anti-oxidation UHTC coatings obtained by plasma spraying.
Arthur Charrue, Marianne Balat-Pichelin, Aurélie Quet, Charlotte Gregis, Jean-Louis Longuet, Vincent Génissel
CEA, DAM, France

J5 July-02 11:30
* Multi-Physics, multi-scale modeling of a plasma jet facility with DSMC technique: methods for continuous to transitional regimes and evaluation results
Lionel Jaouen, Aurélie Quet, Arthur Charrue, Vincent Génissel, Benjamin Bernard
CEA, DAM, France

J5 July-02 11:50
A robust solid-liquid composite superlubricity strategy toward high temperatures
Yixuan Zhang, Hongxing Wu, Hang Li, Lin Wang, Junqin Shi, Ke Hua, Haifeng Wang
Northwestern Polytechnical University, China

J5 July-02 12:10
Laser surface hardening of AISI 431 martensitic stainless steel by using different laser sources
Oumaima Aroubi, Fazati Bourahima, Christophe Lafarge, Renaud Ardid, Francois Brisset
CHPOLANSKY, France

Lunch break 12:30 - Sessions restart at 14:30

Session: J6, Venue: Sologne

Advanced Protective Coatings 2

Session Chairs: Frantisek Lofaj

J6 July-02 14:30
* Electrical properties of large–area perovskite–type oxide epitaxial thin films transferred onto polymer sheets
Hiroaki Nishikawa
Kindai University, Japan

J6 July-02 14:50
* Modification of Microstructures and Cyclic Oxidation Behavior of Electron Beam Physical Vapor Deposition Processed Thermal Barrier Coatings
Dongyi Seo, Ihho Park, Vladimir Pankov, Sunghun Lee, Wonjon Yang
Aerospace Research Centre, National Research Council of Canada (NRC), Canada

J6 July-05 15:10
Experimental and computational investigation on the anisotropy of BCC and HCP metals by distortional evolution of yield surfaces
Baodong Shi, Xuejian Yang
Chongqing University, China

J6 July-02 15:30
New Physics Informed Machine Learning Prediction of SiO2 Film Property from Optical Emission Spectroscopy in TEOS /O2/Ar Plasma Enhanced CVD
Kunihiro Kamataki, Sukma Fitrianni, Yushi Sato, Yuma Yamamoto, Yosei Kurosaki, Daisuke Yamashita, Takamasa Okumura, Naho Itagaki, Kazunori Koga, Masaharu Shiratani
Kyushu University, Japan

Session I6: Advanced Protective Coatings 2
Coffee / Tea break 15:50 to 16:20

J6 July-02 16:20
Long-Term Corrosion Resistant Thin Films Prepared by Plasma Enhanced Chemical Vapor Deposition
Meng-Jiy Wang
National Taiwan University of Science and Technology, Taiwan

J6 July-02 16:40
* Electropulse-induced Materials Microstructural Evolution
Rongshan Qin
The Open University Milton Keynes, United Kingdom

* *Invited Presentation*

Poster Presentations

Session K: POSTERS, 01 July, 17:00-19:30

Venue: Sports Hall

Session Chairs: Mariana Calin, Gang Ji
Session Monitoring : Ben Ter Ovanesian, Surya Adav

P101
Enhancement of Mechanical Properties and Hydrogen Embrittlement Resistance of SUS 316L Fabricated by DED through Laser Shock Peening
Jeonghong Ha
Korea Institute of Industrial Technology, South Korea

P102
Microstructure Evolution and Mechanical Characterization of SUS 316L-VCr Tool Steel Fabricated by DED
Jeonghong Ha
Korea Institute of Industrial Technology, South Korea

P103
Tribological Properties of STS316L Sintered Body and Cu/STS316L Composite Using Binder Jetting Process
Kyung Il Kim
Korea Institute of Industrial Technology, South Korea

P104
Development of Material-Based Process Simulation Technology for BAAM and Composite AM
Jong Wan Ko
Korea Institute of Industrial Technology, South Korea

