



THERMEC'2025

***International Conference on
PROCESSING & MANUFACTURING OF
ADVANCED MATERIALS***

Processing, Properties, Fabrication and Applications



**June 30-July 4, 2025
Tours, France**

PROGRAM BOOK

Contents

| | |
|---|-----------------|
| General Information | page 3-6 |
| Award Recipients..... | 7-12 |
| Travel Information..... | 13-18 |
| Program Matrix..... | 19 |
| Maps of Conference Venue..... | 20-22 |
| Inaugural Session | 23 |
| Plenary Sessions..... | 25-26 |
| Session A – Room: Chaumont..... | 28-37 |
| Session B – Room: Chambord..... | 38-49 |
| Session C –Room: Chenonceaux..... | 50-63 |
| Session D – Room: Amboise..... | 64-75 |
| Session E – Room: Villandry | 76-87 |
| Session F - Room: Blois..... | 88-99 |
| Session G - Room: Loire..... | 100-109 |
| Session H – Room: Berry..... | 110-122 |
| Session I – Room: Cher..... | 123-133 |
| Session J - Room: Sologne | 134-141 |
| Session K – POSTERS: Sports Hall | 143-155 |
| Acknowledgements | 156 |

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 informed 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 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**, and the Committee expresses sincere thanks to all of 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**



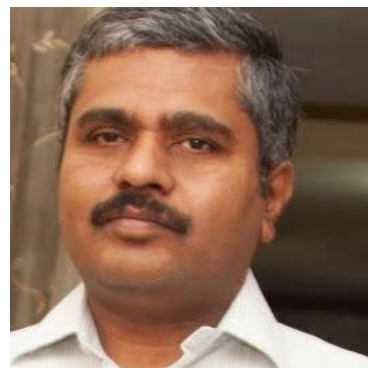
Professor Jien-Wei Yeh received PhD at Department of Materials Science and Engineering, National Tsing Hua University in 1986 and then became associated professor in the same department. He specialized in the fields of aluminum alloys, magnesium alloys and metal matrix composites and manufacturing engineering. 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
Emeritus Professor of Materials Science
University of Cambridge, United Kingdom



Lindsay Greer FIMMM, is Director of Research Relations for Physical Sciences & Technology at Cambridge. With a career spanning some 45 years, he is renowned for his fundamental research on ‘microstructural kinetics’, and for his undergraduate teaching (for which he won the prestigious Pilkington Prize in 2000).

Greer was an undergraduate and postgraduate student at the University of Cambridge, UK, earning his PhD in 1979. Then, at Harvard University, he was a NATO Postdoctoral Fellow and Assistant Professor of Applied Physics. He returned to Cambridge UK in 1984, to the Department of Materials Science & Metallurgy (DMSM), reaching full professorship in 2001. He has held visiting positions at the CEA and INP Grenoble, Washington University (St Louis), and the Universities of Vienna and Turin. He is a Foreign PI of the Advanced Institute for Materials Research, Tohoku University (Sendai, Japan).

At Cambridge, Greer was Head of DMSM 2006–2013, and Head of the School of Physical Sciences (i.e. dean of 8 departments with 320 faculty) 2016–2019. During these periods, DMSM was the top-rated the top-rated STEM (science, technology, engineering, mathematics) department in the UK, and members of the School won a Nobel prize in Physics and a Fields Medal in Mathematics.

Greer’s research is on how materials change their structures, focusing on metallic glasses and crystal nucleation, grain refinement in casting, and chalcogenide thin films for phase-change data storage. He has published nearly 500 scientific papers, and is co-author (with KF Kelton) of the definitive text *Nucleation in Condensed Matter* (2010). His Hirsch index is 75 (*Web of Science*, 1 May 2025).

His research has been recognised globally:

- Honorary Doctorates of: AGH University of Science & Technology, Cracow, Poland (2014); and University of Sofia, Bulgaria (2019);
- From IoM3 (Institute of Materials, Minerals and Mining, UK): Cook-Ablett Award (2000); Hume Rothery Prize (2006); Griffith Medal and Prize (2009); John Hunt Medal (2018);
- From TMS (The Minerals, Metals and Materials Society, USA): Light Metals Award (1998); Cast Shop Technology Award (1999); Bruce Chalmers Award (2012).
- WH Zachariasen Award of the Journal of Non-Crystalline Solids (1989).
- Senior Scientist Medal of the International Symposium on Metastable, Mechanically Alloyed and Nanocrystalline Materials (ISMANAM) (2000).
- Honda Kotaro Medal of Tohoku University, Sendai, Japan (2004).

Greer’s influence on worldwide materials science is easily seen in his own published works and in the work of former members of his research group in academic and industrial positions in: Austria, China, Denmark, Finland, France, Germany, Greece, Hong Kong, Hungary, India, Italy, Japan, Korea, Poland, Russia, Spain, Switzerland, Taiwan, UK, and USA.

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.

How to Reach Tours from Paris Charles de Gaulle Airport (CDG)


Welcome to the conference! To help you plan your journey to Tours from Paris Charles de Gaulle Airport (CDG), we have compiled detailed instructions on the most convenient travel options. Whether you prefer speed, comfort, or cost-effectiveness, you'll find the right choice below.

1. By Train (TGV – High-Speed Train)

The train is the fastest and most popular way to travel from CDG to Tours. The TGV (Train à Grande Vitesse) connects the airport directly to Tours' main station (St Pierre des Corps), offering comfort, speed, and regular departures.

