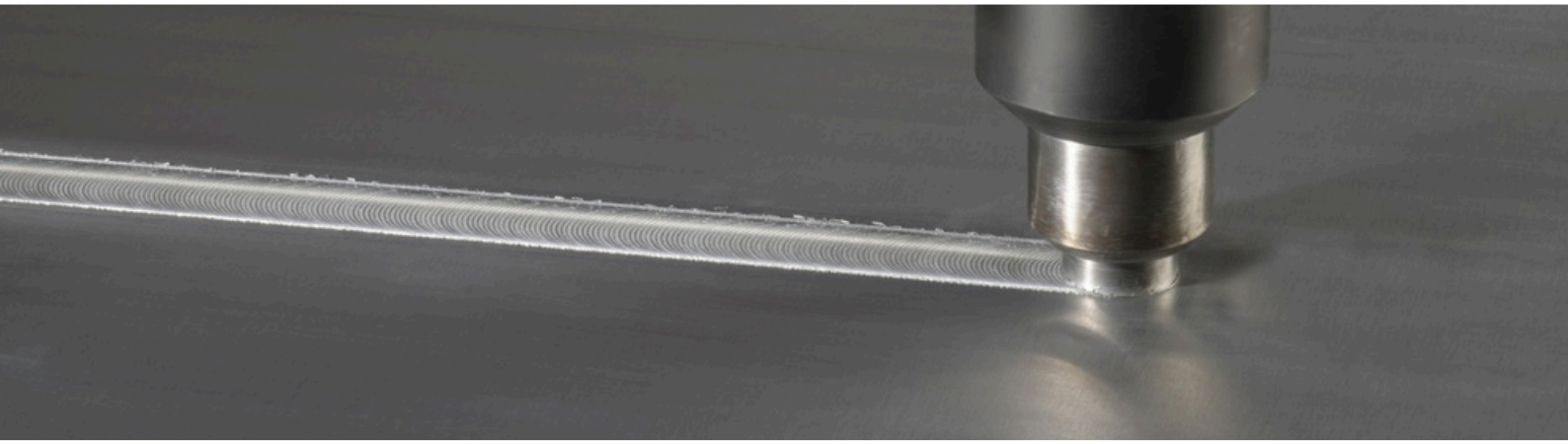
IFWC

International Friction Welding Conference

TWI, GRANTA PARK | 19-22 MAY 2026



The Welding Institute | TWI

RIFTEC HAI-Gruppe · elementsix DE BEERS GROUP · stirweld · WeldPilot Your Digital Twin for FSW Optimization · BOND TECHNOLOGIES

IFWC

International Friction Welding Conference

The Welding Institute | TWI

Programme

Day 1 Tuesday 19th May

	Lecture Room 1	Lecture Room 2
08:00	Registration & Coffee	
09:30	IFWC Welcome	
10:50	Networking & Refreshments	
11:20	Friction Stir Welding: Transport Applications	Linear Friction Welding: Weld Properties
13:00	Lunch	
14:00	Friction Stir Welding: Numerical Modelling	Additive Friction Stir Deposition: Aluminium Alloys
15:20	Poster Session, Networking & Refreshments	
15:40	Friction Stir Welding: High Temperature Materials	Friction Welding: Process Monitoring & Control

Day 2 Wednesday 20th May

	Lecture Room 1	Lecture Room 2
08:30	Arrival	
08:40	Opening Day 2 & Announcements	
08:50	Friction Stir Welding: Opportunities & Challenges	
10:00	Networking & Refreshments	
10:20	Friction Stir Welding: Industrialisation 1	Linear Friction Welding: Opportunities & Challenges
11:20	Networking & Refreshments	
11:50	Friction Stir Welding: Industrialisation 2	Friction Welding: Modelling & Weld Performance
13:10	Lunch	
14:10	Friction Stir Spot & Lap Welding	Rotary Friction Welding: Weld Properties
15:30	Poster Session, Networking & Refreshments	
16:00	Friction Stir Welding: Quality Control	Friction Welding In-Process Monitoring
17:00	Poster Session, Networking & Refreshments	
18:15	Transport to Duxford	
19:00	Social Event at Duxford	

DAY 3 THURSDAY 21ST MAY

	Lecture Room 1	Lecture Room 2
08:30	Arrival	
08:50	Opening Day 3 & Announcements	
09:00	Friction Stir Welding: A Review of Standards	
09:45	Networking & Refreshments	
10:10	Friction Stir Welding: Steel	Friction Processes & Variants
12:10	Lunch	
13:10	Friction Stir Welding: Thermal Modelling	Novel Additive Friction Processes
14:40	Poster Session, Networking & Refreshments	
15:00	Friction Stir Welding: Weld Properties	Additive Friction Stir Deposition: High Temperature Materials
16:00	Close & Awards	