P105
Graphitic Carbon Nitride (g-C3N4) as a Filler in the Photocuring 3D Printing Process for Enhanced Mechanical Properties
Jong Wan Ko, Jeonghong Ha, Jungsoo Nam, Daegeun Park, Jiyong Park, Kyung Il Kim, Seungmin Lee
Korea Institute of Industrial Technology, South Korea

P106
A Study on Monitoring of Large-Scale Composite Material Additive Manufacturing Processes Using Sensor Fusion
Jungsoo Nam, Hangyeol Ru, Song Hyeon Ju, Jiwon Jung
Korea Institute of Industrial Technology, South Korea

P107
Advanced Laser Scanning Strategies for Minimizing Thermal Residual Stress in Additively Manufactured Topologically Optimized Automotive Parts
Jiyong Park
Korea Institute of Industrial Technology, South Korea

P108
Advancing Energy Absorption Through Hybrid Lattice Structures Fabricated via Powder Bed Fusion
Jiyong Park
Korea Institute of Industrial Technology, South Korea

P109
In-Situ Synthesis and Ex-Situ Addition Reinforced 3D Printing Aluminum Matrix Composites
Che-Nan Kuo
National Sun Yat-sen University, Taiwan

P110
Multi-phase Flow System Study for Mixed N2+CO2 Gas Separation and Pipeline Transport
Seungmin Lee, Jiyu Park
Korea Institute of Industrial Technology, South Korea

P111
LPBF Processing of a Metastable Ti-42Nb Alloy for Bone Implant Applications
Annett Gebert, Stefan Pilz, Fabian Guenther, Adnan Akman, Benoit Ter-Ovanessian, Mariana Calin, Matthias Bonisch, Martina Zimmermann
Leibniz Institute for Solid State and Materials Research (IFW) Dresden, Germany

P112
Overview of Advanced Materials for the FCC-ee Vacuum System
Cedric Garion
European Organization for Nuclear Research, Switzerland

P113
Coated Biodegradable Zn-0.8Mg-0.2Sr Alloy
Andrea Skolakova, Jan Pinc, Eva Jablonska, Tereza Skolakova, Petr Vertat, Barbora Janebova, Anna Kutova, Jaroslav Capek, Klara Hosova, Dalibor Vojtech, Jiri Kubasek
Institute of Physics of the Czech Academy of Sciences, Czech Republic

P114
Surface Modification of Zn-0.8Mg-0.2Sr: Insights into Nitrogen Ion Implantation and Microstructural Evolution
Jan Pinc, Petr Vlcak, Miroslav Lebeda, Jaroslav Fojt, M. Bartunev, Vojtech Smola, Marek Vronka, Jan Drahokoupil, Zdenek Weiss, Jiri Kubasek, Jaroslav Capek, Andrea Skolakova
Institute of Physics of the Czech Academy of Sciences, Czech Republic

P115
Impact of Rare Gas Addition on Fabrication of a-C:H Films via C2H2/Ar/Ne/He Plasma-Enhanced Chemical Vapor Deposition
Kazuki Nagamine, Kizuku Ikada, Daichi Wakita, Kunihiro Kamataki, Masaharu Shiratani
Kyushu University, Japan

P116
Masking Effect of Phosphate Pretreatment on Surface Defects of Auto Steel Sheets
Baiyou Fang
Baosteel, Shanghai, China

P117
What Can Be Gained and What Is Lost from the Perspective of Properties, When Modifying the Structural Design of Thin Films
Daniel Munteanu, Claudia Lopes, Marco Rodrigues, Armando Ferreira, Francisco Macedo, Camelia Gabor, Eduardo Alves, Nuno Barradas, Filipe Vaz
Transilvania University of Brasov, Romania

P118
Effect of Cr Content on Oxidation Layer of Hot-Dip Galvanized High-Strength Steel: Molecular Dynamics Simulation
Shaoshuang Zhang, Renbo Song
University of Science and Technology Beijing, China