From CDG to Tours by TGV (High-Speed Train):

- **Step 1:** At CDG, go to the TGV station located at Terminal 2 (called "**Aéroport Charles de Gaulle 2 TGV**").
- **Step 2:** Take a TGV train directly to **Tours (Saint-Pierre-des-Corps station or Tours Station)**.
 - Some TGV trains go directly (about 1h50).
 - If there is no direct train, you might need to change in **Paris (Montparnasse)** or **St-Pierre-des-Corps**. Take RER Line B to Denfert-Rochereau. RER is Terminal 2 - same platform as TGV Station. At Denfert-Rochereau, take the Metro Line 6 (Direction Charles de Gaulle-Étoile) to Montparnasse-Bienvenüe. Ticket Price: 13€ - duration: 49 minutes. Between Montparnasse - Bienvenüe station and Tours : 1h00.
- **Step 3:** If your train stops at **Saint-Pierre-des-Corps**, take a shuttle train (**TER - Platform No. 4 at the end of platform No. 2 at Saint-Pierre-des-Corps**) or taxi to reach the **Tours** city centre (about 5 minutes).

 **Tip:** Book your TGV tickets in advance on websites like SNCF Connect or Trainline

2. By Bus

Overview:

Buses are the most economical option, though journey time is longer than trains. Several operators run services from CDG or central Paris to Tours.

Key Details:

- **Duration:** Fastest buses take about 2h 55m, but average duration is 5–6 hours depending on route and traffic.
- **Frequency:** Multiple departures daily, including direct buses and those with a transfer in Paris.
- **Departure Points:**

- Direct from CDG (limited services)
- More frequent buses from Paris Bercy-Seine Bus Station (requires transfer from CDG by RER or taxi)
- **Ticket Price:** €8–€35 (advance booking recommended for best prices).

How to Book:

- Use platforms like Omio, BlaBlaCar Bus, or Alsa for schedules and tickets.
- For buses from Bercy-Seine, take the RER B train from CDG to Gare de Lyon, then walk or take a taxi to Bercy-Seine.

3. By Car

Overview:

Driving is a flexible option for those comfortable with French roads.

- **Distance:** About 265 km (165 miles).
- **Duration:** 2h 40m to 2h 45m (without heavy traffic).
- **Car Rental:** Available at CDG terminals.

4. By Plane

Overview:

Flights between CDG and Tours are infrequent, often require a stopover, and are not recommended due to longer total travel times and higher costs.

Summary Table

| Mode | Duration | Frequency | Price Range | Notes |
|-------|-----------|------------------|-------------|------------------------------------|
| Train | 1h 46m–3h | 3–5/day | €45–€110 | Fastest, most comfortable |
| Bus | 2h 55m–6h | Several/day | €8–€35 | Cheapest, longer journey |
| Car | 2h 40m | On demand | €43–€61* | Flexible, must rent or arrange car |
| Plane | 4h+ | Rare, not direct | €160+ | Not recommended |

*Fuel and tolls not included

Useful Tips

- **Language:** Most signage and announcements are in French and English.
- **Assistance:** SNCF staff are available at the TGV station for help.
- **Luggage:** Ample storage on TGV trains.
- **Accessibility:** Both train and bus options are accessible for travellers with reduced mobility.

For further assistance or personalized travel planning, please contact the conference help desk or visit the official travel information websites.

We look forward to welcoming you to Tours! Safe travels.

Instructions for Reaching the Faculty of Science and Technology, Grandmont Campus from Tours City Centre

Welcome! To help you easily find your way from Tours city centre to the Faculty of Science and Technology (Grandmont Campus), please follow the instructions below.

1. By Public Bus (Recommended)

The Grandmont Campus is well-served by the local **Fil Bleu bus network**, providing a fast and direct connection from the city centre.

Main Steps:

- **Find a Bus Stop:** The most central and convenient departure point is “Verdun” or the stops near Place Jean Jaurès (in front of the Town Hall and main railway station).
- **Board Bus Line 2:** Take the **Line 2** bus heading towards “Lycée Grandmont” or “Faculté de Grandmont.”
- **Ride Duration:** The journey takes about 5–20 minutes depending on traffic and your boarding point.
- **Frequency:** Buses depart every 10 minutes throughout the day.
- **Get Off at “Faculté de Grandmont” or “Lycée Grandmont”:** Both stops serve the campus. Announcements are made on the bus, and stops are displayed on screens.
- **Ticket Purchase:** Tickets cost about €1.30 and can be bought directly from the driver or at ticket machines.

Other Bus Lines Serving Grandmont:

- Lines 3a, 14, 16, 35, 36, 69, and 74 also stop at or near “Faculté de Grandmont”.
 - Check the Fil Bleu website (filbleu.fr) for real-time schedules and route maps.
-

2. By Taxi

- **Duration:** Around 7 minutes from the city centre.
 - **Estimated Fare:** €15–€18.
 - **How to Book:** Taxis are available at taxi stands throughout the city centre or can be booked by phone.
-

3. By Bicycle

- **Duration:** Approximately 20–30 minutes from the city centre.

