

INALCO

International
Aluminium Conference
June 10-12th
Trondheim, Norway

2026

 **NTNU**
Norwegian University of
Science and Technology

 **SINTEF**

PROGRAMME



Velkommen!

Welcome to INALCO 2026

It is our great pleasure to welcome you to the 16th International Aluminium Conference, held in Trondheim, Norway. This edition brings together scientists, researchers, engineers and industry leaders from around the world to exchange knowledge and explore advances in aluminium science and technology.

INALCO has a long-standing tradition as a global meeting place for the aluminium community. Since its origins in 1979, the conference has evolved into a key international forum, fostering collaboration across academia, industry and the public sector.

This programme combines keynote talks, parallel technical sessions and curated tours to encourage innovative thinking, discussion and professional connections across the aluminium community.

The committee
Trondheim, June 2026

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Conference committee

Sigmund Arntsonn Tronvoll

Department of Mechanical and Industrial Engineering (NTNU, Norway)

Dirk Nolte

Materials and Nanotechnology (SINTEF Industry, Norway)

Bjørn Holmedal

Department of Materials Science and Engineering (NTNU, Norway)

Xiaobo Ren

Metal Production and Processing (SINTEF Industry, Norway)

David Morin

Department of Structural Engineering (NTNU, Norway)

Randi Holmestad

Department of Physics (NTNU, Norway)

Siri Marthe Arbo

Manufacturing (SINTEF Industry, Norway)

Knut Marthinsen

Department of Materials Science and Engineering (NTNU, Norway)

Odd Sture Hopperstad

Department of Structural Engineering (NTNU, Norway)

Trond Furu

Hydro / Department of Materials Science and Engineering (Hydro / NTNU, Norway)

About NTNU

The Norwegian University of Science and Technology (NTNU) is Norway's largest university, with a strong international profile in science, engineering and technology. Located in Trondheim, NTNU is known for close collaboration with industry and research institutes, particularly within materials science, energy and sustainable technologies. Together with the strong research institution SINTEF, NTNU forms one of Europe's important research environments for industrial innovation. Hosting INALCO 2026 reflects NTNU's commitment to advancing sustainable solutions and strengthening global collaboration in aluminium research and applications.

About the sponsors

Hydro

Hydro is a leading global aluminium and energy company, uniting its industrial expertise and innovative technologies to pioneer the transition to a more viable society. From its historic Norwegian roots over a century ago to a globe-spanning presence today, Hydro operates in around 40 countries and employs approximately 32,000 professionals worldwide. Together, they drive innovation across the entire aluminium value chain, from bauxite extraction and alumina refining to primary metal production, extruded solutions, and recycling.



WSP

WSP is one of the world's leading professional services firms, uniting its engineering, advisory and science-based expertise to shape communities to advance humanity.

From local beginnings to a globe-spanning presence today, WSP operates in over 50 countries and employs approximately 73,000 professionals, known as Visioneers. Together they pioneer solutions and deliver innovative projects in the transportation, infrastructure, environment, building, energy, water, and mining and metals sectors.



Speira

Speira is a leading European aluminium rolling and recycling company, built on over a century of technical expertise and a strong commitment to circularity. Operating across eleven sites in Germany and Norway—including the world's largest aluminium rolling mill—Speira employs approximately 5,400 professionals. Together, they recycle up to 650,000 tons of aluminium annually and deliver advanced rolled products to the global automotive, packaging, printing, engineering, and construction sectors.



Programme

Wednesday June 10th

Time	Activity
08:30-09:00	Registration and coffee
09:00-09:15 R7	Conference opening
09:15-09:30 R7	Sponsor presentations: Hydro ASA, Speira, WSP
09:30-10:15 R7	Keynote 1 Daniel Cooper – <i>Circular and climate-smart aluminium lightweight solutions</i>
10:15-10:45	Coffee break (30 minutes)
10:45-12:15	Technical Session 1 Track R7: Circularity and Environmental Assessment I; Track R8: Joining and Weld Integrity I; Track R5: Physical Metallurgy and Alloy Design I
12:15-13:15	Lunch
13:15-14:45	Technical Session 2 Track R7: Joining and Weld Integrity II; Track R8: Modelling and Digital Methods I; Track R5: Physical Metallurgy and Alloy Design II
14:45-15:15	Coffee break (30 minutes)
15:15-16:00 R7	Keynote 2 Grethe Winther – <i>Deformation-induced microstructural evolution – experiments and simulations</i>
16:00-17:50	Technical Session 3 Track R7: Additive and Solid-State Manufacturing I; Track R8: Manufacturing Process Control and Forming I; Track R5: Structural Systems and Infrastructure I
17:50-18:00	Meal to go, served by the reception desk
18:55-19:45	Nidaros Cathedral tour and organ mini-concert. Participants arrange their own transport.