P119
Constructing High-Density Dislocations by Primary (Nb,Ti)(C,N) to Induce Massive Secondary Precipitations in Austenitic Heat-Resistant Cast Steel
Rong Mu, Yongjin Wang, Renbo Song
University of Science and Technology Beijing, China

P120
Effect of Wire Electrical Discharge Machining on Hole Expansion Ratio of 1 GPa Low Carbon Low Alloyed Steel
Olli Nousiainen, Jaakko Hannula, Antti Kaijalainen, Jukka Komi
University of Oulu, Finland

P121
Special Steels for the Hydrogen Society
Dong Nguyen, Henri Tervo, Jussi Paavola, Jukka Komi
University of Oulu, Finland

P122
Evolution of Microstructure and Mechanical Properties in Cold-Rolled 7050 Aluminum Alloy During Annealing
He Jie, Guangjie Huang, Shuaibo Zhang
Chongqing University, China

P123
The Relationship Between Precipitates and Mechanical Properties in Al-Zn-Mg Alloy with High and Low Zn/Mg
Wanlalak Sanphiboon, Kenji Matsuda
University of Toyama, Japan

P124
The Effect of Transition Metals on the Time-Curing Behaviour of Al-Mg-Si Alloys
Yuto Nakagawa, Taiki Tsuchiya, Seungwon Lee, Norio Nunomura, Toshiya Shibayanagi, Susumu Ikeno, Kenji Matsuda
University of Toyama, Japan

P125
Linking 3D Grain and Elastic Strain Mapping with the Development of Damage in 2050 Al Alloys During High-Temperature Loading by Synchrotron Diffraction and Tomography
Gisele Fernandes Chaves Macieira, Pierre Lhuissier, Jonathan Wright, Haixing Fang, Julie Villanova, Luc Salvo
European Synchrotron Radiation Facility Grenoble, France

P126
High Strength and High Elongation of Die-Casting Aluminium Alloys
Jiwook Park, Miyoung Lee, Jaehwang Kim
Korea Institute of Industrial Technology, South Korea

P127
Development of a Realistic Brain Phantom for Medical Training: An Ethical and Technical Alternative to Animal Testing
Sandy Speck, Verona Claudio, Andrea Boehme, Andreas Foitzik
Technische Hochschule Wildau, Germany

P128
New Aspects of Production Mg-Zn-Ca Alloys via Laser Powder Bed Fusion
Anna Dobkowska, Jakub Ciftci, Lukasz Zrodowski, Wojciech Swieszkowski
Warsaw University of Technology, Poland

P129
Application of the Thermal Spraying Technology in Hot-Dip Galvanizing Line Zinc Pot Roll
Wang Lu
Baosteel LTD, Shanghai, China

P130
Improving the Thermoelectric Performance of Bi_2Te_3 via Cobalt Doping
Min-Chen Chuang, Cheng-Lung Chen, Sheng-Chi Chen, Shang-Wei Chou, Hui Sun
Ming Chi University of Technology, Taiwan

P131
Lithium Concentration Dependence on Water Absorption Characteristics of Lithium-Rich Zirconates
Bun Tsuchiya, Keisuke Kataoka, Ryosuke Terasawa, Chumphol Busabok
Meijo University, Japan

P132
Fabrication and Bonding Properties of Joints Formed by Transient Liquid Phase Diffusion Bonding Using Electroplated Films
Shunsuke Totsuka
Gunma University, Japan

P133
In-Vivo Bone Implantation Study of TiZrNbTaFe High Entropy Alloy Thin Films
Bih-Show Lou, Jyh-Wei Lee, Sen-You Hou, Po-Yu Chen
Chang Gung University, Taiwan

P134
Comparison of Pd-42Cu-10Ni and Pd-30Cu-29.5Ag-0.5Zn as Probe Material in Interfacial Reaction with Sn
Rin Hashizume, Tatsuya Kobayashi, Ikuo Shohji, Tomohisa Hoshino, Kenichi Sato, Shunsuke Kobayashi, Naohito Odani
Gunma University, Japan