- **Cycle Tracks:** Secure cycle tracks are available on Avenue de Bordeaux, Avenue de la République, Boulevard de Chinon, and Avenue de Montjoyeux.
 - **Bicycle Parking:** Several covered and uncovered racks, as well as a secure bicycle room, are available on campus.
-

4. On Foot

- **Distance:** About 4.8 km from the city centre.
 - **Estimated Walk Time:** Approximately 1 hour.
-

Campus Arrival and Orientation

- **Campus Address:**
Faculty of Science and Technology
20 Avenue Monge, Parc Grandmont
37200 Tours
 - **Campus Entry:** Enter via Rue d'Arsonval or Avenue Monge.
 - **Bus Stop Location:** The "Faculté de Grandmont" stop is located at the main entrance to the campus.
 - **Signage:** Campus maps and directional signs are available at entrances.
-

Summary Table

| Mode | Duration | Cost | Notes |
|--------------|-----------|----------|--------------------------------------|
| Bus (Line 2) | 5–20 min | ~€1.30 | Every 10 min, direct to campus |
| Taxi | ~7 min | €15–€18 | Fastest, door-to-door |
| Bicycle | 20–30 min | Free/Low | Secure cycle tracks, parking on site |
| Walking | ~1 hour | Free | Pleasant but long walk |

Useful Tips

- **Accessibility:** Buses and campus entrances are accessible for travelers with reduced mobility.
- **Real-Time Info:** Download the Fil Bleu app or visit filbleu.fr for live bus updates.
- **Safety:** The area is safe and well-lit, but always be mindful of traffic when cycling or walking.

We hope these instructions make your arrival at the Grandmont Campus smooth and stress-free. If you need further assistance, please contact the conference help desk or consult the Fil Bleu website.

Following pages provide you the map of the Batiment F, that's the conference venue. Each page gives the spread of the different rooms and the sessions in the building.

Batiment is building in French. The conference venue is situated right behind the bus stop. There is no chance to miss it.

For facilitating the travel between the conference venue and the Tours centre. You will receive 2 tickets per day.

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 will be held at the Faculty of Sciences & Techniques of the University of Tours