Thursday June 11th

Time	Activity
08:30-10:00	Technical Session 4 Track R7: Physical Metallurgy and Alloy Design III; Track R8: Joining and Weld Integrity III; Track R5: Structural Systems and Infrastructure II
10:00-10:45 R7	Keynote 3 Livan Fratini – <i>Solid-State Manufacturing: A pathway to sustainable metal processing</i>
10:45-11:15	Coffee break (30 minutes)
11:15-12:45	Technical Session 5 Track R7: Structural Systems and Infrastructure III; Track R8: Manufacturing Process Control and Forming II; Track R5: Joining and Weld Integrity IV
12:45-13:45	Lunch
13:45-15:15	Technical Session 6 Track R7: Additive and Solid-State Manufacturing II; Track R8: Modelling and Digital Methods II; Track R5: Structural Systems and Infrastructure IV
15:15-15:45	Coffee break (30 minutes)
15:45-16:30 R7	Keynote 4 Anders Nesse – <i>Digital Manufacturing: Enabling lightweight, durable and circular aluminium solutions</i>
16:30-17:00 R7	European Aluminium
17:00-17:15 R7	Best paper award
19:00-22:00	Gala dinner – Radisson Blu Royal Garden

Friday June 12th

Time	Activity
08:30-09:30 R7	Keynote 5 Benoit Cusson – <i>20 industry organizations team up to develop a new generation of aluminum highway bridges</i>
09:30-11:00	Technical Session 7 Track R7: Physical Metallurgy and Alloy Design IV; Track R8: Additive and Solid-State Manufacturing III
11:00-11:30	Coffee break (30 minutes)
11:30-12:15 R7	Keynote 6 Irmgard Weißensteiner Towards Scrap-Tolerant Aluminium Sheet Materials
12:15-12:30 R7	Conference closing
12:30-13:00	Lunch to go – served by the reception desk
13:00-15:30	Parallel tours: Hangar Bridge / NTNU & SINTEF Labs

Keynote information

Keynote 1 | Wednesday 09:30-10:15

Daniel Cooper | University of Michigan

Circular and climate-smart aluminium lightweight solutions

Bio: Daniel Cooper is a distinguished authority in the development of circular and climate-smart lightweight solutions for the aluminium sector. His pioneering research provides critical leadership in advancing material efficiency and the global transition toward sustainable, low-carbon manufacturing.



About the keynote:

Increasing high-value aluminium circularity offers major opportunities for economic value creation, decarbonisation, and supply chain security. This talk explores how system-level modelling of aluminium flows can guide technical solutions across the lifecycle—from alloy and product design to manufacturing and end-of-life recycling. Case studies in sheet, extrusion, and casting applications highlight recent advances and emerging opportunities to further improve circularity.

Keynote 2 | Wednesday 15:15-16:00

Grethe Winther | Technical University of Denmark

Deformation-induced microstructural evolution – experiments and simulations

Bio: Grethe Winther is a world-class authority on deformation-induced microstructural evolution, celebrated for her sophisticated integration of experimental techniques and computational simulations. Her pioneering work has fundamentally advanced the field's understanding of how metal processing dictates material behaviour and properties on a microstructural level.



About the keynote: While electron microscopy has been widely applied to study lattice rotations and dislocation patterning at granular and intragranular scales, rapidly developing synchrotron-based X-ray techniques are opening new opportunities to probe the dynamics of these processes. Such data provide unique insight into the fundamental mechanisms and offer a powerful foundation for the next generation of crystal plasticity and dislocation dynamics simulations.

Keynote 3 | Thursday 10:00-10:45

Livan Fratini | University of Palermo

Solid-State Manufacturing: A pathway to sustainable metal processing

Bio: Livan Fratini is a distinguished authority in the field of solid-state manufacturing, recognised for his significant contributions toward establishing sustainable and efficient metal processing solutions. His research offers a visionary framework for the industry, bridging advanced manufacturing techniques with the essential goals of global resource preservation.



About the keynote: Traditional re-melting-based recycling approaches, although widely used, are not energy efficient and often lead to permanent material losses due to oxidation during the re-melting stage. To address these limitations, researchers have increasingly focused on Solid State Recycling (SSR) strategies. This keynote provides an overview of friction stir-based chip recycling processes—specifically Friction Stir Extrusion (FSE) and Friction Stir Consolidation (FSC)—highlighting their potential as energy- and resource-efficient alternatives. Furthermore, these processes are examined as enabling technologies for fostering industrial symbiosis within the aluminium component production sector.

Keynote 4 | Thursday 15:45-16:30

Anders Nesse | Hydro Extrusions

Digital Manufacturing: Enabling lightweight, durable and circular aluminium solutions

Bio: Anders Nesse is a Research Engineer at Hydro Extrusions, working at the intersection of materials engineering, process modelling, and digitalisation. His work focuses on developing digital solutions that integrate advanced casting, extrusion, and material models with simulation software through accessible and robust APIs, helping bridge industrial process knowledge with practical engineering tools.



About the keynote: Rapidly advancing digital technologies and hybrid modelling frameworks are reshaping the aluminium value chain by integrating physics-based digital twins with artificial intelligence to predict microstructural evolution. These sophisticated systems enable the industry to navigate the post-consumer scrap revolution through adaptive processing, ensuring maximum efficiency and circularity in production while maintaining high material standards. The research presented is conducted in collaboration with Ole Runar Myhr and Trond Furu.