P135
Microstructural Characterization and Analyses of the Damage in a Ti-Based Alloy by X-Ray Computed Microtomography
Erika O. Avila-Davila, Ixchel Monroy-Sanchez, Jesus D. Moreno-Martinez, Marisa Moreno-Rios, Nicolas Cayetano-Castro, Victor M. Lopez-Hirata, Jose E. Resendiz-Hernandez
Tecnologico Nacional de Mexico-Pachuca, Mexico

P136
Assessment of Adhesion Degradation in A1050/Epoxy Resin Interface Under High-Humidity and High-Temperature Aging Conditions
Ryota Nakagawa, Ikuo Shohji, Fumiya Funatomi, Kyohei Ohashi, Ryuki Sakai, Tatsuya Kobayashi
Gunma University, Japan

P137
Degradation Behaviour of Sn-Ag-Cu Lead-Free Solder Joint with Electrolytic Ni Plated Electrode Due to Electromigration
Kenta Kawaguchi, Marina Oyama, Tatsuya Kobayashi, Ikuo Shohji, Keishi Nakamura, Koichi Hirasawa, Hitoshi Amemiya
Gunma University, Japan

P138
Evaluation of Joining Properties Between Potential-Controlled Ni-Cu Alloy Plating Film and Pb-Free Solder
Sota Mori, Ikuo Shohji, Tatsuya Kobayashi
Gunma University, Japan

P139
Effect of Thermal Cycle Profile on Thermal Fatigue Life of Sn-3.0Ag-0.5Cu Solder Joints for Wafer-Level Chip Scale Package
Shun Sakagami, Kenta Kawaguchi, Tatsuya Kobayashi, Ikuo Shohji, Fumiya Funatomi, Kyohei Ohashi, Ryuki Sakai
Gunma University, Japan

P140
Investigation of Degradation Behavior of Adhesion Between Sealing Resin and Copper by Aging Treatment
Anzu Tozaki, Tatsuya Kobayashi, Ikuo Shohji, Hiroto Takenaka, Hirose Suzuki, Minoru Ueshima
Gunma University, Japan

P141
Anisotropy in High Temperature Deformation and Oxidation Behavior in Textured Ti3SiC2 MAX Phase Ceramics
Eiichi Sei, Ken-Ichi Ikeda, Seiji Miura, Koji Morita, Tohru Suzuki, Yoshio Sakka
Hokkaido University, Japan

P142
Microstructural Observation of High Mechanical Strengthened Nb3Sn Superconducting Wires via the Internal Matrix Reinforcements
Hayato Yokoyama, Seungwon Lee, Taiki Tsuchiya, Yoshimitsu Hishinuma, Tetsuo Aida, Susumu Ikeno, Kenji Matsuda
University of Toyama, Japan

P143
Effect of Precipitation Phase on High Cycle Fatigue Behavior of Ti-2Al-9.2Mo-2Fe Alloy
Su-Hong Shin, Dong-Geun Lee
Sunchon National University, South Korea

P144
Wear Behavior Analysis of Nitrided Ti-12.1Mo-1Fe Alloy After Shot Peening Pre-Treatment
Seung-Woo Lee, Dong-Geun Lee
Sunchon National University, South Korea

P145
Analysis of Generation and Propagation of Fatigue Crack in Oxygen-Free Copper Using Electron Backscattered Diffraction Method
Hiroki Yonekura, Tatsuya Kobayashi, Ikuo Shohji
Gunma University, Japan

P146
Analysis of Wear Properties and Mechanism Changes According to Fe Content in Metastable β Titanium Alloys
Yeonghun Jung, Dong-Geun Lee
Sunchon National University, South Korea

P147
Study of Adhesion Strength Degradation and Fracture Behaviour of Copper/Epoxy Resin Joints Under Hygrothermal Conditions
Xinya Zhao, Tatsuya Kobayashi, Ikuo Shohji
Gunma University, Japan