Postal address: Parc Grandmont, 31 Av. Monge Buildings E1 & F - 37200 Tours

Location: 47.35708 | 0.702512

Building E1 - Ground Floor
Auditoriums Blois & Villandry
Co-working gallery

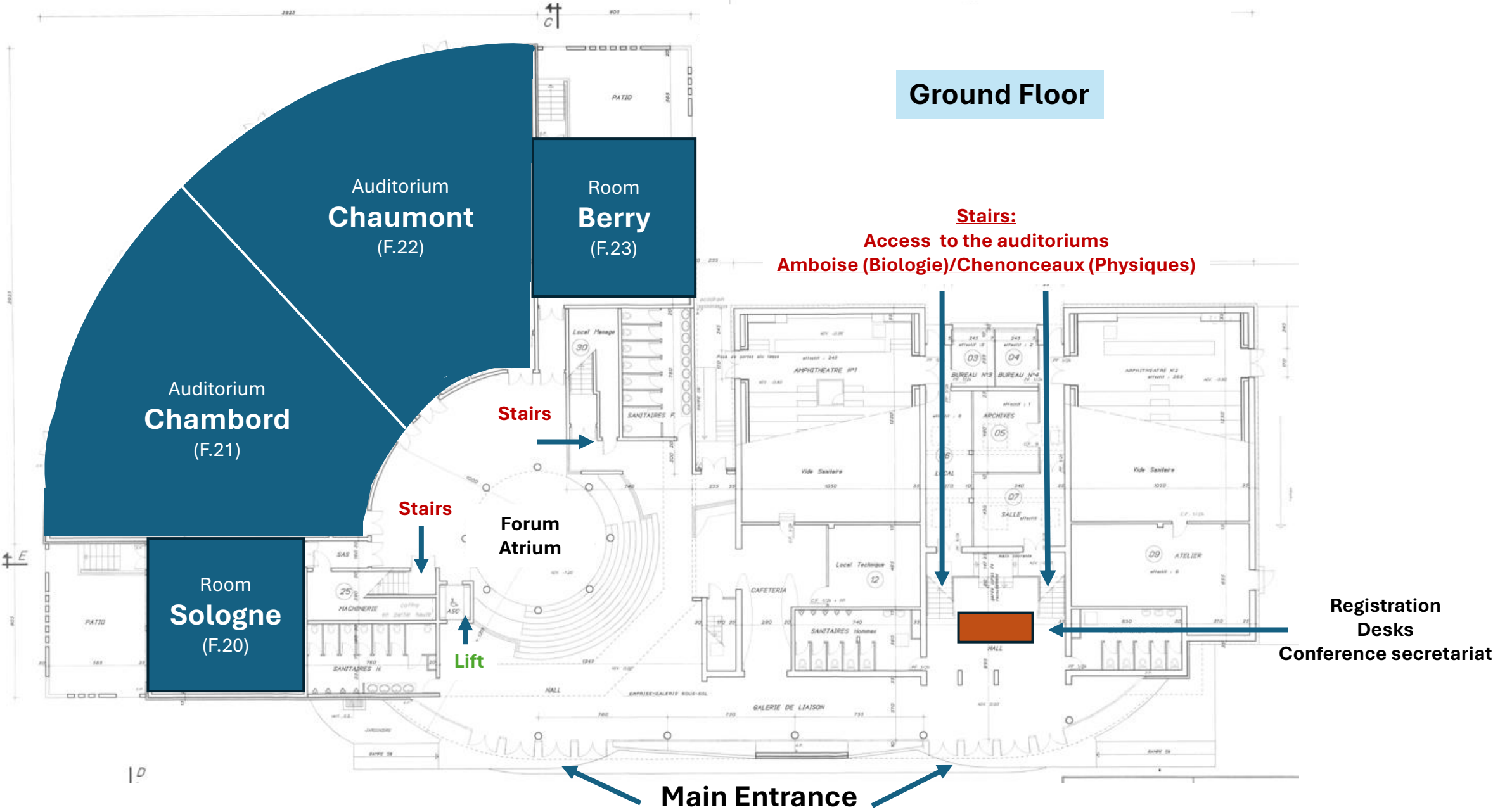
Sport Hall
Poster session

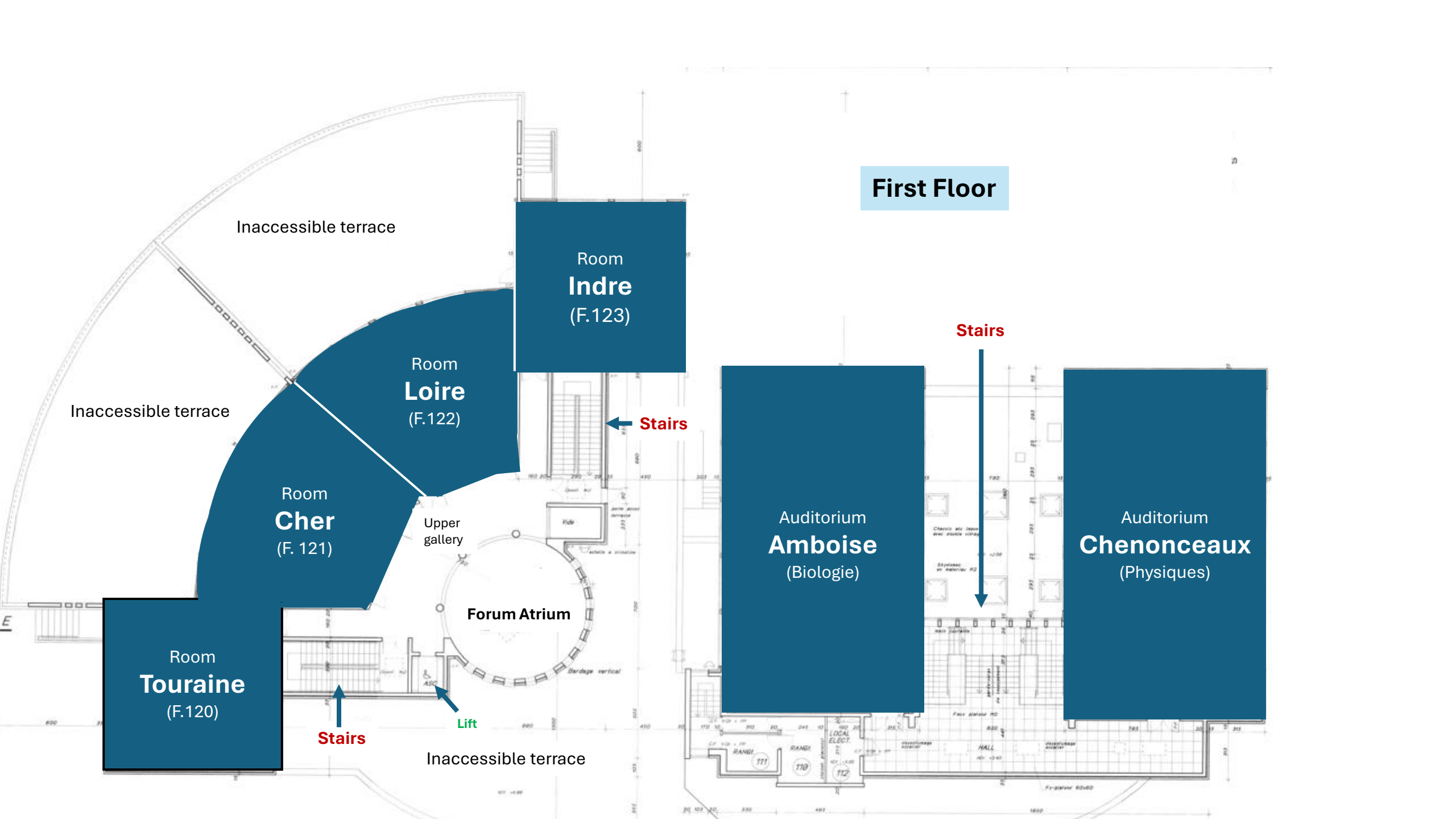
Universitary
Cafeteria
(Thermec lunch area)

Bus
stops



Map Building F





First Floor

Inaccessible terrace

Room
Indre
(F.123)

← **Stairs**

Stairs



Inaccessible terrace

Room
Loire
(F.122)

Upper gallery

Forum Atrium

Auditorium
Amboise
(Biologie)

Auditorium
Chenonceaux
(Physiques)

Room
Cher
(F.121)

Lift

Stairs

Inaccessible terrace

Room
Touraine
(F.120)



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 Raj Shabadi
Program Chair, University of Lille, France
- **Conference Information:**
Professor Raj Shabadi
Program Chair, University of Lille, France

Plenary Presentations

SESSION- PLENARY 1

June 30, 9:00 – 10:00

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 Hyoung Seop Kim
Pohang University of Science and Technology, South Korea

SESSION- PLENARY 2

July 01, 9:00 – 10:00

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

* *Invited Presentation*

SESSION- A

Session: A2, Venue: Chaumont

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

Session Chairs: Yoshitaka Adachi, Hugo Van Landeghem

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

* *Invited Presentation*

SESSION- A

Session: A3, Venue: Chaumont

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

Session Chairs: Shoichi Nambu, Juan Munoz-Andrade

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

* *Invited Presentation*

SESSION- A

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

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

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 Enerbility Co. Ltd, South Korea

A4 July-01 17:00

* *Invited Presentation*

SESSION- A

Session: A5, Venue: Chaumont

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

Session Chairs: Elena Pereloma, Endo Shiori

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

*** 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

A5 July-02 11:00 - *Student*

Carbides in ferritic steels: defects and atomic diffusion from AB-initio based studies

