

18th International Conference on Aluminium Alloys (ICAA18)

Program (Plenary/Keynote/Invited/ECR/Oral)

September 5th

Room 1

9:00-9:20

Opening Ceremony

9:20-10:40

Plenary Lecture

Chairperson: K. MATSUDA (Japan)

PL-1 **Role and potential of aluminium and its alloys for a zero-carbon society**

Shinji KUMAI

Tokyo Institute of Technology (Japan)

PL-2 **Compositional and structural complexity in alloys containing aluminum**

Gary SHIFLET

University of Virginia (USA)

11:00-12:00

7-1 Heat treatment, phase transformations & precipitation

Chairperson: T. HOMMA (Japan)

07-1-1 **Invited: Advanced analysis and theoretical studies on solute clustering in Al-Mg-Si alloys**

Eiji ABE

University of Tokyo, National Institute for Materials Science (Japan)

07-1-2 **Development of 7XXX alloy sheet product for automotive applications**

Rajeev KAMAT

Novelis Global Research and Technology Center (USA)

07-1-3 **Microstructure observation of cold-rolled Al-Mg-Ge-Cu alloy with aging treatment**

Seungwon LEE

University of Toyama (Japan)

16:20-17:40

Plenary Lecture

Chairperson: S. HIROSAWA (Japan)

PL-3 **Aluminium, an ideal material with a great future**

Juergen HIRSCH

Aluminium-Consulting- Königswinter (Germany)

PL-4 **Aluminium alloy and process development through advanced characterization and modelling**

Knut MARTHINSEN

Norwegian University of Science and Technology (NTNU) (Norway)

18:00-20:00

7-2 Heat treatment, phase transformations & precipitation

Chairperson: C. CAYRON (Switzerland)

07-2-1 **On the extraordinary low quench sensitivity of an AlZnMg alloy**

Benjamin MILKEREIT

University of Rostock (Germany)

- 07-2-2 **Modelling age hardening of aluminium alloys with consideration of GP zones or clusters**
Zhanli GUO
Sente Software Ltd (United Kingdom)
- 07-2-3 **Dynamic precipitation in supersaturated AA7075 during warm stretching**
Ziyu MA
The University of Manchester (United Kingdom)
- 07-2-4 **Modelling dynamic precipitation in aluminium alloys**
Madeleine BIGNON
The University of Manchester (United Kingdom)
- 07-2-5 **Nanometallurgy and nanoalloying of aluminum**
Diego SANTA ROSA CORADINI
Montanuniversität Leoben (Austria)
- 07-2-6 **Influence of copper on the artificial ageing of secondary AlSi10Mg casting alloys**
Stefan FORTMÜLLER
Technical University of Graz, Christian Doppler Laboratory for Design of High-Performance Alloys
by Thermomechanical Processing (Austria)

September 5th

Room 2

11:00-12:00

5-1 Mechanical properties & advanced processing

Chairperson: K. ICHITANI (Japan)

- 05-1-1 **Keynote: Production of ultrafine-grained aluminum alloys in upsized sheets using process of incremental feeding high-pressure sliding (IF HPS)**
Zenji HORITA
Kyushu University, Kyushu Institute of Technology, Kumamoto University, Saga University (Japan),
Universiti Kebangsaan (Malaysia)
- 05-1-2 **Extra-strengthening through solution treatment under high pressure and subsequent high-pressure torsion**
Takahiro MASUDA
Yokohama National University, Osaka University (Japan)
- 05-1-3 **Mechanical properties and microstructure of high Fe-containing Al-Mg-Si alloys processed by severe plastic deformation under high pressure**
Yongpeng TANG
Kyushu Institute of Technology (Japan)

18:00-20:20

5-2 Mechanical properties & advanced processing

Chairperson: Z. HORITA (Japan)

- 05-2-1 **Wrought Al-Mg-Si alloys with high Fe content enable attractive mechanical properties**
Bernhard TRINK
Montanuniversität Leoben (Austria)
- 05-2-2 **TEM study of intermetallic phases in a -high strength 6xxx- alloy with Zr addition**
Vincenzo DE STEFANO
Brunel University London (United Kingdom)

- O5-2-3 **Pushing the limits of the Al-Mg-Si system: a systematic rolling and extrusion study of ultra-high-strength alloys**
Georg KUNSCHERT
LKR Light Metals Technologies (Austria)
- O5-2-4 **Facing the issues of sheet metal equal-channel angular pressing: A modified approach for producing ultrafine-grained high ductility AA5083 sheets**
Christian ILLGEN
Technische Universität Chemnitz (Germany)
- O5-2-5 **High cycle fatigue behavior of alloy EN AW-2618A**
Ying HAN
Bundesanstalt für Materialforschung und -prüfung (BAM) (Germany)
- O5-2-6 **Investigation of the influence of microstructural- and testpiece parameters on the high cycle fatigue performance of EN AW-2618A**
Jan RADNERS
Fraunhofer Institute for Mechanics of Materials IWM (Germany)
- O5-2-7 **Dislocation behavior during tensile deformation of pure aluminum by electrical resistivity measurements**
Ryota ITO
Daido University (Japan)

September 5th

Room 3

11:00-12:00

2-1 Casting, solidification, recycling & refining

Chairperson: S. PAVEL (United Kingdom)

- O2-1-1 **Thermodynamics of formation of Al₆Mn inter-metallic compound for Mn removal from molten Al-Mg alloy**
Kengo KATO
University of Toyama (Japan)
- O2-1-2 **Precipitation of intermetallic compound from molten aluminum by addition of Mg**
Katsuhiro YAMAGUCHI
Kobe Steel, Ltd. (Japan)
- O2-1-3 **Thermodynamics of formation of Al₃Fe inter-metallic compound for Fe removal from molten Al-Mg alloy**
Yusei SHINOMIYA
University of Toyama (Japan)

18:00-20:00

2-2 Casting, solidification, recycling & refining

Chairpersons: D. ESKIN (United Kingdom), S. PAVEL (United Kingdom)