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The Effect of Zinc Content on the Acoustic Properties of Brass Percussion
Ryusei Naganuma, Taro Kato, Mitsuaki Furui
Tokyo University of Technology, Japan

P149
Creep Properties of P92 Pipe Weld After Annealing at 600 and 650°C
Karol Sowka, Hanna Purzynska, Adam Zielinski, Marek Sroka
Upper Silesian Institute of Technology, Poland

P150
Peltier-Induced Thermal Fatigue Testing for Reliability Evaluation of Thermoelectric Devices
Seungwoo Han, Seungik Shin, Seong-Jae Jeon, Jung Yup Kim
Korea Institute of Machinery and Materials, South Korea

P151
Relationship Between Maximum Bending Stress and Surface Roughness of AZ31 Magnesium Alloy Fully Corroded in Salt-Water Environment
Keishi Iizuka, Taro Kato, Kentaro Yamada, Mitsuaki Furui
Tokyo University of Technology, Japan

P152
Sintering Characteristics of Mo-Ta Alloys via Spark Plasma Sintering Process
Geon Kim, Byungheon Oh, Dongju Lee
Chungbuk National University, South Korea

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Fabrication of Zr-Based Bulk Metallic Glasses Lattice Structures by L-PBF Process
Muhammad Fakhry Hatta, Camille Pauzon, Jean-Jacques Blandin, Remi Daudin
SIMaP Laboratory, France

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Neutralization of Impurity Elements of Cu and Ni in Mg-Zn Alloy by Dissolution into $MgZn_2$ Phase
Kaito Uruchida, Naoki Kadota, Taiki Morishige
Kansai University, Japan

P155
Effect of Grain Size on the Behavior of Exfoliation Corrosion in Cold-Rolled Mg-14mass%Li-3mass%Al Alloy
Yuta Kawahara, Taiki Morishige
Kansai University, Japan

P156
Verification of a Novel Mathematical Model for Determination of the Biomass Specific Growth Rate in Bioprocesses
Mirjam Kraus, Gianluca Verona-Rinati, Andrea Boehme
Technical University of Applied Sciences Wildau, Germany

P157
Concept of a Module for Water Treatment with Plasmonically Active Nanoparticles, to Extend a Multivalent Modular Prototype System for Adaptable Water Treatment and Analysis
Moritz Heinrich, Ilko Bald, Andrea Boehme, Rene Krenz-Baath
Technical University of Applied Sciences Wildau, Germany

P158
Development of Acoustic Device Using Giant Magnetostrictive Material: Consideration on Acoustic Characteristics of Sound Generated by Wall Surface Vibration
Taro Kato, Mitsuki Narita, Keishi Iizuka, Saneyuki Abe, Ryusei Naganuma, Koki Bando, Mitsuaki Furui
Graduate School of Engineering, Japan

P159
Experimental Study on the Behavior and Emissions of Methane/Hydrogen Diffusion Flames Under DC Electric Field
Daegeun Park
Korea Institute of Industrial Technology, South Korea

P160
N_2O and NF_3 Reduction and NO_x Emission Characteristics in Methane/Hydrogen Diffusion Flames
Daegeun Park
Korea Institute of Industrial Technology, South Korea

P161
Thermal Deformation Analysis and Flashback Prevention in Aluminum Body Portable Butane Gas Burners
Daegeun Park
Korea Institute of Industrial Technology, South Korea

P162
Fabrication and Characterization of Insulation-Type Thermal Interface Materials Using Conformal SiO_2-Coated Copper Dendritic Particles
Jong-Hyun Lee, Sang-Hoon Jung
Seoul National University of Science and Technology, South Korea

P163
Taguchi Analysis for Optimizing Mechanical Properties of Additive Manufactured Alloys by Quantifying Intermetallic Phases
Dongyong Park, Hyeon Jeong Park, Yun Sun Lee
Korea Institute of Industrial Technology, South Korea

P164
Enhancing Mechanical Properties in Repaired Components Through Directed Energy Deposition of Similar and Distinct Alloys
Hyejin Song, Hojin Lee, Dongyong Park, Jinseok Jang
Korea Institute of Industrial Technology, South Korea