Adrien Lemerancier, Chu-Chun Fu, Frederic Soisson, Jean-Luc Bechade

SRMP, France

A5 July-02 11:20

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 11:40

*** 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

* *Invited Presentation*

SESSION- A

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- A

Session: A6, Venue: Chaumont

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

Session Chairs: Indradev Samajdar, Takuro Masumura

A6 July-02 14:30

* 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

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-02 15:10

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

A6 July-02 15:30 - *Student*

Solution nitriding of 304 stainless steel for hydrogen embrittlement resistance

Young-Je Kwon, Jee-Hyun Kang
Yeungnam University, South Korea

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

* *Invited Presentation*

SESSION- A

Session: A7, Venue: Chaumont

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

Session Chairs: Dirk Ponge, Mark Taylor

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

SESSION- A

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- A

Session: A8, Venue: Chaumont

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

Session Chairs: Katharina Steineder, Jessica Calvo

A8 July-03 14:30

Influence of the phase state variations on the impact toughness of lean alloyed 19-22 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

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

A8 July-03 16:40 - *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

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- B

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

Kazuhiisa 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

* *Invited Presentation*

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- B

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 architected 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 β -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- B

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

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 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

SESSION- B

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 Supérieure, 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 Khazaei, 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

SESSION- B

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

Kippe 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 Markstrom, 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- B

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-02 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 Corrax® stainless steel

Chuan Tsai, Hung-Wei Yen, Ming-Wei Wu

National Taiwan University, Taiwan

* *Invited Presentation*

Thermec'2025 Conference Programme

Intl' Conf. on Processing & Manufacturing of Advanced Materials, June 30-July 04, 2025, Tours, France

SESSION- B

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- B

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 Oliveira 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

SESSION- B

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 laser 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- B

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

Innovations in Wire Arc Additive Manufacturing: Hybrid Methods and Their Impact

Ganesan Gunasekaran

Indian Institute of Technology Bombay, India

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

* *Invited Presentation*

SESSION- C

Session: C1, Venue: Chenonceaux

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

Session Chairs: Long Cheng, Giacomo Dose

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, Fumihiko 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

Lunch break 12:40 - Sessions restart at 14:30

SESSION- C

Session: C2, Venue: Chenonceaux

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

Session Chairs: Denis Sornin, Erik Luther

C2 June-30 14:30

* Phase diagram of Ni-Si-Mn precipitates causing irradiation-induced embrittlement of nuclear reactors

Yoshitaka Matsukawa, Hideto Fujieda, Masayuki Terao, Sadahiro Tsurekawa, Hiroaki Muta, Fumihiko Nakamori, Hideki Yuya, Ryuta Kasada, Kenta Yoshida, Kiyohiro Yabuuchi, Masatake Yamaguchi, Nina Abad
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

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

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- C

Session: C3, Venue: Chenonceaux

High Entropy Alloys (Prof. Brian Cantor Symposium) 1

Session Chairs: Rajarshi Banerjee, Dan Miracle

8:20-8:30 Opening: address from Symposium organisers and 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

SESSION- C

C3 July-01 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-01 12:00

* Kinetics of Chemical Order Formation and Its Influence on Diffusivity in CrCoNi Medium Entropy Alloy

Shigenobu Ogata

Osaka University, Japan

C3 July-01 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-01 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- C

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

Dartmouth 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-01 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-01 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-01 17:10

* Optimizing Al content to eliminate the brittle phase in lightweight TiZrNbTa_{0.1}Al_x refractory high-entropy alloys

Wei-Bing Liao

Shenzhen University, China

SESSION- C

C4 July-01 17:30

* An Assessment of the Viability of the Refractory Metal High Entropy Alloy
AlMo_{0.5}NbTa_{0.5}TiZr 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-01 17:50

*Application APT to Understand High-Entropy Alloy and Materials

Gang Sha

Nanjing University of Science and Technology, China

C4 July-01 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- C

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 CrCoNiSi_{0.3} 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(Al_x) 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

SESSION- C

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- C

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**

Hyung Seop Kim

Pohang University of Science and Technology, South Korea

C6 July-02 15:00

*** Hierarchical nanotwin-driven mechanism in cryogenically-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

SESSION- C

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- C

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

SESSION- C

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- C

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-03 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-03 16:35 - *Student*

Achieving remarkable strength and ductility through 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-03 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

* *Invited Presentation*

SESSION- C

C8 July-03 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-03 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-03 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-03 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

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, Marioara D. Calin, 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 η_2 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- D

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

Hyounghwook 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- D

Session: D3, Venue: Amboise

Aluminium Alloys 3

Session Chairs: Stefan Pogatscher, Hyoungwook Kim

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
Korea Institute of Industrial Technology, University of Science & Technology, 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

D3 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- D

Session: D4, Venue: Amboise

Aluminium Alloys 4

Session Chairs: Chihiro Iwamoto, Ming-Jen Tan

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- D

Session: D5, Venue: Amboise

Aluminium Alloys 5

Session Chairs: Kenji Matsuda, Shoichi Hirose

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

* *Invited Presentation*

SESSION- D

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- D

Session: D6, Venue: Amboise

Aluminium Alloys 6

Session Chairs: Maria Cecilia Poletti, Ernst Kozeschnik

D6 July-02 14:30

* 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

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

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 17:10 - *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- D

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

SESSION- D

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- D

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 β_0 phase in the α_2/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 $90^\circ\langle 10-10 \rangle$ and $90^\circ\langle 11-20 \rangle$ 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

Montanuniversität Leoben, Austria

SESSION- D

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

SESSION- D

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: Kamanio Chattopadhyay, Jonghyun Kim