Keynote 5 | Friday 08:30-09:30

Benoit Cusson | WSP Canada

20 industry organizations team up to develop a new generation of aluminum highway bridges

Bio: Benoit Cusson is a structural designer at WSP in Montreal, Canada, where he has worked since 2010 on complex projects including movable bridges, the Olympic Stadium of Montreal, and aluminium vehicular and pedestrian bridges. Recognised for his pragmatic approach to complex engineering challenges, he has helped advance aluminium bridge design through new applications, construction details, and code development, and currently chairs CSA S6 Sections 13 and 17 on movable bridges and aluminium structures.



About the keynote: The keynote presents the Aluminium Highway Bridge project, a major international initiative led by WSP and supported by more than 20 organisations from Canada, the U.S., and Europe. Through careful work on extrusion selection, welded and bolted connections, fabrication methods, logistics, durability, recyclability, and lifecycle performance, the project demonstrates the strong potential of aluminium for a new generation of low-carbon highway bridges. The research is conducted in collaboration with Alexandra Thibaudeau and Sahar Dahboul.

Keynote 6 | Friday 11:30-12:15

Irmgard Weißensteiner | Montanuniversität Leoben
Towards Scrap-Tolerant Aluminium Sheet Materials

Bio: Irmgard Weißensteiner is a leading expert in the development of scrap-tolerant aluminium sheet materials, recognised for her innovative approach to enhancing both recyclability and performance. Her research is at the forefront of creating sustainable material solutions that balance technical excellence with the vital goals of resource efficiency.



About the keynote: The keynote explores how higher scrap contents affect aluminium sheet materials, focusing on impurity-driven changes in microstructure, formability and fracture. Using recycled 5xxx/6xxx-type sheet materials produced by scalable casting and rolling, the work shows that scrap tolerance is not governed by Fe content alone, but by intermetallic particle morphology, porosity, matrix strength and the loading path—particularly under bending. The research presented is conducted in collaboration with Sebastian Samberger, Bernhard Trink, and Stefan Pogatscher.

European Aluminium

Thursday 16:30-17:00

*Connecting Research, Industry, and Policy
for Sustainable Aluminium Solutions*

Francesca Di Bernardo | *Senior Policy
Advisor*

European Aluminium is the voice of the aluminium industry in Europe, representing the entire aluminium value chain, from raw material production and primary aluminium manufacturing to downstream processing, fabrication, and recycling. Its members operate more than 600 sites across Europe and the wider European Economic Area (EEA). European Aluminium established the Innovation Hub in 2015, a collaborative platform bringing together industry members, research organisations, innovation stakeholders, and public partners to address technological challenges at a pre-competitive level. The presentation will explore how the Innovation Hub connects industrial expertise with research capabilities and funding opportunities to develop clean, circular, and low-carbon solutions for aluminium and the sectors that rely on it. It will highlight aluminium's central role in building a sustainable future for Europe and the expectations set by evolving EU policies.



**European
Aluminium**
ANYTHING BUT BASIC



Best paper award

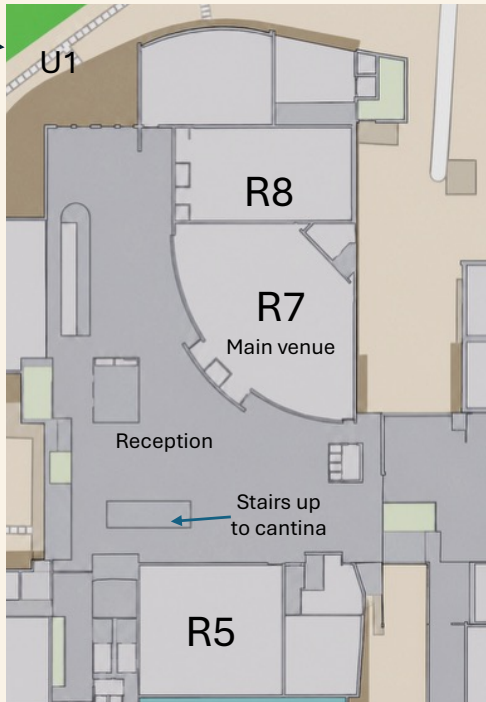
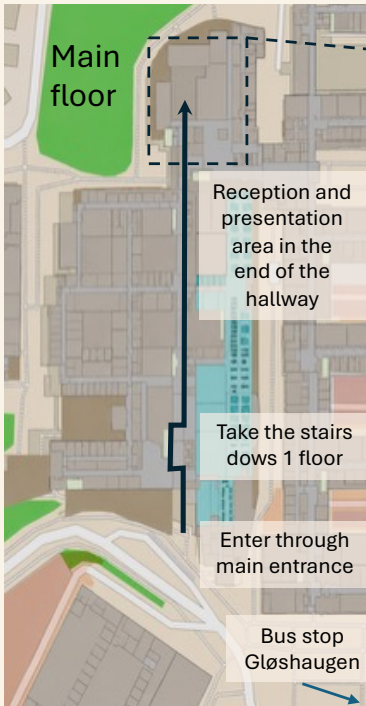
Thursday 17:00-17:15

The best paper and best poster of the conference will be awarded a prize and celebrated at the venue.

