

# 18th International Conference on Aluminium Alloys (ICAA18)

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

September 5<sup>th</sup>

Room 1

9:00-9:20

Opening Remarks

9:20-10:40

### Plenary Lecture

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

O7-1-1    **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)

O7-1-2    **Development of 7XXX alloy sheet product for automotive applications**  
Rajeev KAMAT  
Novelis Global Research and Technology Center (USA)

O7-1-3    **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

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**

- 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 5<sup>th</sup>**

**Room 2**

**11:00-12:00**

**5-1 Mechanical properties & advanced processing**

- 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**

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)

05-2-3     **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)

05-2-4     **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)

05-2-5     **High cycle fatigue behavior of alloy EN AW-2618A**  
Ying HAN  
Bundesanstalt für Materialforschung und -prüfung (BAM) (Germany)

05-2-6     **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)

05-2-7     **Dislocation behavior during tensile deformation of pure aluminum by electrical resistivity measurements**  
Ryota ITO  
Daido University (Japan)

**11:00-12:00****2-1 Casting, solidification, recycling & refining**

- O2-1-1     **Thermodynamics of formation of Al<sub>6</sub>Mn 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**  
Katsuhiko YAMAGUCHI  
Kobe Steel, Ltd. (Japan)
- O2-1-3     **Thermodynamics of formation of Al<sub>3</sub>Fe 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**

- 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)
- O2-2-5     **Solidification microstructure control of Al-7Si-0.3Mg based alloys for improving dynamic fatigue properties and fracture toughness**  
Jiehua LI  
Montanuniversität Leoben (Austria)

- O2-2-6 **Thermodynamics of formation of Mg<sub>2</sub>Si inter-metallic compound for Si removal from molten Al-Mg alloy**  
Yuto SEKI  
University of Toyama (Japan)

September 5<sup>th</sup>

Room 4

11:00-12:00

**1-1 Modeling & simulation**

- 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**

- 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**  
Yichao YAO  
The University of Manchester (United Kingdom)
- O1-2-3 **CALPHAD-informed phase-field model for multi-sublattice phases based on chemical potentials:  $\eta$ -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 5<sup>th</sup>**

**Room 5**

**11:00-12:00**

**10-1 Advanced characterization**

- 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**

- O10-2-1 **Keynote:4D-STEM used to study GPI 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 5<sup>th</sup>**

**Room 6**

**11:00-12:00**

**11-1 Aluminium & its alloys for zero carbon society**

- 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**

- 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 6<sup>th</sup>**

**Room 1**

**9:00-10:20**

**Plenary Lecture**

- 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**

- 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)



- 07-3-4 **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**

- 07-4-1 **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)
- 07-4-2 **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 Al<sub>3</sub>(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 I12-phase dispersoid-modified AlMgZn alloys**  
Viktor WESSELY  
ETH Zurich (Switzerland)

**16:40-17:20**

**Early Career Researchers Awards**

- 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**

- 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  $\beta$ -Mg<sub>2</sub>Si particle structure in Al-Mg-Si alloys**  
Endre A. HENNUM  
NTNU, Hydro Aluminium AS (Norway)
- 07-5-3     **Precipitation kinetics of Al<sub>3</sub>(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)

**10:40-12:00****5-3 Mechanical properties & advanced processing**

- O5-3-1 **Mechanical properties of Al-Zn-Mg-Cu alloys processed by severe plastic deformation techniques**  
Toshiaki MANAKA  
National Institute of Technology(KOSEN) Niihama College (Japan)
- O5-3-2 **Effects of Sc and Zr addition on the mechanical properties of 7000 series aluminum alloys**  
Mai TAKAYA  
UACJ Corporation (Japan)
- O5-3-3 **Effect of short-time heating after ECAP processing on mechanical properties of 6061 aluminum alloy**  
Naohiro SARUWATARI  
University of YAMANASHI (Japan)
- O5-3-4 **Enhancement of the hardness for CNT/Al composite by well-dispersed nano sized Al<sub>4</sub>C<sub>3</sub> 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**

- O5-4-1 **Microstructural observation of Al-based TiAl composites fabricated by 3DPC**  
Haruki TSUKUDA  
University of Toyama (Japan)
- O5-4-2 **Keynote: Dynamic recovery in aluminum alloys**  
Christopher HUTCHINSON  
Monash University (Australia)
- O5-4-3 **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)
- O5-4-4 **The effect of LI<sub>2</sub> 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**

- 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)