10:30-10:40 Opening remarks from Kamanio Chattopadhyay

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- E

Session: E2, Venue: Villandry

Mg Alloys (Prof. Yoshihito Kawamura Symposium) 2

Session Chairs: Taekyung Lee, Te-Cheng Su

E2 June-30 14:30 - 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

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- E

Session: E3, Venue: Villandry

Mg Alloys (Prof. Yoshihito Kawamura Symposium) 3

Session Chairs: Yoshihito Kawamura, Yuehlien Lee

E3 July-01 10:30

* 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 10:50

* 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 11:10

* 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 11:30 - *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 11:50

* Extruded magnesium sodium chloride anodes for use in metal-air batteries

Soeren Mueller, Klara Otto, Janne Heydrich-Bodensieck
TU Berlin, Germany

E3 July-01 12:10

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 12:30 - Sessions restart at 14:30

SESSION- E

Session: E4, Venue: Villandry

Mg Alloys (Prof. Yoshihito Kawamura Symposium) 4

Session Chairs: Eiji Abe, Anna Kula

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 Microstructural 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- E

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

* *Invited Presentation*

SESSION- E

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- E

Session: E6, Venue: Villandry

Smart/Intelligent Materials & Processes 1

Session Chairs: Raj Vaidyanathan, Hideki Hosoda

E6 July-02 14:30 Keynote

*** 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 Chevolut, Jean-Louis Leclercq, Didier Leonard
University of Lyon, France

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, Giovanni Giordano, 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

Dilatometric simulations of Al-based+Sn-based composite Phase Change Materials

Matteo Molteni, Elisabetta Gariboldi, Konstantin Naumenko
Politecnico Milano, Italy

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

SESSION- E

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

SESSION E

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-Y₂O₃ 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

SESSION E

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 E

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%Mg₂Si-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

SESSION E

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 René 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 Ti₂NbAlC_{1.82} 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- F

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 β -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- F

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 $\text{Ti-Fe}_7\text{Ta}_6$ 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 Matériaux, France

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

SESSION- F

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

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 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

* 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

* *Invited Presentation*

SESSION- F

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

F4 July-01 18:20

Employing Shear Punch Testing to Investigate Thermomechanical Properties of Nanocrystalline Brass

Oliver Petry, Karsten Durst, Sebastian Bruns, Naeimeh Fakhar

Technical University of Darmstadt, Germany

SESSION- F

Session: F5, Venue: Blois

Materials Performance / Functional & Structural Properties 1

Session Chairs: Lihe Qian, Chihiro Watanabe

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

* *Invited Presentation*

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- F

Session: F6, Venue: Blois

Materials Performance / Functional & Structural Properties 2

Session Chairs: Yoji Mine, Lina Yu

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-02 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 Tecnológicas, Brazil

F6 July-02 15:50

* 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

Session F6: Materials Performance / Functional & Structural Properties 2

Coffee / Tea break 16:10 to 16:40

F6 July-02 16:40 - *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 Moléculaire et des Matériaux d'Orsay, France

SESSION- F

Session: F7, Venue: Blois

Materials Performance / Functional & Structural Properties 3

Session Chairs: Dongchan Jang, Valentin Gavriljuk

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°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

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

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

SESSION- F

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

F7 July-03 12:30 - *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

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

SESSION- F

Session: F8, Venue: Blois

Materials Performance / Functional & Structural Properties 4

Session Chairs: Stefano Rossi, Melissa Thrun

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

* 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

F8 July-03 15:30 - *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

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- F

Session: F9, Venue: Blois

Materials Performance / Functional & Structural Properties 5

Session Chairs: Takumi Haruna, Li Li

F9 July-04 9:00

* Electron Concept of Hydrogen Embrittlement and Hydrogen-Increased Plasticity of Metals

Valentin Gavriljuk, Vladyslav Shyvaniuk, Sergey Teus

Institute of Metal Physics, Ukraine

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

Performance Optimization of Epoxy-Based Nanocomposites with Hybrid Nanofillers and Rocca Oil: Mechanical, Tribological, and Analytical Insights

Husain Alfadhel

Ministry of Public Works, Kuwait

F9 July-04 10:00 - *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

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*

Application of bi-modal milling process to fabricate harmonic structure materials

Seitaro Suzuki, Koki Yagi, Mie Kawabata, Hiroshi Fujiwara, Kei Ameyama

Ritsumeikan University, Japan

SESSION- G

Session: G1, Venue: Loire

Welding & Joining 1

Session Chairs: Rajiv Mishra, Gabriel López

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 TEMPALLOY AA1 and T92 butt joints of pipes assigned for the energy industry

Krzysztof Kwiecinski, Hanna Purzyska, Michal Urzynicok, Adam Zielinski

Upper Silesian Institute of Technology, Poland

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

SESSION- G

Session: G2, Venue: Loire

Welding & Joining 2

Session Chairs: Hishahi Serizawa, John Carpenter

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

G2 June-30 15:00

*** TLP Bonding of dissimilar materials**

I. López-Ferreño, G. Sánchez-Del Río, M. CofreV, S. Saugo, B. Sommadossi, M. C. Straumal, G.A. Poletti, Gabriel A. López

University of the Basque Country UPV/EHU, Spain

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: Yasuhiro Okamoto, Jinfu Li

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

Weiqiao Lightweight Research Center at Soochow, China

G3 July-01 12:00

Microstructure and Mechanical Properties in Al-Cu Lap Joint by Dual Beam Laser Welding