Venue and travel

The conference takes place at Realfagbygget (Natural Sciences Building)

Address: Høgskoleringen 5, Trondheim. Take the bus to Gløshaugen, enter through the main entrance (seen below) and follow the map provided.



Getting to NTNU Gløshaugen Campus

Accommodation	Walking	Bus
Comfort Hotel Park	Approx. 17 min. Walk uphill via Elgeseter gate towards NTNU Gløshaugen.	5-7 min. by bus. Buses #3 and #22 stop at Gløshaugen; #28 stops at Høgskoleringen.
Quality Hotel Augustin	Approx. 21 min. Follow Munkegata south towards Elgeseter bridge and NTNU.	5-8 min. by bus. Frequent buses #3 and #22 from the city centre to Gløshaugen.
Pensjonat Jarlen	Approx. 25 min. Walk towards Studentersamfundet and up to campus.	5-8 min. by bus. Frequent buses #3 and #28 to Gløshaugen / Høgskoleringen.
RUMi Hostel	Approx. 30 min. Walk towards the city centre and continue to Gløshaugen.	Approx. 20 min. by bus. Bus #3 or #28 to Høgskoleringen, then walk to the building.

Hot tip: Get Trondheim's bus app via the QR code



Link to interactive map of Trondheim via QR code:



Conference tours and evening programme

Wednesday 10 June | 18:55-19:45 | Nidaros Cathedral

Meet in the courtyard in front of the West Front; look for the blue NTNU logo. Participants are responsible for their own transport, which is convenient by foot or bus. The tour includes a brief introduction to the cathedral and a 15-minute concert on the G.F. Steinmeyer organ.



Thursday 11 June | 19:00-22:00 | Gala dinner

Gala dinner at Radisson Blu Royal Garden with a short music performance by Sturla Eide and Øystein Sandbukt, rooted in Norwegian folk tradition. Participants are responsible for their own transport, which is convenient by foot or bus. If you have not registered yet, take contact with the reception!



Friday parallel tours

Option 1 | Hangar Bridge

Visit the newly opened Hangar Bridge in Trondheim, a 55 m long and 9 m wide all-aluminium pedestrian bridge.

The bridge deck is made from 100% recycled aluminium sourced from the dismantled offshore oil and gas platform Gyda. The material was remanufactured through shredding, sorting, remelting, DC billet casting, extrusion and friction stir welding of bridge profiles and panels.

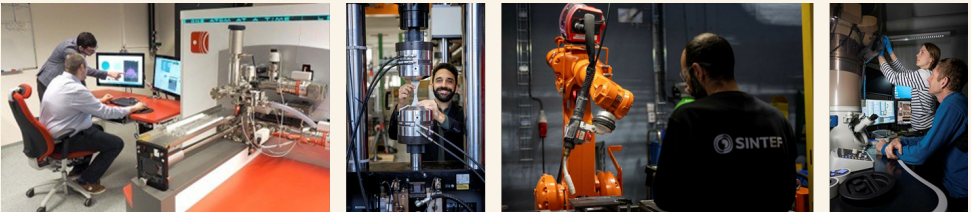
Automated laser-arc hybrid welding was also used for some non-load-bearing elements, reducing welding time by 10-20 times compared with MIG welding.



Photo: Vegard Thorvaldsen / Statens vegvesen.

Option 2 | NTNU & SINTEF Labs

Explore NTNU and SINTEF's materials testing, characterisation and manufacturing laboratories, including atom probe tomography, transmission electron microscopy, welding, machining, casting, extrusion, forming and high-strain-rate impact testing facilities.



Photos: Aleksander Båtnes / NTNU

Information to presenters

Design

Presentations should be in Microsoft PowerPoint or PDF format. There is no mandatory template, but the front page should include the authors, date, announced title, contribution number, International Aluminium Conference 2026, Trondheim, Norway and the INALCO 2026 logo. Use a sufficiently large font size and a light background for readability.

Duration

Presentations are planned for 17 minutes plus 5 minutes for questions and presenter changeover.

Technical information

Checked podium PCs will be available in the lecture rooms. Presentations can be uploaded via USB stick. It will also be possible to connect your own laptop via HDMI or USB-C, but bring a USB stick as backup.

Abstracts, posters and papers



<https://sigmuntr.folk.ntnu.no/conferenceportal/>

Technical tracks and session topics

The technical programme is organised in seven thematic areas. Each parallel session below lists the track topic assigned to rooms R7, R8 and R5.