P165
Application and Practice of WC Cermet Sprayed Composite Coating Technology in the Hot-Dip Galvanizing Line
Lu Wang
Baosteel, Shanghai, China

P166
Thermal Resistant of Geopolymer up to 1600°C
Lila Ouamara, Sylvie Rossignol, Ameni Gharzouni, Sabah Ben Lagha, Alain Denoirjean, Geoffroy Rivaud
IRCER, France

P167
Comparative Study on the Corrosion Resistance of Cold-Rolled Weathering Steel
Wenqiang Zhou, Tao Pang, Jun Gao, Yinglei Wei, Jun Luo, Xianjie Li
Central Research Institute of Baosteel, China

P168
Apprehending the Flow Behavior at Different Strain Rates for Different Extent of Recrystallized Microstructure in Al-Mg Alloy: Constitutive Modelling Approach
Surajit Samanta, Jyoti Sahoo, Sumeet Mishra
Indian Institute of Technology Roorkee, India

P169
Recyclability and Mechanical Properties of As-Cast Al-Si-Cu-Mg Alloys
Nam-Seok Kim, Seong-Ho Ha, Bong-Hwan Kim, Hyun-Kyu Lim, Shae K. Kim, Young-Ok Yoon
Korea Institute of Industrial Technology, South Korea

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Production and Characterization of Aluminium-Based Syntactic Foam
Dilermando Nagle Travessa, Maynara Faula Avela, Carlos Eduardo Molento De Moraes, Daniel Caldatto Dalan
Universidade Federal de Sao Paulo, Brazil

P171
Assessing the Catalytic Properties of Pd_3Pb Nanocubes for the Oxygen Reduction Reaction: The Role of Shape and Strain
Kihyun Shin
Hanbat National University, South Korea

P172
Microstructure and Mechanical Properties of High-Entropy Intermetallics with Dual-Phase Core-Shell Structure
Fantao Kong
Harbin Institute of Technology, China

P173
Microstructure and Property Variations in High-Performance H-Shaped Steel: Effects of Alloy and Processing
Chansun Shin, Jinwoo Park, Jun-Ho Chung, Chang-Hoon Lee
Myongji University, South Korea

P174
Thermoelectric Properties of $CeFe_4P_{12}$ and $ThFe_4P_{12}$
Abdelkader Alleg
Laboratory Physico-Chemistry of Materials, Algeria

P175
Formation of Amorphous Ti-Sn Alloy Powder by Mechanical Alloying of Intermetallic Powder Mixtures and Mixtures of Tin with Intermetallics
Pee-Yew Lee
National Taiwan Ocean University, Taiwan

P176
Dynamic Patterns on Vehicles Using Magnetic Nanoparticles
Hyo-Soo Lee
KITECH, South Korea

P177
Effect of Sn Addition and Pre-Straining on Age Hardening Response and Microstructure of Mg-Al-Zn Alloys
Hotaka Tozuka, Hisaki Watari, Toshio Haga, Mayumi Suzuki
Tokyo Denki University, Japan

P178
Comparison of different methods to determine the recrystallization of austenite during hot working through double hit compression test
Paul Gawes**,** Christian Hoflehner, Schneider Reinhold, Christof Sommitsch, Maria Cecilia Poletti
University of Applied Sciences Upper Austria, Austria

P179-*Student*
Microstructural Control of Unstable Beta-Type Titanium Alloy Through Powder Bed Fusion Using a Laser-Beam of Metals
Keitaro Miyasawa, Ryosuke Ozasa, Daisuke Egusa, Eiji Abe, Masakazu Tane, Takayoshi Nakano
The University of Osaka, Japan

P180-*Student*
Spinodal Decomposition and Magnetic Properties of Single-Crystal-Like Fe-Cr-Co Alloy Fabricated by Laser-Powder Bed Fusion Type Additive Manufacturing
Takato Saito, Yuheng Liu, Masayuki Okugawa, Kazuhisa Sato, Takayoshi Nakano, Yuichiro Koizumi
The University of Osaka, Japan