- O2-2-1 **Keynote: Ultrasonic melt processing of aluminium alloys: through fundamentals to applications**
Dmitry ESKIN
Brunel University London (United Kingdom)

- O2-2-2 **In-situ differential fast scanning calorimetry of rapid solidification of Al-Si alloys**
Bin YANG
University of Rostock (Germany)
- O2-2-3 **Phase composition and microstructure of high strength AA6xxx aluminium alloys with nickel additions**
Pavel SHURKIN
Brunel University London (United Kingdom)
- O2-2-4 **Heat treatment and solid-state processing to upgrade aluminium machining swarf into a high value composite.**
Jetmira UKA
Brunel University London Kingston Ln (United Kingdom)
- O2-2-6 **Thermodynamics of formation of Mg₂Si inter-metallic compound for Si removal from molten Al-Mg alloy**
Yuto SEKI
University of Toyama (Japan)

September 5th

Room 4

11:00-12:00

1-1 Modeling & simulation

Chairpersons: S. HIROSAWA (Japan)

- O1-1-1 **Keynote: Possibility to the high functional and/or complicated product by complex extrusion of multi billets**
Michihiko HOSHINO
Nihon University (Japan)
- O1-1-2 **Invited: Biaxial stress tests and material modeling of aluminum alloy sheets for enhancing the accuracy of forming simulations**
Toshihiko KUWABARA
Tokyo University of Agriculture and Technology (Japan)
- O1-1-3 **Invited: Automatic-simultaneous identification of friction and heat transfer coefficient curves for hot forging simulation with auto-pilot FEA**
Yoshinori YOSHIDA
Gifu University (Japan)

18:00-20:00

1-2 Modeling & simulation

Chairperson: S. MURAIISHI (Japan)

- O1-2-1 **Keynote: Modifications of the Labusch theory for solid-solution hardening in aluminum alloys**
Bjørn HOLMEDAL
Norwegian University of Science and Technology (NTNU) (Norway)
- O1-2-2 **Phase-field modelling of grain boundary precipitation and quench sensitivity in 7xxx aluminium alloys**
Yichao YAO
The University of Manchester (United Kingdom)

- O1-2-3 **CALPHAD-informed phase-field model for multi-sublattice phases based on chemical potentials: η -phase precipitation in Al-Zn-Mg-Cu alloys**
Pratheek SHANTHRAJ
University of Manchester (United Kingdom)
- O1-2-4 **CALPHAD calculations and simulations with TCAL8/MOBAL7 for 7000 series of aluminum alloys**
Hai-Lin CHEN
Thermo-Calc Software AB (Sweden)
- O1-2-5 **An ontology for describing and exchanging microstructural information in a structured and reusable way**
Jesper FRIIS
SINTEF Industry (Norway)
- O1-2-6 **Classification of microstructure of Al-Si alloys with machine learning techniques**
Kenjiro SUGIO
Hiroshima University (Japan)

September 5th

Room 5

11:00-12:00

10-1 Advanced characterization

Chairperson: M.KOBAYASHI (Japan)

O10-1-1 **Effect of Mg on precipitation behavior of Al-Mg-Sc-Zr alloy**

Daisuke EGUSA

The University of Tokyo (Japan)

O10-1-2 **In-situ neutron diffraction study of dislocation density evolution during tensile deformation in Al-Mg alloys**

Pramote THIRATHIPVIWAT

Ibaraki University, Yokohama National University (Japan)

O10-1-3 **Measurement of residual stress distribution of aluminum alloy thick plate**

Satoshi MIYAZAKI

UACJ Corporation (Japan)

18:00-19:40

10-2 Advanced characterization

Chairperson: K. MATSUDA (Japan)

O10-2-1 **Keynote:4D-STEM used to study GP1 zones in Al-Zn-Mg alloys**

Randi HOLMESTAD

Norwegian University of Science and Technology (NTNU) (Norway)

O10-2-2 **The decomposition process in high-purity Al-Cu alloys with trace elements: the role of vacancies in formation of precipitates**

Torsten STAAB

University Wuerzburg (Germany)

O10-2-3 **Composition-dependent precipitation in Mg/Si graded 6xxx aluminium alloys**

Justine TAURINES

Université Claude Bernard Lyon (France)

O10-2-4 **Imaging early precipitates in 6xxx Al alloys by annular dark field**

Christoph M. HELL

Norwegian University of Science and Technology (NTNU) (Norway)

O10-2-5 **Quantitative evaluation of dispersoid formation, growth, and dissolution in Al Fe foil stock alloys**

Roland MORAK

AMAG Rolling GmbH (Australia)

September 5th

Room 6

11:00-12:00

11-1 Aluminium & its alloys for zero carbon society

Chairperson: M. MURAYAMA (USA/Japan)

O11-1-1 **Self-corrosion of an Al-Mg-Ga alloy in a simulated sacrificial anode service environment**

Yulia KIRINA

Virginia Tech (USA)

O11-1-2 **Keynote: An advanced value network for circular economy of aluminum contributing to sustainable development**

Makoto HARITA

Harita Metal Co., Ltd. (Japan)

O11-1-3 **Aluminium extrusion for vehicle lightweighting and carbon reduction**

Scott ROGERS

Hydro Aluminium Asia (Australia)

18:00-20:00

11-2 Aluminium & its alloys for zero carbon society

Chairperson: K. NISHIMURA (Japan)

O11-2-1 **Keynote: Environmental implications of artificial and incidental nanoparticles associated with advanced manufacturing**

Mitsuhiro MURAYAMA

Virginia Tech (USA), Kyushu University (JAPAN)

O11-2-2 **New alloys from recycling of automotive aluminium-alloys**

Patrick KRALL

Montanuniversitaet Leoben (Austria)

O11-2-3 **Strategies for future scrap-based sustainable aluminum alloys**

Stefan POGATSCHER

Montanuniversitaet Leoben (Austria)

O11-2-4 **Superconducting states in Al alloys containing Ti and Mg through prediction by machine learning and process by high-pressure torsion**

Masaki MITO

Kyushu Institute of Technology (Japan)