Track theme	Scope
Joining and Weld Integrity	FSW, laser welding, HAZ, spot welding, interfaces, distortion and fatigue.
Physical Metallurgy and Alloy Design	Precipitation, dispersoids, solidification, intermetallics, recycling-tolerant alloy chemistry and fracture/fatigue mechanisms.
Circularity and Environmental Assessment	LCA, carbon footprint, circularity metrics, environmental and energy-related assessment.
Additive and Solid-State Manufacturing	PBF, DED, WAAM, AFSD, screw extrusion, FSAM and AM component performance.
Manufacturing Process Control and Forming	Casting/melt treatment, upstream processes, forming, forging, bending and wire drawing.
Structural Systems and Infrastructure	Bridges, hollow sections, stability, seismic applications, overhead lines and marine systems.
Modelling and Digital Methods	Constitutive models, hybrid models, digital knowledge and simulation workflows.

Technical Session programme

Talks are listed in presentation order within each parallel track. Presentation timing is, for 4-slot tracks, 17 minutes plus 5 minutes for questions and changeover.

Wednesday, 10 June

Technical Session 1 | 10:45-12:15

Track R7 | Circularity and Environmental Assessment I

Session chair: Trude Sundset – Norsk Hydro ASA

[26] Methodological Approach for Product Carbon Footprint Assessment of Aluminum LPDC Structural Components in the Automotive Sector

Silvia Cecchel

[62] Driving Aluminium Circularity Forward: Evaluating EU-Recommended LCA Methods Against the Net Scrap Alternative

Chibuikem Nwagwu, Jon Halfdanarson, Christina Meskers

[28] Techno-Economic and Environmental Assessment of Secondary Wrought Aluminium Alloys: A Norwegian Case Study

Md Ali Akram, Ragnar Holthe, Geir Ringen

[60] Life Cycle Assessment of Aluminium Bridge Concepts

Jacqueline Rosefort, Ana Lyvia Tabosa Da Silva, Geir Ringen

Track R8 | Joining and Weld Integrity I

Session chair: Vahid Hosseini - NTNU

[10] Friction Stir Welding of Aluminium Tanks: Safe Disposal at the Satellite Life End and Zero-Leakage Performance

Laurent Dubourg, Kevin Aznar, Valentin Pecqueur

[30] Assessment of Fatigue Design Provisions for Friction Stir Welded Aluminum Using Literature S-N Data

Paco Léo Alvarez, Lyne St-Georges, Mathieu Fiset, Myriam Brochu

[65] In-situ microscale FIB cold welding of Al and Cu

Stine Bratlie, Elisabeth Throssen, Randi Holmestad, Per Erik Vullum

Track R5 | Physical Metallurgy and Alloy Design I

Session chair: Jostein Røyset – Norsk Hydro ASA

[71] Effect of Fe/Mn Ratio on Intermetallic Evolution and Fatigue Resistance in Al-Si Foundry Alloys

Ali Elashery, Synne Sollid Sæther, Are Bergin, Petter Åsholt, Knut Marthinsen

[93] The formation of L phase precursor originated from Cu-containing Guinier-Preston zone in Al-Mg-Si-Cu alloys

Yi Wang, Jinghui Chen, Jan Halvor Nordlien, Jostein Røyset, Jonas Kristoffer Sunde, Eva Anne Mørtzell, Xiaorong Zhou

[66] Microstructure Modeling and Characterization of Pre-Deformed Al-Mg-Si-Cu(-Zn) Alloys

Inga D. Konow, Calin D. Marioara, Jan Halvor Nordlien, Jonas Kristoffer Sunde, Eva Anne Mørtzell, Jostein Røyset, Randi Holmestad

Technical Session 2 | 13:15-14:45

Track R7 | Joining and Weld Integrity II

Session Chair: Xiaobo Ren – SINTEF Industry

[91] Hardness characterisation of butt-welded 5083-H321 aluminium alloy connections

Ivan Čudina, Ivica Garašić, Darko Landek, Davor Skejić

[46] Laser-based welding for manufacturing aluminium structures: industrial challenges and solutions

Xiaobo Ren, Ivan Bunaziv, Geir Mosaker

[72] Improvement of Joint Strength in Steel/Aluminum Alloy Dissimilar Materials Resistance Spot-welded Joints by using Interface Shape Control

Fuminori Nakano, Keita Kubo, Tetsu Iwase, Muneyoshi Iyota

[73] A Study on Factors Affecting the Joint Strength of Resistance Spot-welded Joints in Aluminum Casting Alloys and Rolled Aluminum Alloy

Nanaha Taniwake, Seiya Sugimoto, Takeshi Matsukage, Keisuke Kinoshita, Yufu Watanabe, Taishi Tarui, Muneyoshi Iyota

Track R8 | Modelling and Digital Methods I

Session chair: Knut Marthinsen – NTNU

[23] Predicting mechanical properties of Al-Mg-Si extrusions containing emulated post-consumer scrap content using hybrid modeling

Christian Dalheim Øien

[79] Digital knowledge exchange in physical metallurgy

Jesper Friis, Tor S. Haugland, T rence Coudert, Tom s M nik, Sylvain Gouttebroze

[86] Using Surrogate Models to Predict Time Evolution of Yield Strength in 6xxx series Aluminium alloys