Chaeun 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

Weiqiao Lightweight Research Center at Soochow, China

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

SESSION- G

Session: G4, Venue: Loire

Welding & Joining 4

Session Chairs: Namhyun Kang, Magnus Areskoug

G4 July-01 14:30

Improved mechanical properties of Al-Cu laser lap joints by optimization of laser beam wobbling
Seong Min Yun, Chae Eun You, 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- G

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

G5 July-02 11:40

*** Modification by heat treatment of powders for the cold spray process**

[Francesco Delloro](#), Mehend Tebib, Jakub Judas
Mines Paris – PSL, France

Lunch break 12:00 - 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-02 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- G

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)Co_{0.2}Fe_{0.8}O_{3-δ} oxygen electrodes for reversible solid oxide cells

Cecile Autret-Lambert, Khawla Salman, Antoine Thepin, Micka Bah, Jean-Marc Bassat, Jean Paul Salvetat, Julien Vulliet, Julie Pepin
GREMAN, France

SESSION- G

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, Housseem Chabane, Cherif Younes Bourenane

Ecole Militaire Polytechnique, Algeria

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

SESSION- G

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

*** Enhancement of High-Temperature Oxidation Resistance of Fe-Cr-Al alloys Through Nanocrystalline Structure**

Rajiv Kumar

Indian Institute of Technology Ropar, India

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 16:30

*** Development of skutterudite-type thermoelectric materials using pressure induced self-insertion reaction**

Chihiro Sekine, Sora Ozaki, Amran Hossain, Hirotsada Gotou

Muroran Institute of Technology, Japan

SESSION- G

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- H

Session: H1, Venue: Berry

Ti Alloys/Aerospace Structural Metallic Materials 1

Session Chairs: Sergey Prikhodko, Nick Jones

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

H1 June-30 12:20 -*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

Lunch break 12:40 - Sessions restart at 14:30

SESSION- H

Session: H2, Venue: Berry

Ti Alloys/Aerospace Structural Metallic Materials 2

Session Chairs: Satyam Suwas, Masaaki Nakai

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- H

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

SESSION- H

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, Jurgен 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

From nano-patterned Pt-based metallic glass to copper oxide foam formation

Florian Spieckermann, Fei-Fan Cai, Baran Sarac, Adnan Akman, Selin Gümrukçü, Lukas

Schweiger, Martin Hantusch, Jan Schroers, Andreas Blatter, Annett Gebert, Jurgен Eckert

Montanuniversitat Leoben, Austria

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, Jurgен Eckert

Erich Schmid Institute of Materials Science, Austria

SESSION- H

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- H

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-02 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 Fraczkiwicz

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

* *Invited Presentation*

Thermec'2025 Conference Programme

Intl' Conf. on Processing & Manufacturing of Advanced Materials, June 30-July 04, 2025, Tours, France

SESSION- H

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 Caliber 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

SESSION- H

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 Universität 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- H

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, Mikhail Seleznev, Anja Weidner, Horst Biermann, Ulrich Prah

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 Pyzcek

Helmholtz-Zentrum Hereon, Germany

SESSION- H

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

*** Novel Gas Sensing Selectivity Defined by Response Behavior**

Shu Yin

Tohoku University, Japan

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

** Invited Presentation*

SESSION- I

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

SESSION- I

Session: I3, Venue: Cher

Nanomaterials for Structural & Energy Applications 3

Session Chairs: Tohru Sekino, In-Suk Choi

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 Proposito, Andrea Boehme, Rene Krenz-Baath

Technical University of Applied Sciences Wildau, Germany

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

* *Invited Presentation*

SESSION- I

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

* Safe-by-design conception and synthesis of metallic nanoparticles for biomedical applications

Patrick Benzo

CEMES-CNRS, France

I4 July-01 17:10

Design and development of a novel Mg-Zn-Ca bulk metallic glass for biomedical applications

Rajesh kumari Rajendran, Divyanshu Aggarwal, Cosmin Gruescu, Rajashekhara Shabadi

UMET - University of Lille, France

* *Invited Presentation*

SESSION- I

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 Ordone, 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

* *Invited Presentation*

Thermec'2025 Conference Programme

Intl' Conf. on Processing & Manufacturing of Advanced Materials, June 30-July 04, 2025, Tours, France

SESSION- I

I5 July-02 12:00

Design and Mechanical Evaluation of Ti-6Al-4V Lattice Structures for Biomedical Implants

Maria Najera, Miguel Araya, Timo Rautio, Teodolito Guillen, Antti Jarvenpaa

Instituto Tecnológico de Costa Rica, Costa Rica

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- I

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 Keynote

*** Control of osteoblast cell behavior by titanium alloys' microstructure**

Sengo Kobayashi, Satoshi Okano

Ehime University, Japan

I6 July-02 15:00

* Biodegradable zinc matrix composites for bone implant materials

Yuncang Li

MIT University Melbourne, Australia

I6 July-02 15:20

* Nanotopographical Surface Engineering and Corrosion Resistance Enhancement of Ti-based Bulk Metallic Glass through Alkaline Chemical Treatment

Yohan Douest, Kirti Tiwari, Benoit Ter-Ovannessian, Paola Rizzi, Damien Fabregue, Jerome Chevalier, Nicolas Courtois

University of Lyon, France

I6 July-02 15:40

* Enhancing Antibacterial Efficacy: Leveraging Stimuli-Responsive Mechanisms to Modulate Reactive Oxygen Species in Nanoparticle Design

Kelvin Yeung

The University of Hong-Kong, China

Session I6: Advanced Materials for Bioengineering Applications 3

Coffee / Tea break 16:00 to 16:30

I6 July-02 16:30

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

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

I6 July-02 17:10 - *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

* *Invited Presentation*

Thermec'2025 Conference Programme

Intl' Conf. on Processing & Manufacturing of Advanced Materials, June 30-July 04, 2025, Tours, France