O11-2-5 **Application of aluminum anode to lithium-ion batteries and elucidation of the charge/discharge mechanism**

Kenta KAYANUMA

Yokohama National University (Japan)

O11-2-6 **On the way towards a zero carbon plant**
Alexander WIMMER
Constantia Teich GmbH (Austria)

September 6th

Room 1

9:00-10:20

Plenary Lecture

Chairperson: M. KUBOTA (Japan)

PL-5 **Trends and future prospects of the aluminium industry of Japan**
Makoto MIZUGUCHI
Japan Aluminium Association (Japan)

PL-6 **Innovation challenge to hydrogen generation using aluminum for zero carbon society**
Nobuaki MIZUKI
Alhytec Inc. (Japan)

10:40-12:00

7-3 Heat treatment, phase transformations & precipitation

Chairperson: T. TSUCHIYA (Japan)

O7-3-1 **Invited: History of the development of Extra Super Duralumin and future research issues of Al-Zn-Mg alloys**
Hideo YOSHIDA
ESD Laboratory (Japan)

O7-3-2 **Effect of heating rate during aging on age-hardening behavior of an Al-6%Zn-0.75%Mg alloy with different quenching conditions**
Mami MIHARA-NARITA
Nagoya Institute of Technology (Japan)

O7-3-3 **Effects of cold rolling on precipitation process in Al-Zn-Mg-Cu alloys**
Yujin RHEE
Tokyo Institute of Technology (Japan)

O7-3-4 **Concurrent improvement of strength, formability and SCC resistance of Al-Zn-Mg-Cu alloy by hot stamping after rapid heating and re-aging on paint baking treatment**
Shoichi HIROSAWA
Yokohama National University (Japan)

14:00-15:40

7-4 Heat treatment, phase transformations & precipitation

Chairperson: M. MIHARA-NARITA (Japan)

O7-4-1 **Identification of active strengthening precipitates in modified Al-Si-Cu Mg (354-type) alloys**
Mohamed ABDELAZIZ
Université Française d'Égypte (Egypt), Université du Québec à Chicoutimi (Canada)

O7-4-2 **Precipitation sequence in Al-Sc-Zr alloys revisited**
Thomas DORIN
Deakin University (Australia)

- 07-4-3 **High-throughput study into the effect of Si on the kinetics of L12 Al₃(Sc,Zr) core-shell dispersoids in Al-(Si)-Sc-Zr alloys**
Alexandru TECHERES
Deakin University (Australia)
- 07-4-4 **Modelling the precipitate evolution and strengthening in Sc-containing aluminium alloys**
Jianan HU
Sente Software Ltd. (United Kingdom)
- 07-4-5 **Anomalous hardening behavior in η -phase dispersoid-modified AlMgZn alloys**
Viktor WESSELY
ETH Zurich (Switzerland)

16:40-17:20

Early Career Researchers Awards

Chairperson: SW. LEE (Japan)

- ECR-1 **The evolution of precipitates in an Al-Zn-Mg alloy**
Elisabeth THRONSEN
Norwegian University of Science and Technology (NTNU) (Norway)
- ECR-2 **Hybrid metal extrusion & bonding for multi-material welding of aluminium alloys to copper, steel, and titanium**
Tina BERGH
Norwegian University of Science and Technology (NTNU) (Norway)

18:00-20:20

7-5 Heat treatment, phase transformations & precipitation

Chairperson: E. ABE (Japan)

- 07-5-1 **Keynote: Order-driven evolution of precipitates in Al-Mg-Si-Cu alloys: from past to future research**
Cyril CAYRON
Laboratory of Thermo Mechanical Metallurgy (LMTM) (Switzerland)
- 07-5-2 **Modelling the β -Mg₂Si particle structure in Al-Mg-Si alloys**
Endre A. HENNUM
NTNU, Hydro Aluminium AS (Norway)
- 07-5-3 **Precipitation kinetics of Al₃(Sc,Zr) in Al-Mg-Sc-Zr alloys**
Ian AMEDEO
INSA Lyon (France), Deakin University (Australia)
- 07-5-4 **L12 dispersoid evolution in novel 5XXX alloys - effects of composition, micro-segregation, and modelling of strengthening contributions**
Niall W. HUGHES
University of Manchester (United Kingdom)
- 07-5-5 **In situ DSC investigation of precipitation behavior in Al-Cu-Li alloys**
Jette BROER
University of Rostock (Germany)
- 07-5-6 **Cold rolling and growth-coarsening of S-phase in AA2024: effect on microstructure and hardness**
Daniel IRMER
PSL University (France)

07-5-7 **Calorimetric study of heat capacity during rapid processing of AlSi12 metal alloy powder**
Cameron R. QUICK
Montanuniversitaet Leoben (Austria)

September 6th

Room 2

10:40-12:00

5-3 Mechanical properties & advanced processing

Chairperson: T. MASUDA (Japan)

05-3-1 **Mechanical properties of Al-Zn-Mg-Cu alloys processed by severe plastic deformation techniques**

Toshiaki MANAKA

National Institute of Technology(KOSEN) Niihama College (Japan)

05-3-2 **Effects of Sc and Zr addition on the mechanical properties of 7000 series aluminum alloys**

Mai TAKAYA

UACJ Corporation (Japan)

05-3-3 **Effect of short-time heating after ECAP processing on mechanical properties of 6061 aluminum alloy**

Naohiro SARUWATARI

University of YAMANASHI (Japan)

05-3-4 **Enhancement of the hardness for CNT/Al composite by well-dispersed nano sized Al₄C₃ particles prepared using bare Al nanopowder**

Dasom KIM

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

14:00-16:20

5-4 Mechanical properties & advanced processing

Chairperson: G. ITOH (Japan)

05-4-1 **Microstructural observation of Al-based TiAl composites fabricated by 3DPC**

Haruki TSUKUDA

University of Toyama (Japan)

05-4-2 **Keynote: Dynamic recovery in aluminum alloys**

Christopher HUTCHINSON

Monash University (Australia)

05-4-3 **Invited: Ultrafine-grained Al-Zn-In alloy anodes for Al-air battery by equal channel angular pressing**