Magnus Breimo, Emre Cinkilic, Anders Nesse, Tom s M nik

[12] Innovation in Complex Aluminum Grid Structure Systems and Key Technologies for Intelligent Construction

Yue Yang, Yuanwen Ouyang, Yue Yang

Track R5 | Physical Metallurgy and Alloy Design II

Session chair: Randi Holmestad – NTNU

[67] The effect of Mn addition on the mechanical properties of air cooled 6063 alloys

Eila Bergene, Inga Konow, Calin D. Marioara, Eva M rtsell, Jostein R yset, Randi Holmestad

[89] Using Sc and Zr for dispersoid formation in an Al-Mg-Si alloy

Jostein R yset

[83] Consequences on recycling on mechanical properties and thermomechanical processing in 7108 Al-Mg-Zn alloys

Siri Marthe Arbo, Jon Holmestad, Calin D. Marioara, Yngve Langsrud, Grethe Waterloo

[58] Melt treatment optimization and end product quality of 6xxx billets

Bilgehan Tunca, Levent Cenk Kumruođlu, Hayati Sahin, Derya Dispinar

Technical Session 3 | 16:00-17:50

Track R7 | Additive and Solid-State Manufacturing I

Session chair: Sigmund A. Tronvoll – NTNU

[20] Loss of Nanoparticles Added for Additive Manufacturing of Crack-free High Strength Aluminium Alloys with PBF-LB

Kai Zhang, Magnus Reiersen

[19] Mechanical Properties of DED-Arc Processed ER5356 and ER4046 Aluminum Alloys

Markus Köhler, Kevin Höfer, Jonas Hensel

[36] Influence of Arc Oscillation Frequency on Bead Geometry and Porosity in Single- and Multi-Layer WAAM of Al-4043 Alloy

Mohammed Musaib Mohd Sohail, Sigmund Arntsønn Tronvoll

[96] Impact of Interlayer Cooling on Microstructure and Mechanical Properties of WAAMed 5356 Al-Mg Walls

Sara Soliman, Gildas L'Hostis, Hanadi G. Salem, Mohamed Abdelaziz

Track R8 | Manufacturing Process Control and Forming I

Session chair: Chanmi Moon – NTNU

[32] Characterizing Pitch Impregnation in Coarse Coke Particles for Carbon Anode Fabrication

Fatemeh Khademian, Simon Laliberté-Riverin, Armin Beitollahi, Seyed-Mohammad Taghavi, Houshang Alamdari

[98] Modelling of aluminium extrusion ingot casting machine fluid flow and grain refiner addition

Sigbjørn Hjelmaas, Knut Omdal Tveito, Tomáš Mánik

[82] From 63 to Zero: Eliminating Off-Spec Aluminium Fluoride through Integrated Filtration, Crystallization, and Calcination Optimization in an Industrial Plant

Yayan Rohmad Afritiyono, Jawad Farisi, Alex Zainul Fanani

[53] Investigation of the influence of drawing process parameters on the fatigue strength of aluminium wires intended for overhead power line conductors

Beata Smyrak, Tadeusz Knych, Andrzej Mamala, Bartosz Jurkiewicz, Marek Burdek, Piotr Czarnecki, Piotr Włoch

Track R5 | Structural Systems and Infrastructure I

Session chair: Miguel Costas – NTNU

[101] New applications for aluminium in concrete marine infrastructure

Baptiste Reyne, Virgile Delhayé, Rafael Ruiz-Maestre

[31] A Preliminary All-Aluminium Vehicular Bridge Concept Using Bobbin Tool Friction Stir Welding

Pablo Rico, Maryam Amiri, Nicolas Boissonnade

[37] Vibration Serviceability Assessment of Lightweight Aluminum Bridges under Traffic Loading

Maryam Amiri, Pablo Rico Gomez, Nicolas Boissonnade, Pampa Dey

[40] Design of Aluminium I-Beams under Major Axis Bending

Hoang Duong Ngoc, Kokou Attiogbe, Nicolas Boissonnade

[90] Local Buckling and Ultimate Resistance of Aluminum Hollow Sections

Juan David Orozco, Carlos Graciano, Liya Li

Thursday, 11 June

Technical Session 4 | 08:30-10:00

Track R7 | Physical Metallurgy and Alloy Design III

Session chair: Randi Holmestad – NTNU

[24] Controlling Intermetallic Phase Formation in Al-Si-Mn-Mg-Fe Alloys: Role of Fe, Sr and Cooling Rate

Astrid Marthinsen, Kjerstin Ellingsen, Ali Elashery, Sigurd Wenner, Vegar Øygarden, Arne Nordmark

[70] Effect of Cu, Zn, and Fe Impurities on Intermetallics and Porosity Formation of High-Pressure Die-Cast Al-7Si-0.3Mg Alloy