SESSION- I

I6 July-02 17:30 - *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 Lapinova, Eliska Svastova, Vojtech Hybasek, Jiri Kubasek

Institute of Materials and Machine Mechanics, Slovakia

SESSION- I

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

Sunggho Lee, Akiko Obata

National Institute of Advanced Industrial Science and Technology, Japan

* *Invited Presentation*

SESSION- I

17 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

17 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

17 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- I

Session: I8, Venue: Cher

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

Session Chairs: Gabriele Candiani, Anna Dobkowska

18 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

18 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

18 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

18 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

18 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

18 July-03 16:40

* Argon plasma etching process to fabricate the antibacterial nanopillars on stainless steel surface

Mitsuhiro Hirano, Koyo Miura, Naofumi Ohtsu

Kitami Institute of Technology, Japan

18 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

SESSION- I

18 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

18 July-03 17:40 - *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

SESSION- J

Session: J1, Venue: Sologne

Solid State Processing of Materials / Innovative Manufacturing Process 1

Session Chairs: Dominique Mangelinck, Jean-Marc Heintz

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, Seung-Kyun Kang

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 TEMPALLOY AA1 and T92 butt joints of pipes assigned for the energy industry

Krzysztof Kwiecinski, Hanna Purzynska, Michał Urzyncok, Adam Zieliński
Lukasiewicz 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

* 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

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

Development of Hot Forging Process for Turbine Disk using an Open-Die Forging Press

Dojin Cha
Doosan University, South Korea

* *Invited Presentation*

Thermec'2025 Conference Programme

Intl' Conf. on Processing & Manufacturing of Advanced Materials, June 30-July 04, 2025, Tours, France

SESSION- J

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

Shouchi 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

* *Invited Presentation*

SESSION- J

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

* Amorphous Materials Examined with a Multifaceted Approach

Hirokazu Masai

National Institute of Advanced Industrial Science and Technology (AIST), Japan

J4 July-01 17:00

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 17:20

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

* *Invited Presentation*

Thermec'2025 Conference Programme

Intl' Conf. on Processing & Manufacturing of Advanced Materials, June 30-July 04, 2025, Tours, France

SESSION- J

J4 July-01 17:40

Long-range magnetic order in icosahedral quasicrystals

Ryuji Tamura

Tokyo University of Science, Japan

J4 July-01 18:00 - *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

SESSION- J

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

* *Invited Presentation*

SESSION- J

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- J

Session: J6, Venue: Sologne

Advanced Protective Coatings 2

Session Chairs: Aurélie Quet, 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-02 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

Poster Presentations

SESSION-POSTERS

Session K: POSTERS, 01 July, 17:00-19:30

Venue: Sports Hall

Session Chairs: Mariana Calin, Gang Ji

Session Monitoring : Ben Ter Ovanessian, Surya Yadav

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, Hangeol 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

SESSION-POSTERS

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-Ovanesian, 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

SESSION-POSTERS

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

SESSION-POSTERS

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, Sara Song, Seonghyun Park, Seokjae Lee, Jaehwang Kim

Korea Institute of Industrial Technology, University of Science & 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

SESSION-POSTERS

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

SESSION-POSTERS

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

Yeong-Hun Jung, Dong-Jeun Lee, Jeong-Yeon Park, Hong-Min Kim

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

P148

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

SESSION-POSTERS

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

P153

Fabrication of Zr-Based Bulk Metallic Glasses Lattice Structures by L-PBF Process

Muhammad Fakhry Hatta, Camille Puzon, Jean-Jacques Blandin, Remi Daudin

SIMaP Laboratory, France

P154

Neutralization of Impurity Elements of Cu and Ni in Mg-Zn Alloy by Dissolution into MgZn₂ 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

SESSION-POSTERS

P160

N₂O and NF₃ 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 SiO₂-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 Cermets 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

SESSION-POSTERS

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

P170

Production and Characterization of Aluminium-Based Syntactic Foam

Dilermando Nagle Travessa, Maynara Faula Avela, Carlos Eduardo Molento De Moraes, Daniel Caldato Dalan
Universidade Federal de Sao Paulo, Brazil

P171

Assessing the Catalytic Properties of Pd₃Pb 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 CeFe₄P₁₂ and ThFe₄P₁₂

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

SESSION-POSTERS

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

Unravelling the dynamics of eutectic melting: an in-situ study of CBr₄-C₂Cl₆ microstructures

Rajesh Kumari Rajendran, S. Bottin-Rousseau, K. Sbagoud, B. Raka, S. Akamatsu
INSP- Institut des NanoSciences de Paris- Sorbonne University, France

P180

Analysis of white strip defects in the galvanized coating surface of hot dip galvanized DP steel

Guang Chen, Min Zhu, Weichen Mao
Baoshan Iron & Steel Co. Ltd, Shanghai, China

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% NaHCO₃

Kaouthar Bouguerra, Caroline Richard, Yan-Ming Chen, Nadege Ducommun, Alexandre Romaine, Pierre Francois Cardey
GREMAN, France

P186-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

SESSION-POSTERS

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

Jhulienne Torrente, 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

SESSION-POSTERS

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 Alphasenic 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

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

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

SESSION-POSTERS

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

We express our gratitude to the Sessions Coordinators for their critical contribution in helping us to make this program.

Conference Secretariat

Catherine Mausion
University of Lille
Lille
Email: secretariat-thermec2025@univ-lille.fr