Chaiyasit BANJONGPRASERT

Chiang Mai University, National Science and Technology Development Agency (Thailand)

05-4-4 **The effect of LI₂ dispersoids on the PLC effect of Al-Mg alloys**

Folarin BAKARE

Deakin University (Australia)

05-4-5 **Investigation of hot workability of AA5052 cast by ultrasonication compared to untreated conventional alloy**

Hoon CHOA

Korea Institute of Industrial Technology (Korea)

- 05-4-6 **A study on microstructure evolution of Fe-intermetallic compounds in aluminum alloys**
DaeHan KIM
Korea Institute of Industrial Technology (Korea)
- 05-4-7 **The effect of R-ratio on the high cycle fatigue performance of precipitate strengthened Al alloys**
Yixin WANG
Monash University (Australia)

18:00-20:20

5-5 Mechanical properties & advanced processing

Chairperson: T. HOMMA (Japan)

- 05-5-1 **Influence of surface scratches on fatigue strength of aluminum components**
Dorina SIEBERT
Technical University of Munich (Germany)
- 05-5-2 **Effect of microstructure on crack bifurcation in AA2050-T84 (Al-Cu-Li)**
Vladimir A. ESIN
PSL University (France)
- 05-5-3 **On the potential of aluminum crossover alloys**
Lukas STEMPER
AMAG rolling GmbH (Australia)
- 05-5-4 **A novel ultrafine-grained crossover aluminum alloy with enhanced irradiation resistance**
Patrick D. WILLENSHOFER
Montanuniversitaet Leoben (Austria)
- 05-5-5 **Crossover alloys for sheet forming operations**
Sebastian SAMBERGER
Montanuniversitaet Leoben (Austria)
- 05-5-6 **Influence of alloy composition and lubrication on the formability of 6xxx aluminum alloy sheets**
Emir HODŽIĆ
Graz University of Technology (Austria)
- 05-5-7 **The effect of texture and temper on the uniaxial and plane strain response of AA7075 automotive sheet**
Elliot COOKSEY-NASH
The University of Manchester (United Kingdom)

September 6th

Room 3

10:40-12:00

2-3 Casting, solidification, recycling & refining

Chairperson: S. NISHIDA (Japan)

- 02-3-1 **Pin-injection-gate die casting of thin-walled aluminum alloy parts**
Haruki SAKAYORI
Sanko-Light Kogyo, Co., Ltd. (Japan)

O2-3-2 **Gas porosity analysis and control on high pressure die casting process using statistical thermodynamics**
Masakura TEJIMA
TOYOTA MOTOR CORPORATION (Japan)

O2-3-3 **Development of evaluation method for flow resistance between molten metal and mold in gravity casting**
Kuiyuan MU
Gifu University (Japan)

O2-3-4 **Development of grain size prediction model considered Zr poisoning on Al alloy**
Akihiro MINAGAWA
UACJ Corporation (Japan)

14:00-16:20

2-4 Casting, solidification, recycling & refining

Chairpersons: S. KOMAROV (Japan), T. AIDA (Japan)

O2-4-1 **Numerical investigation of channel-type segregations in DC casting aluminum slab**
Keisuke KAMIYA
UACJ Corporation (Japan)

O2-4-2 **Effect of casting conditions on surface defect and segregation of strips cast by a high-speed twin-roll caster**
Toshio HAGA
Osaka Institute of Technology (Japan)

O2-4-3 **Refinement of Al-Fe compounds using rotating disk cavitation in aluminum melt**
Kennosuke HIGASHI
Tohoku University (Japan)

O2-4-4 **Effect of nozzle shape on periodic surface patterns of Al-3 mass% Si alloy strips fabricated by vertical-type high-speed twin-roll casting**
Shingo KAJIMURA
Tokyo Institute of Technology (Japan)

O2-4-5 **Effect of homogenization heat treatment on elongation anisotropy in cold-rolled and annealed Al-Si alloy sheets fabricated from vertical-type high-speed twin roll cast strips**
Yuji TAKEHARA
Tokyo Institute of Technology (Japan)

O2-4-6 **Continuous strip casting of aluminum alloy A7075 by twin roll casting using commercial scale machine**
Hisamichi ONO
Gunma University (Japan)

O2-4-7 **Degradation in grain refiner heterogeneous nucleation potency with multiple remelting of aluminum alloys**
Sergey KOMAROV
Tohoku University (Japan)

18:00-20:20

10-3 Advanced characterization

Chairperson: R. HOLMESTAD (Norway)

- O10-3-1 **Invited: Combinatorial studies of precipitate microstructures in aluminium alloys**
Alexis DESCHAMPS
University of Grenoble Alpes (France)
- O10-3-2 **In situ SAXS and HEXRD investigation of the quench rate sensitivity of Al-Mg-Zn-Cu alloys with low and high Zn/Mg ratio**
Gloria GRAF
Montanuniversität Leoben (Austria)
- O10-3-3 **Characterization of Zr dispersoids in Al-Zn-Mg-Cu aluminum alloys with small-angle X-ray Scattering**
Mohammad T. HONARAMOOZ
Montanuniversität Leoben Institute of Physics (Austria)
- O10-3-4 **A 3D investigation of the native oxide film formed on a 7050 T7651 aluminum alloy by combination of XPS and ToF-SIMS**
Oliver BEYSS
RWTH Aachen University (Germany)
- O10-3-5 **In-situ measurement of interdendritic flow in Al-Cu and Al-Cu-Fe alloys by X-ray imaging**
Enzo LIOTTI
University of Oxford (United Kingdom)
- O10-3-6 **Understanding environmentally assisted cracks in 7xxx aluminum using 3D femtosecond laser serial sectioning of large volumes**
Tim BURNETT
The University of Manchester (United Kingdom)
- O10-3-7 **Cutting-edge electron microscopy: A novel insight into advanced Al alloys structure**
Šárka MIKMEKOVÁ
Institute of Scientific Instruments of the Czech Academy of Sciences (Czech Republic)