Ali Elashery, Supreet Kaur, Martha Indriyati, Anna Kisko, Marisa Di Sabatino

Track R8 | Joining and Weld Integrity III

Session chair: Siri Marthe Arbo – SINTEF AS

[54] Heat affected zones in welded Al-Zn-Mg(-Cu) alloy plates

Thyra Rolfseng, Sigurd Wenner, Calin D. Marioara, Lars Lodgaard, Liesbeth H. Campbell, Randi Holmestad

[88] Predicting laser-welded joint failure in an AA6082 aluminum alloy

Jianbin Xu, Asle J. Tomstad, Ivan Bunaziv, Magnus Eriksson, Knut Marthinsen

[68] Effects of Electrode Wear on Nugget Formation in Continuous Resistance Spot Welding of Aluminum Alloys

Muneyoshi Iyota, Arata Ishikawa

[74] Suppression of Nugget Shape Variability in Continuous Resistance Spot Welding of Aluminum Alloys Using Hole Shape on the Sheet Surface

Yugo Maeno, Arata Ishikawa, Muneyoshi Iyota

Track R5 | Structural Systems and Infrastructure II

Session chair: Dirk Nolte – SINTEF

[34] Members in Bending: Annex L of New EN 1999-1-1

Vincenzo Piluso, Alessandro Pisapia

[35] Cyclic Response of Aluminium SHS Beams: Experiments and Numerical Simulation

Elide Nastri, Vincenzo Piluso, Alessandro Pisapia, Francesco Pisciotto, Paolo Todisco

[39] Buckling Tests on Aluminum Tubular Beam-columns

Prachi Verma, Sahar Dahboul, Pampa Dey, Nicolas Boissonnade

[48] Torsional Strength of Thick-Walled Aluminum Tubes

Constance Ziemian, Nora Frederick, Ronald Ziemian

Technical Session 5 | 11:15-12:45

Track R7 | Structural Systems and Infrastructure III

Session chair: Odd Sture Hopperstad – NTNU

[76] Fatigue Behaviour of an Aluminium Shoe-Base Connection with a Stiffening Ring

Yao Domadzra, Kossi Jonas Sama, Sebastien Langlois, Liya Li

[49] Performance of Blind-Bolted Connections in Aluminum Hollow Structural Sections

Ronald Ziemian, Finnegan Atkins, Constance Ziemian

[51] Aluminium Castings in Overhead Line Construction – Reliable Application and Challenges

Hai-Lai Radisic, Dorina Siebert, Jakob Blankenhagen, Stefan Kreibich, Christina Radlbeck

[9] The construction phase of the Montmorency Forest GMAW-welded aluminium deck on steel girders bridge

Benoit Cusson

Track R8 | Manufacturing Process Control and Forming II

Session chair: Bjørn Holmedal – NTNU

[59] Development of metal forming processes with integrated age hardening customized in production of high strength aluminum safety parts for the automotive industry.

Ola Jensrud, Jørgen Li

[77] Effect of Continuous Bending under Tension on aluminum-magnesium alloy

Gabriela Vincze, Hajare Mouaouin, Marilena Vincze, Fabien Cazes, Ioan Ionescu

[45] Scan-assisted dimensional control in 3D stretch bending of AA6082-T4 using reconfigurable tooling

Chanmi Moon, Sigmund Arntsønn Tronvoll, Torgeir Welø

[22] Cut the Heat, Save the Gas: Retrofitting Thermal Post Combustions with Oxidation Catalysts

Alexander Sigg, Michael Felsberger, Paul Piantino, Johannes Hofer

Track R5 | Joining and Weld Integrity IV

Session chair: Vahid Hosseini – NTNU

[75] The formability of single and double-pass friction stir-welded AA6082 tailor-welded blanks

Yugesh Raajha MS, Chanmi Moon, Geir Ringen, Torgeir Welo

[80] Role of Aluminum 4104 Foil Interlayer in Controlling Interfacial Behavior of Large-Area AA6063–Cu Joint Fabricated by Contact-Reaction Brazing

Haodong Zhang, Teng Niu, Zeyu Wang, Leigang Wang, Mingxiao Shi, Dumitru Roman, Xiang Ma

[13] Direct description of inherent strains for thin-plate welding distortion modelling

Asle J. Tomstad, Ivan Bunaziv, Magnus Eriksson

[47] Low-Cycle Fatigue of Welded EN AW-7020 Joints in the Context of EN 1999-1-3—Influence of Stress Ratio under Constant Amplitude Loading

Mathias Rengstl, Dorina Siebert, Jakob Blankenhagen, Christina Radlbeck

Technical Session 6 | 13:45-15:15

Track R7 | Additive and Solid-State Manufacturing II

Session chair: Nima Razavi - NTNU

[43] Structural performance assessment of 3D-printed aluminium alloys

Evangelos Efthymiou, Charalampos Gkountas

[27] Deployable Structures: Investigation of Reverse Bending of Additively Manufactured AlSi10Mg Alloy under Heat-Treated Conditions

Christoffer N. Hellstrøm, Sigmund A. Tronvoll

[56] Analytical Fatigue Life Prediction and Numerical Assessment of the Fatigue Performance of PBF-LB AlSi10Mg As-built Specimens