P181-*Student*
A Layer-by-Layer FEM Curing Model for Binder Jetting of 316L
Leon Desgagnes, Reza Tangestani, Hongyan Miao, Srinivas Pendurti, Arunkumar Natarajan, Etienne Martin
Polytechnique Montreal, Canada

P182-*Student*
Enhanced Polyp Adhesion on Chemically Modified Titanium Nonwoven Fabric
Minami Inoue, Masato Ueda
Kansai University, Japan

P183-*Student*
Evaluation of Dislocation Morphology in Nitrogen-Bearing Austenitic Stainless Steel
Shotaro Kubo, Tianze Ma, Takuro Masumura, Toshihiro Tsuchiyama
Kyushu University, Japan

P184-*Student*
Nano-Sandwich Microstructure
Mun Sik Jeong, Geon Ho Song, Jeongho Han
Hanyang University, South Korea

P185-*Student*
Enhancing the Hydrogen Embrittlement Resistance in Warm-Rolled Medium-Mn Steels Through Influence of Intermittent Friction Cycles on Tribocorrosion Behavior of 316L Stainless Steel in 5% $NaHCO_3$
Kaouthar Bouguerra, Caroline Richard, Yan-Ming Chen, Nadege Ducommun, Alexandre Romaine, Pierre Francois Cardey
GREMAN, France

P186-*Student*
Influence of Tempering on the Microstructure of Martensitic Stainless Steel AISI420
Alice Dautezac, Maria Santofimia Navarro
Delft University of Technology, Netherlands

P188-*Student*
CALPHAD-Based Modelling of Microstructural Evolution During D.C. Casting and Homogenization of AA3003 Aluminium Alloy
Fotios Tsiolis, Spyros Papaefthymiou
National Technical University of Athens, Greece

P189-*Student*
A Novel Low-Cost Multicomponent Biocompatible Alloy for Potential Application as Bone Fixation Devices
Jhuliene Torrento, Conrado Afonso, Carlos Grandini, Diego Correa
Sao Paulo State University, Brazil

P190-*Student*
Temperature Dependent Thermoelectric Transport in PEDOT–PSS Conducting Polymer: The Effect of Additives
Anthony Rohmer, Patrice Limelette
GREMAN, France

P191-*Student*
Novel Spray-Pyrolysis-Based Synthetic Strategy for Uniformly Distributed Oxide Nanoparticles-Dispersion-Strengthened Refractory Alloy
Jeong Hyun Kim, Hee Yeon Jeon, Jongmin Byun, Young-In Lee
Seoul National University of Science and Technology, South Korea

P192-*Student*
Elevated Temperature Mechanical Properties of Harmonic Structure Designed AlCoCrFeNi High Entropy Alloy by MM/SPS Process
Ryohna Hori, Ryota Honda, Mie Kawabata, Tomoko Kuno, Lei He, Kei Ameyama, Takamoto Itoh, Hiroshi Fujiwara
Ritsumeikan University, Japan

P193-*Student*
In-Situ Hydrogen Embrittlement of CrCoNi Medium-Entropy Alloy
Yoonmoon Chung, Geon Ho Song, Jeongho Han
Hanyang University, South Korea

P194-*Student*
Interfacial Mechanisms of Iron-Oxide Reduction: From Direct Microstructural Observations to Atomistic Simulations
Vikram Chavan, Namit Pai, Debarna Bhattacharjee, S. Girish, Samik Nag, Saurabh Kundu, Somanth Basu, Ajay Panwar, Indradev Samajdar
IIT Bombay, India

P195-*Student*
Micro-Mechanical Characterisation of Hydrogen-Enhanced Fatigue Crack Growth in 100Cr6 Bearing Steel Under Mixed-Mode Loading
Kurumi Kawaguchi, Yoji Mine, Martin Dienwiebel
Kumamoto University, Japan