**10:40-12:00****2-3 Casting, solidification, recycling & refining**

- O2-3-1 **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**

- 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**

- 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 6<sup>th</sup>**

**Room 4**

**10:40-12:00**

**1-3 Modeling & simulation**

- O1-3-1 **Dislocation dynamics simulation of precipitation hardening by rod-shaped precipitates in aluminum alloys**  
Shinji MURASHI  
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**

- 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**

- 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)



**10:40-12:00****8-1 Corrosion & surface treatments**

- 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**

- 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)
- O8-2-2 **Fabrication and mechanism of self-lubricious Al<sub>2</sub>O<sub>3</sub>/Sn-MoS<sub>2</sub> composite film on Al-Si-Cu casting alloys**  
Jiacheng LIU  
Nagoya Institute of Technology (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)
- O8-2-7 **Effect of trace level of zinc on microstructure and intergranular corrosion of Al-Mg-Si-T6**  
Emad Hasan BARTAWI  
Technical University of Denmark (Denmark)

**18:00-20:20**

**8-3 Corrosion & surface treatments**

- 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**  
Chijioko 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)

**14:00-16:00****6-1 Thermomechanical processing, texture & recrystallization**

- 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**

- 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)

**September 7<sup>th</sup>**

**Room 1**

**9:00-10:00**

**Early Career Researchers Awards**

- 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**

- 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**

- 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 MaterialsApplication 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**

- 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 7<sup>th</sup>**

**Room 2**

**10:20-12:00**

**5-6 Mechanical properties & advanced processing**

- 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)

- O5-6-5 **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**

- 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**

- O3-2-1 **Microstructure and mechanical properties of Al-Mg<sub>2</sub>Si-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)

September 7<sup>th</sup>

Room 3

10:20-12:00

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

- 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 embitterment”**

- 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  $\beta$  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%Mg<sub>2</sub>Si 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 embitterment”**

- 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 7<sup>th</sup>

Room 4

**10:20-11:40**

**9-1 Joining, emerging processes & multi material**

- 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)
- O9-1-2 **Evaluating the effects of pre-brazing deformation on aluminum brazing sheets with a thermal barrier layer**  
Taha WAQAR  
The University of British Columbia (USA)
- 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**

- 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)

- 09-2-3 **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)
- 09-2-5 **Design and performance of welded stud connections for invisible mounting of facade elements**  
Geralt SIEBERT  
University of the Bundeswehr Munich (Germany)
- 09-2-6 **Contribution of the adhesive to the load-bearing capacity of riv-bonded aluminum alloy joints**  
Josef DOMITNER  
Graz University of Technology (Austria)

**September 8<sup>th</sup>**

**Room 1**

**9:00-11:00**

**7-9 Heat treatment, phase transformations & precipitation**

- 07-9-1 **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)
- 07-9-2 **Investigation of tensile properties of isothermal-aged Al-Mg-Si alloys using electrical resistivity measurements**  
Yamato SANO  
Daido University (Master course) (Japan)
- 07-9-3 **Solute clustering behaviors in Al-Mg-Si alloys based on complementary STEM / 3DAP analysis**  
Ryouhei KINOSHITA  
The University of Tokyo (Japan)
- 07-9-4 **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)

9:00-11:20

**5-7 Mechanical properties & advanced processing**

- O5-7-1     **Influence of transition elements (zirconium, vanadium and molybdenum) on microstructure and strengthening of AlSi8Mg foundry alloys**  
Zhan ZHANG  
University of Quebec at Chicoutimi (Canada)
- O5-7-2     **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)
- O5-7-3     **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)
- O5-7-4     **Strain localization effects at AA6082 extrusion seam welds**  
Andrew ZANG  
The University of British Columbia (Canada)
- O5-7-5     **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)
- O5-7-6     **Effects of material properties and tool conditions on edgewise press bendability of aluminum strip**  
Osamu HASEGAWA  
Tokyo Metropolitan College of Industrial Technology (Japan)
- O5-7-7     **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**

- O8-4-1     **Keynote: Galvanic corrosion behavior of Al alloy and steel couples in NaCl solution**  
Eiji TADA  
Tokyo Institute of Technology (Japan)
- O8-4-2     **Self-healing surface layer with double layered structure for corrosion protection of aluminum alloy**  
Saki FURUKAWA  
Asahikawa College (Japan)
- O8-4-3     **Electrochemical behavior of aluminum alloys in NaCl solutions at low temperature**  
Masatoshi SAKAIRI  
Hokkaido University (Japan)
- O8-4-4     **High density RF/DC low temperature plasma nitriding of Al-Cu alloys**  
Tatsuhiko AIZAWA  
Surface Engineering Design Laboratory (Japan)
- O8-4-5     **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 Remarks**