September 6th

Room 4

10:40-12:00

1-3 Modeling & simulation

Chairperson: K. IKEDA (Japan)

- O1-3-1 **Dislocation dynamics simulation of precipitation hardening by rod-shaped precipitates in aluminum alloys**
Shinji MURAISHI
Tokyo Institute of Technology (Japan)
- O1-3-2 **Relationship between cluster formation and yield strength of multi-component aluminum alloys by Monte Carlo simulation**
Jia ZHAO
Hiroshima University (Japan)

O1-3-3 **Prediction of the precipitate free zone in Al-Mg-Si Alloys using a classical nucleation and growth model**
Gwenaëlle MEYRUEY
The University of British Columbia (Canada)

O1-3-4 **Phase-field simulations of texture evolution in hot-extruded aluminum alloys**
Ali KHAJEZADE
The University of British Columbia (Canada)

14:00-15:40

4-1 Foams & composite materials

Chairperson: M. KOBASHI (Japan)

O4-1-1 **Keynote: Design and applications of additively manufactured porous aluminum alloys**
Koichi KITAZONO
Tokyo Metropolitan University (Japan)

O4-1-2 **Experiment of oblique impact crushing of aluminum honeycomb**
Tsutomu UMEDA
Osaka Metropolitan University (Japan)

O4-1-3 **Aluminum alloy-based origami-architected materials fabricated by additive manufacturing for lightweight structures**
Takahiro KUNIMINE
Kanazawa University (Japan)

O4-1-4 **Keynote: Microscopic aspects of aluminium foam formation**
John BANHART
Helmholtz Zentrum Berlin, Technische Universität Berlin (Germany)

O4-1-5 **Fabrication of particulate aluminium matrix composites by high-shear assisted DC casting**
Yan HUANG
Brunel University London Uxbridge UB8 3PH UK (United Kingdom)

18:00-19:40

1-4 Modeling & simulation

Chairperson: K. MARTHINSEN (Norway)

O1-4-1 **Influence of microstructure on deformation mechanisms and mechanical properties of additively manufactured aluminium**
Etienne BONNAUD
Swerim (Sweden)

O1-4-2 **Investigation of the effect of stress triaxiality and Lode parameters during pore evolution by in situ synchrotron X-ray 3D nano-imaging.**
Anthony HARRUP
The European Synchrotron, University of Grenoble Alpes (France)

O1-4-3 **Modelling and simulation of large format aluminium façade elements**
Barbara SIEBERT
Dr. Siebert Consulting Engineers (Germany)

O1-4-4 **Solidification of quasi-binary aluminum alloy and its equiaxed grain dynamics in horizontal casting: simulation with in-situ measurement**
Kuang-Wu LEE
Austrian Institute of Technology (Austria)

- O1-4-5 **The integration of neural network and high throughput multi-scale simulation for establishing a digital twin for aluminium billet DC-casting**
Qiang DU
SINTEF Industry (Norway)

September 6th

Room 5

10:40-12:00

8-1 Corrosion & surface treatments

Chairperson: T.HARUNA (Japan)

- O8-1-1 **Invited: Fabrication of liquid-repellent surfaces on aluminum**
Hiroki HABAZAKI
Hokkaido University (Japan)
- O8-1-2 **Microstructure control of Ti-based conversion coatings on A6063 alloy for achieving excellent adhesion of organic coatings and corrosion resistance**
Nobuyuki BANJO
YKK AP Inc. (Japan)
- O8-1-3 **Anticorrosive properties of acid-resistant films on aluminum alloy substrate fabricated by steam coating process**
Ai SERIZAWA
Shibaura Institute of Technology (Japan)
- O8-1-4 **Surface morphology of aluminum alloy anodized to improve corrosion protection**
Koki SAITO
Asahikawa College (Japan)

14:00-16:20

8-2 Corrosion & surface treatments

Chairperson: H. HABAZAKI (Japan)

- O8-2-1 **Self-healing electrodeposition coating formed on Al alloy surface by using pores of porous film as a container of healing agent**
Rin TAKADA
National Institute of Technology, Asahikawa College (Japan)
- O8-2-3 **Keynote: Effect of aging precipitation behavior on corrosion resistance of Al-Mg-Zn high strength aluminum alloys**
Yong ZOU
Shandong University (China)
- O8-2-4 **Stress corrosion behavior of friction stir welding joints of 7055 aluminum alloy with different aging heat treatment**
Fuqiang GUO
Shandong University (China)
- O8-2-5 **Effect of Ti/Zr passive film on zinc phosphating behavior on AA6014 automotive sheets**
Yingdong LI
Chinalco Materials Application Research Institute (China)

18:00-20:20

8-3 Corrosion & surface treatments

Chairperson: E. TADA(Japan)

- O8-3-1 **Effect of in situ polarization on the stress corrosion cracking mechanism of Cu free Al-Zn-Mg-Zr wires**
Daniela ZANDER
RWTH Aachen University (Germany)
- O8-3-2 **The role of alloy chemistry on microstructure and hydrogen mobility in overaged high-strength 7xxx aluminum alloy**
Chijioke Kenneth AKUATA
RWTH Aachen University (Germany)
- O8-3-3 **In-situ observation of environmentally assisted crack initiation and crack growth behaviour of new-generation 7xxx series alloys in humid air**
Ryan EUESDEN
The University of Manchester (United Kingdom)
- O8-3-4 **High resolution investigation of the initiation of environmentally assisted cracking in new-gen 7xxx series alloys**
Phil PRANGNELL
The University of Manchester (United Kingdom)
- O8-3-5 **Impact of the microbially-induced surface modifications in marine environment on the corrosion behavior of a 5083-aluminum alloy**
Chavie NKOUA
Université de Toulouse (France)
- O8-3-6 **Analysis of the corrosion susceptibility of AA2024 at polycrystal scale**
Emilie MONDOU
Université de Toulouse (France)
- O8-3-7 **Effect of Ni on filiform corrosion properties of A356 foundry alloys**
Takeshi SAITO
Hydro Aluminium Asia Pte Ltd (Singapore)