P196-*Student*
The Effect of Cu and Sn Contents on the Microstructure and Mechanical Properties of Eutectoid Steel
Chae Young Kim, Mun Sik Jeong, Kenhee Ryou, Pyuck-Pa Choi, Minwoo Kang, Jeongho Han
Hanyang University, South Korea

P197-*Student*
Effect of Ni on Low Temperature Impact Toughness of V-Nb Microalloying Non-Quenched and Tempered Forged Steel
Ren Shuhao, Renbo Song, Lican Sun, Shuai Zhao
University of Science and Technology Beijing, China

P198-*Student*
Waterproof Polyelectrolyte for Implantable Medical Devices
Myung-Kyun Choi, Yi-Jeong Choi, Seung-Kyun Kang
Seoul National University, South Korea

P199-*Student*
Correlation Between Microstrain and Hydrogen Embrittlement in High Strength Quenching and Partitioning (QP) Steel
Hyogeon Kim, Mun Sik Jeong, Jeongho Han
Hanyang University, South Korea

P200-*Student*
Generation of Morphology-Controlled Three-Dimensional Microstructures in Dual-Phase Steels Using SliceGAN-AdaIN
Toshiki Sakakibara, Ta-Te Chen, Fei Sun, Yoshitaka Adachi
Nagoya University, Japan

P201-*Student*
Stability and Segregation Study of Alphagenic and Betagenic Addition Elements in Pure Titanium by Atomistic Approach
Ahcene Amitouche, Djafar Iabbaden, Jean-Sebastien Lecomte, Yudong Zhang, Jean-Marc Raulot
Laboratoire d'Etude des Microstructures et de Mecanique des Materiaux, France

P202-*Student*
Revealing the Mechanism Behind the Strength-Plasticity Dependence on Lamellar Orientation in Polycrystalline TiAl Alloys
Mengyu Jia, Hongchao Kou, Yarong Wang
Northwestern Polytechnical University, China

P203-*Student*
Unique Hierarchical Structural Features Introduced by Laser Powder Bed Fusion and Their Contribution to Mechanical Function in IN718
Taichi Kikukawa, Takuya Ishimoto, Tsuyoshi Mayama, Ryosuke Ozasa, Takayoshi Nakano
The University of Osaka, Japan

P204-*Student*
Role of In-Situ Orientation Imaging on Deformation Mechanism Identification in Additively Manufactured Austenitic Stainless Steels
Babita Singh, Shrestha Ranjan, Devesh Anand, Perapaka Jhansi, Satyam Suwas, Nitish Bibhanshu
Indian Institute of Technology ROPAR, India

P205-*Student*
Controlled Crystallographic Texture Orientation in Selective Laser Melting of IN625
Oumayma Elmaalouf
ENSAM, France

P206-*Student*
Microstructure Observation by Changing the Amount of Zn + Mg in Al-Zn-Mg Alloy with Zn/Mg = 1
Souta Shinozaki, Wanlalak Sanphiboon, Taiki Tsuchiya, Seungwon Lee, Satoshi Murakami, Susumu Ikeno, Karin Shibata, Hiroaki Matsui, Tomoo Yoshida, Kenji Matsuda
University of Toyama, Japan

P207-*Student*
Effect of Initial Texture on Microstructure and Texture in Mg-Ag Magnesium Alloy
Jinseok Yeom, Jimin Yun, Kwonhoo Kim
Pukyong National University, South Korea

P208-*Student*
Texture Evolution and Microstructural Behavior of Mg-Ag Alloys During High-Temperature Plane Strain Deformation
Jimin Yun, Jinseok Yeom, Kwonhoo Kim
Pukyong National University, South Korea

P210-*Student*
Characteristics of Room Temperature Bendability of Laminated Material of Magnesium Alloy and Polymers
Aoki Yamada, Hisaki Watari, Hotaka Tozuka, Takanori Yamazaki, Toshio Haga, Mayumi Suzuki
Tokyo Denki University, Japan

Program Authors:

THERMEC'2025 Program Committee

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