Ahmad Issmail, Nima Razavi

[42] Continuous wire-feeding screw extrusion friction stir deposition (WSEFSD) additive manufacturing of Al-alloy

Ziheng Ye, Pengkun Liu, Heng Li, Torgeir Welo, Jun Ma

Track R8 | Modelling and Digital Methods II

Session chair: Baptiste Reyne – SINTEF

[61] Forming limit prediction of sheet metals using a flexible material model framework: comparing crystal plasticity and continuum anisotropic yield criteria

Hassan M. Asadkandi, Tomáš Mánik, Odd Sture Hopperstad, Bjørn Holmedal

[81] Modelling of Evolution of Deformation Textures, Plastic Anisotropy and Formability in Flat Profile Aluminium Extrusions

Tomáš Mánik, Hassan M. Asadkandi, Kai Zhang, Bjørn Holmedal, Knut Marthinsen

[41] New Method to Predict Stress-Strain Diagrams at High Strain Rates

Shigeo Saimoto, Bradley Diak

[55] Structural optimisation of aluminium profiles for battery tray crash protection

Miguel Costas, David Morin, Odd Sture Hopperstad, Ulf Håkon Tundal, Endre Hennum

Track R5 | Structural Systems and Infrastructure IV

Session chair: David Morin – NTNU

[50] Buckling-Restrained Aluminum Shear-Yielding Dampers for RC Seismic Retrofit: Hysteretic Response and Structural Performance

Osvaldo Pecorari, Euripidis Mistakidis, Massimiliano Ferraioli, Alberto Mandara

[52] Displacement-based design of aluminum shear panels for seismic retrofitting of RC buildings

Massimiliano Ferraioli, Angelo Lavino, Gianfranco De Matteis, Alberto Mandara

[33] Numerical assessment of the cyclic response of aluminium beams using OpenSees

Maria Maglio, Francesco Pisciotto, Elide Nistri, Alessandro Pisapia, Evangelia Georgantzia

[97] Aluminum and Concrete – A new, innovative Material Combination

Grete Hjetland, Trond Furu

Friday, 12 June

Technical Session 7 | 09:30-11:00

Track R7 | Physical Metallurgy and Alloy Design IV

Session chair: Tomáš Mánik – NTNU

[85] Effects of cold rolling after natural aging on precipitation behavior during artificial aging and mechanical properties in 7000 series alloy

Yuta Namekawa, Yujin Rhee, Minh Oh, Yukihito Kondo, Takumi Sannomiya, Equo Kobayashi

[57] Mechanical properties and shear fracture of naturally or cyclically aged 7000 alloys

Bjørn Holmedal, Sohail Shah, Akash Gopal, Elisabeth Thronsen, Constantinos Hatzoglou

[29] Experimental Tests on Notched Bars made of 2007-T3 Alloy

Marco Lamberti, Agostina Orefice, Vincenzo Piluso, Alessandro Pisapia

Track R8 | Additive and Solid-State Manufacturing III

Session chair: Kai Zhang – SINTEF

[95] Recent Improvements in Screw Extrusion of Ductile Metals

Kristian Grøtta Skorpen, Harald Vestøl, Trond Furu

[38] Particle-based screw extrusion friction stir deposition (P-SEFSD) additive manufacturing of Al-alloys

Pengkun Liu, Ziheng Ye, Heng Li, Torgeir Welo, Jun Ma

[44] Numerical Simulation of Additive Friction Stir Deposition of Aluminium Alloy

Xiang Ma, Matthew R. Barnett

[84] Rapid fatigue life prediction of additively manufactured parts using inelastic energy dissipation

Amir Hossein Mirzaei, Nima Razavi

How much does the world love Aluminium ?



Enough to...



Recycle it



Build with it



Mine it



Drive with it



Move it



Fly with it



Research it



Go to space with it



Enhance it



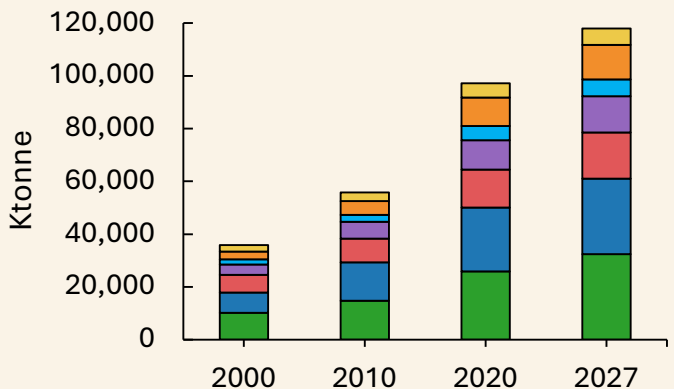
Recycle it again



Arrange international conferences around it

Global Aluminium usage by sector

- Transport
- Construction
- Packaging
- Electrical
- Consumer durables
- Machinery
- Other



Source: European Aluminium, Vision 2025, based on CRU 2018 data.

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