September 6th

Room 6

14:00-16:00

6-1 Thermomechanical processing, texture & recrystallization

Chairpersons: N. TAKATA (Japan), D. EGUSA (Japan)

- O6-1-1 **Keynote: Preferred orientation formation in aluminum and Al-3%Mg subjected to shear deformation and subsequent annealing**
Yoshimasa TAKAYAMA
Utsunomiya University (Japan)
- O6-1-2 **Effects of hot rolling temperature on microstructural evolution during annealing in Al-1mass%Mn alloy**
Ken-ichi IKEDA
Hokkaido University (Japan)

- O6-1-3 **Effects of manganese, zirconium and sodium on microstructure and mechanical property of Al-3wt%Mg alloys**
S. X. DING
China Steel Corp. (Taiwan (R.O.C.))
- O6-1-4 **Structure control by applied stress generated in extrusion process of 6000 series aluminum alloy**
Shogo ODA
YKK AP Inc., Tohoku University (Japan)
- O6-1-5 **A novel thermal process route for sustainable impact extruded 6xxx aluminium alloys**
Annika HÄMMERLE
Neuman Aluminium Industries, Technical University of Vienna (Austria)
- O6-1-6 **Effects of Fe and Mn on formability of Al-Mg alloys**
Irmgard WEISSENSTEINER
Montanuniversitaet Leoben (Austria)

18:00-20:20

6-2 Thermomechanical processing, texture & recrystallization

Chairpersons: C. HUTCHINSON (Australia), Y. TAKAYAMA (Japan)

- O6-2-1 **Keynote: Post-processing phenomena in ultrafine grained aluminium alloys**
Malgorzata LEWANDOWSKA
Warsaw University of Technology (Poland)
- O6-2-2 **Invited: Effect of thermo-mechanical processing on anisotropic materials properties of aluminium sheet**
Olaf ENGLER
Speira GmbH (Germany)
- O6-2-3 **Hot deformation and recrystallization behavior of aluminium foil stock alloy AA8079**
Erik SANTORA
AMAG Rolling GmbH (Australia)
- O6-2-4 **Oriented growth recrystallised texture in cold rolled AlMn sheet**
Joacim HAGSTROM
Swerim AB (Sweden)
- O6-2-5 **Influence of misorientation degree and direction on the plastic deformation of aluminium bicrystals with near Cube orientation**
Elisa CANTERGIANI
Max-Planck-Institut für Eisenforschung (Germany)
- O6-2-6 **Integrated experimental and numerical study of formability in high-strength aluminium alloys during warm forming**
Thomas JAILIN
The University of Manchester (United Kingdom)
- O6-2-7 **The influence of prior deformation and creep asymmetry on stress relaxation and FE modelling of creep age-forming AA2139 plate**
Kevin TANSWELL
The University of Manchester (United Kingdom)

9:00-10:00**Early Career Researchers Awards****Chairperson: S. HIROSAWA (Japan)****ECR-3 Soft X-ray XAFS analysis of cluster formation behavior during 353K aging in Al-Mg-Si alloy**Serina TANAKA
University of Hyogo (Japan)**ECR-4 Improvement on galvanic corrosion resistance of AA5083 coupled to AISI1045 by Mn or Mo containing chemical conversion processing**Takumi KOSABA
Tohoku University (Japan)**ECR-5 Natural ageing behaviour in Al-Cu alloys containing Sc and Zr**Lu JIANG
Deakin University (Australia)**10:20-11:40****7-6 Heat treatment, phase transformations & precipitation****Chairperson: SW. LEE (Japan)****07-6-1 Microstructure observation of Al-Si-Mg casting alloy in T5 condition**Taiki TSUCHIYA
University of Toyama (Japan)**07-6-2 The aging behavior and precipitation process in a cold-rolled Al-3Mg-1Cu alloy**Xuanliang CHEN
Tokyo Institute of Technology (Japan)**07-6-3 Precipitation of intermetallic phases in novel heat-resistant Al-Mg-Zn-Cu-Ni alloy at elevated temperature**Ruoqi LI
Nagoya University (Japan)**07-6-4 Microstructure observation of cold-rolled Al-Cu-Mg alloys with Cu/Mg=3**Hiroki SAITO
University of Toyama (Japan)**14:00-15:20****7-7 Heat treatment, phase transformations & precipitation****Chairperson: K. MATSUMOTO (Japan)****07-7-1 Effect of Cu on high temperature mechanical properties and microstructures of Al-Si alloys produced by semi-continuous casting process with heat insulating mold**Naoya SUGATANI
Sankyo Tateyama, Inc., University of Toyama (Japan)**07-7-2 Microstructural evolution at the initial stage of two-step aging in Al-Mg-Si alloy**JaeHwang KIM
Korea Institute of Industrial Technology (Korea)**07-7-3 The effect of double-step pre-aging on the precipitation behavior of an AA6014 alloy**Jingwei ZHAO
Chinalco Materials Application Research Institute (China)

07-7-4 **Correlation of nanocluster formation with aging temperature in Al-Mg-Si alloy**
MinYoung SONG
Tokyo Institute of Technology (Japan)

16:20-17:40

7-8 Heat treatment, phase transformations & precipitation

Chairperson: J. HIRSCH (Germany)

07-8-1 **Clustering and precipitation in Al-Mg-Si alloys during linear heating**
Zi YANG
Helmholtz-Centre Berlin (Germany)

07-8-2 **Effect of pre-aging and long-term aging on cluster hardening in Al-Mg-Si-(Cu) Alloys**
Philip ASTER
Montanuniversitaet Leoben (Austria)

07-8-3 **Investigation of early aging states in an alloy EN AW-6082 by thermal- and thermo-mechanical analysis**
Hannes FRÖCK
University of Rostock (Germany)

07-8-4 **Consequences of hydrogen on natural and artificial ageing of aluminium alloys**
Guillaume HACHET
Normandie Université (France)

September 7th

Room 2

10:20-12:00

5-6 Mechanical properties & advanced processing

Chairperson: G. KUNSCHERT (Austria)

05-6-1 **Effect of dispersoids on mechanical property of Al-high Mn-Si based alloys for fin stock fabricated by vertical-type high-speed twin-roll casting**
Shun MARUNO
MA Aluminum Corporation (Japan)

05-6-2 **Influence of Fe addition on tensile strength and fraction of solid cohesion of Al-Mn-Cu based alloys during partial solidification**
Yoshihiro NAGATA
Waseda University (Japan)

05-6-3 **Homogeneous dispersion of fine Sn particles in immiscible Al-Sn alloys solidified by an electromagnetic vibration technique**
Mingjun LI
National Institute of Advanced Industrial Science and Technology (AIST) (Japan)

05-6-4 **Stress relaxation characteristics of Al-Fe-Nd alloy produced by powder metallurgy**
Ryohei KOBAYASHI
Sumitomo Electric Industries, University of Toyama (Japan)

05-6-5 **Influence of initial-extruded microstructures of 7204 alloy on VDA bendability**
Amalina Aina KAHARUDIN
Nagaoka University of Technology (Japan)

14:00-16:00

3-1 Additive manufacturing

Chairperson: M. KUBOTA (Japan)

- O3-1-1 **Keynote: Towards understanding microstructure development of aluminum alloys in rapid solidification by laser powder bed fusion**
Naoki TAKATA
Nagoya University (Japan)
- O3-1-2 **Superior high-temperature strength of Al-Mn-Cr heat-resistant alloy fabricated using laser powder bed fusion**
Takahiro KIMURA
Osaka Research Institute of Industrial Science and Technology (Japan)
- O3-1-3 **Optimizing laser parameters and controlling microstructure/properties of laser powder bed fused Al-Si alloys**
Asuka SUZUKI
Nagoya University (Japan)
- O3-1-4 **Effect of Mn addition on processability and microstructure of Al-Fe alloy manufactured by laser powder bed fusion**
Wenyuan WANG
Nagoya University (Japan)
- O3-1-5 **Keynote: Coated aluminum alloys powders: functionalised material applied to powder metallurgy processing techniques**
Marco ACTIS GRANDE
Politecnico di Torino, Consorzio INSTM (Italy)
- O3-1-6 **Correlation between differential fast scanning calorimetry and additive manufacturing of metals**
Olaf KESSLER
Chair of Materials Science Rostock University Germany (Germany)

16:20-17:40

3-2 Additive manufacturing

Chairperson: N. TAKATA (Japan)

- O3-2-1 **Microstructure and mechanical properties of Al-Mg₂Si-Mg alloys processed by high pressure die casting and additive manufacturing**
Shouxun JI
Brunel University London (United Kingdom)
- O3-2-2 **Aluminium alloys for MELD manufacturing**
Maureen PUYBRAS
Univ. Lyon (France), Deakin University (Australia)
- O3-2-3 **Effect of laser powder bed fusion process parameters on precipitation forming near-eutectic Al-Ce alloy**
Marcel HESSELMANN
Leibniz-Institute for Materials Engineering - IWT (Germany)
- O3-2-4 **Effect of platform preheating and building strategies on AlSi10Mg alloy properties elaborated by laser powder bed fusion**
Nicolas CHAMBRIN
Université de Toulouse, COLLINS AEROSPACE (France)

10:20-12:00

11-3 Aluminium & its alloys for zero carbon society “Nanoscale dynamics for elucidating hydrogen embrittlement”

Chairperson: Y. WANG (China)

O11-3-1 **Keynote: Hydrogen embrittlement in Al-Zn-Mg alloys: Semi-spontaneous interfacial decohesion of precipitates**

Hiroyuki TODA
Kyushu University (Japan)

O11-3-2 **Invited: Hydrogen trapping and quasi-cleavage fracture in Al-Zn-Mg alloy**

Tomohito TSURU
Japan Atomic Energy Agency (Japan)

O11-3-3 **Invited: Solute-hydrogen binding energies in aluminum studies by Muon spin relaxation method**

Katsuhiko NISHIMURA
University of Toyama (Japan)

O11-3-4 **Numerical study of hydrogen thermal desorption spectra of aluminum**

Ken-ichi EBIHARA
Japan Atomic Energy Agency (Japan)

O11-3-5 **Invited: Humid-gas stress corrosion cracking behavior in some medium-strength aluminum alloys**

Goroh ITOH
Ibaraki University (Japan)

14:00-16:00

11-4 Aluminium & its alloys for zero carbon society “Nanoscale dynamics for elucidating hydrogen embrittlement”

Chairperson: H. TODA (Japan)

O11-4-1 **Invited: Dynamic and quantitative measurement of hydrogen release during environmental embrittlement of aluminum alloys**

Keitaro HORIKAWA
Osaka University (Japan)

O11-4-2 **Influence of hydrogen accumulation behavior under stress on hydrogen embrittlement in Al-Zn-Mg alloy with multi-modal 3D image-based analysis**

Hiro FUJIHARA
Kyushu University (Japan)

O11-4-3 **Multi-modal 3D image-based simulation of initiation of hydrogen embrittlement in Al-Zn-Mg alloy**

Ryota HIGA
Kyushu University (Japan)

O11-4-4 **Improved resistance to hydrogen embrittlement by switched age-hardening precipitates for high-strength aluminum alloys**

Yafei WANG
Kyushu University (Japan), Xi'an Jiaotong University (China)

O11-4-5 **TEM observation of the interface between the β phase and Al matrix in Al-Mg-Si alloy**
Seungwon LEE
University of Toyama (Japan)

O11-4-6 **Effect of homogenization treatment to hot extrusion on Al-1.6mass%Mg₂Si Alloy**
Shun KAWAMATA
University of Toyama (Japan)

16:20-17:40

11-5 Aluminium & its alloys for zero carbon society “Nanoscale dynamics for elucidating hydrogen embrittlement”

Chairperson: G.ITOH (Japan)

O11-5-1 **Invited: Prevention of hydrogen embrittlement via preferential hydrogen partitioning to particles**
Kazuyuki SHIMIZU
Iwate University (Japan)

O11-5-2 **Invited: Hydrogen trapping energy at the incoherent interface in aluminum alloys: first-principles calculations**
Masatake YAMAGUCHI
Japan Atomic Energy Agency (Japan)

O11-5-3 **Effect of grain refiner on mechanical properties and precipitation of Al-Zn-Mg alloys**
Yusuke SEKIGUCHI
University of Toyama (Japan)

O11-5-4 **Hydrogen embrittlement in high-strength Al alloys**
Huan ZHAO
Max-Planck-Institut für Eisenforschung (Germany)

September 7th

Room 4

10:20-11:40

9-1 Joining, emerging processes & multi material

Chairperson: G. SASAKI (Japan)

O9-1-1 **Development of novel Al-Si-Ce filler wires to enable high contrast in X-ray imaging of fusion welded aluminum joints**
Michael BENOIT
The University of British Columbia (Canada)

O9-1-3 **Friction stir spot welding of A6063S-T5 with composite coating**
Terumichi MURAKOSHI
YKK AP Inc. (Japan)

O9-1-4 **Microstructure and strength of welding interface in magnetic pulse welded aluminum alloy/steel lap joint**
Mitsuhiro WATANABE
Nihon University (Japan)

14:00-16:00

9-2 Joining, emerging processes & multi material

Chairperson: M. WATANABE (Japan)

- O9-2-1 **Microstructure control of functionally graded aluminum alloy composites with alumina short fiber by gravity sedimentation method**
Gen SASAKI
Hiroshima University (Japan)
- O9-2-2 **Mechanical joining utilizing shear droop in a punched hole with friction stir forming**
Takahiro OHASHI
Kokushikan University (Japan)
- O9-2-3 **Appraising tool wear during secondary heating assisted dissimilar friction stir welding between 6061 and 7075 aluminium alloys**
Madhav RATURI
Indian Institute of Technology Patna (India)
- O9-2-5 **Design and performance of welded stud connections for invisible mounting of facade elements**
Geralt SIEBERT
University of the Bundeswehr Munich (Germany)
- O9-2-6 **Contribution of the adhesive to the load-bearing capacity of riv-bonded aluminum alloy joints**
Josef DOMITNER
Graz University of Technology (Austria)

September 8th

Room 1

9:00-11:00

7-9 Heat treatment, phase transformations & precipitation

Chairperson: T. MINODA (Japan)

- O7-9-1 **Influence of grain boundary misorientation and cooling rate on grain boundary precipitation in Al-Mg-Si alloys**
Zhijun ZHANG
The University of British Columbia (Canada)
- O7-9-2 **Investigation of tensile properties of isothermal-aged Al-Mg-Si alloys using electrical resistivity measurements**
Yamato SANO
Daido University (Master course) (Japan)
- O7-9-3 **Solute clustering behaviors in Al-Mg-Si alloys based on complementary STEM / 3DAP analysis**
Ryouhei KINOSHITA
The University of Tokyo (Japan)
- O7-9-4 **Evaluation of precipitates and clusters during artificial aging of two Al-Mg-Si alloys with different Mg/Si ratios**
Hisao SHISHIDO
Kobe Steel, Ltd. (Japan)

07-9-5 **TEM observation of Cu addition to excess Si type Al-Mg-Si alloy**
Shono ASAI
University of Toyama (Japan)

07-9-6 **Influences of Cu addition on precipitation hardening mechanisms
in Al-Mg-Si alloys**
Yasuhito KAWAHARA
Kyushu University (Japan)

September 8th

Room 2

9:00-11:20

5-7 Mechanical properties & advanced processing

Chairperson: T. MANAKA (Japan)

05-7-1 **Influence of transition elements (zirconium, vanadium and molybdenum) on microstructure
and strengthening of AlSi8Mg foundry alloys**
Zhan ZHANG
University of Quebec at Chicoutimi (Canada)

05-7-2 **Effects of transition elements (V, Zr and Mo) on the microstructures and elevated-
temperature properties of Al-Si 356 type cast alloys**
Kun LIU
University of Quebec at Chicoutimi (Canada)

05-7-3 **Developing the thermal resistant high-strength aluminum alloys via ingot metallurgy and
thermomechanical process**
X.-Grant CHEN
University of Quebec at Chicoutimi, Saguenay (QC) (Canada)

05-7-4 **Strain localization effects at AA6082 extrusion seam welds**
Andrew ZANG
The University of British Columbia (Canada)

05-7-5 **Effect of laminated elastic mandrel on deformation behavior of extruded aluminum
rectangle section during bending process**
Yusuke OKUDE
Tokyo Metropolitan Industrial Technology Research Institute (Japan)

05-7-6 **Effects of material properties and tool conditions on edgewise press bendability of
aluminum strip**
Osamu HASEGAWA
Tokyo Metropolitan College of Industrial Technology (Japan)

05-7-7 **Punchless piecing process of aluminum tube wall by impulsive water pressure**
Minoru YAMASHITA
Gifu University (Japan)

9:00-10:40

8-4 Corrosion & surface treatments

Chairperson: A.SERIZAWA (Japan)

- 08-4-1 **Keynote: Galvanic corrosion behavior of Al alloy and steel couples in NaCl solution**
Eiji TADA
Tokyo Institute of Technology (Japan)
- 08-4-2 **Self-healing surface layer with double layered structure for corrosion protection of aluminum alloy**
Saki FURUKAWA
Asahikawa College (Japan)
- 08-4-3 **Electrochemical behavior of aluminum alloys in NaCl solutions at low temperature**
Masatoshi SAKAIRI
Hokkaido University (Japan)
- 08-4-4 **High density RF/DC low temperature plasma nitriding of Al-Cu alloys**
Tatsuhiko AIZAWA
Surface Engineering Design Laboratory (Japan)
- 08-4-5 **Investigation of on aging degradation on scrapped aluminum alloy vehicles on Sanyo Electric Railway 3000 series**
Hisashi MORI
Working Group of Sanyo Electric Railway Vehicle Corrosion Survey (Japan)

11:20-11:40

Closing Ceremony