Programme Day 1 | Lecture Room 1

Tuesday 19th May

International Friction Welding Conference Welcome			
09:30	Introduction to Day 1	Kate Franklin	TWI
09:40	Welcome and Opening Remarks	Caroline Gumble	TWI
09:50	Enabling Tomorrow's Missions: European Progress in Friction Stir Welding	Joao Gandra	European Space Agency
10:20	Additive Friction Stir Deposition Development for Aerospace	Scott Rose	Boeing
Friction Stir Welding: Transport Applications			
11:20	Bobbin-Tool Friction Stir Welding of Aircraft Fuselage Structures: A Boost in Performance and Robustness	Axel Jahn	Fraunhofer
11:40	Friction Stir Welding of Pressure Vessels for Road Transportation	Paula Danninger	Technical University Munich
12:00	Series production for railroad applications – thick-walled, highly loaded and complex aluminium structures	Axel Meyer	RIFTEC GmbH
12:20	New developments of environmentally friendly fuel storage vessels using Friction Stir Welding Processes	Luciano Bergmann	Helmholtz Zentrum Hereon
12:40	Environmental durability of Al FSW joints for battery packs	Rodrigo Coelho	INEGI
	Advanced hydrogen storage solutions using FSW	Elizabeth Hoyos	TWI
	Forming tank baffles using Corner SSFSW	Emily Davison	TWI
Friction Stir Welding: Numerical Modelling			
14:00	Material Point Method simulation of Elasto-Plastic Material Flow in FSW – Part 2	Henrik Schmidt	HBS Engineering ApS
14:20	Numerical Investigation of Tool Geometry in FSW of Al Alloy Using the Smoothed Particle Hydrodynamics Method	Ishan Anjana Kilittuwa Gamage	University of Stuttgart
14:40	Development and numerical simulation of SSFSW, more particularly robotic SSFSW.	Tanguy Fajwisiewicz	Institute Maupertuis
15:00	Investigation of Defect Formation and Joint Integrity in FSW Using Smoothed Particle Hydrodynamics	Rodolfo Pimentel	University of Stuttgart
Friction Stir Welding: High Temperature Materials			
15:40	Advancements in Friction Stir Welding of Copper Using Diamond Tooling	Dale Fleck	Mazak MegaStir
16:00	High-Speed-FSW for copper alloys	Stefan Fortmüller	Stirtec
16:20	Fixed-bobin FSW of 20mm copper plate: Process window development and spindle torque limitation	Jeroen Debacker	Stirlight
16:40	Dissimilar Joining of Al and Cu alloys using FSW	Dongsheng Li	AM Energization
17:00	Robotic FSW of Titanium Lap Joints	Jonathan Martin	TWI

Programme Day 1 | Lecture Room 2

Tuesday 19th May

Linear Friction Welding : Weld Properties			
11:20	Linear Friction Welding External Features	Pedro Santos	TWI
11:40	LFW of gamma-prime (γ′) strengthened Haynes 282 Ni superalloy	Abhishek Sharma	JWRI, The University of Osaka
12:00	Solid-State Bonding Mechanism and Flash Evolution in LFW of AD730™ and SLM IN 718 Superalloys	Mohammad Jahazi	École de Technologie Supérieure (ÉTS)
12:20	Dissimilar LFW of Tailored Recycled Titanium Billets	Martin Jackson	University of Sheffield
12:40	Low-Temperature LFW of Newly Developed α+β-type Ti-5Al-2Fe-3Mo Alloy	Yasuhiro Aoki	JWRI, The University of Osaka
Additive Friction Stir Deposition : Aluminium Alloys			
14:00	Breakthrough in AM:3-D Printing Aluminum at over 100-lbs/hr via AFSD	Michael Eff	EWI
14:20	AFSD of AA7075: Influence of the Deposition Process Parameters on Microstructure and Macrostructural Features	Stefan Böhm	University of Kassel
14:40	Microstructural Features of Multi-Layer Friction Stir Deposited AA7075 T6 Al Alloy	Antonio Monaco da Silva	Lortek S.Coop.
15:00	A review on AFSD: process mechanics, key parameters, mechanical characterisation and further research opportunities	Shalin Marathe	M S University Baroda Gujarat
Friction Welding : Process Monitoring & Control			
15:40	Industrialisation of Hydraulic LFW in Aerospace	Stephan Kallee	AluStir
16:00	Introduction to LFW mahcine design and control	Nicolas Piolle	ACB
16:20	Low Force Friction Welding and the FRA CRISI Program	Simon Jones	MTI
16:40	Experimental & Modelling Approaches for Machine Efficiency & Bearing Dynamics in IFW Systems	Gihad Karrar	University of Nottingham
17:00	Joining Metal w/ NO HAZ. NO Fusion Line. The Next Generation	Paul Cheng	FuseRing Inc.

Lightning Talks

- Rapid 5-8 min presentations
- Three Slides
- Highlight Key Findings
- Poster to provide detail

Programme Day 2 | Lecture Room 1
Wednesday 20th May

08:40	**Opening Day 2 & Announcements**		
Friction Stir Welding : Opportunities & Challenges			
08:50	FSW Opportunities & Challenges a Review	Max Hoßfeld & Mike Russell	
09:20	**Friction Stir Welding : Opportunities & Challenges Panel Discussion**		
Friction Stir Welding : Industrialisation 1			
10:20	Reducing Fixturing Requirements for Friction Stir Lap Welding	Yuri Hovanski	Brigham Young University
10:40	Automatic Adaptive Control of Friction Stir Welding	Kevin Colligan	CTC
11:00	Spark Plasma Sintered H13 FSW tools_A solution to extend tool life for aluminium applications	Mathieu Lambert-Cellier	Tra-c
Friction Stir Welding : Industrialisation 2			
11:50	FSW of Chambers for Vacuum Applications: A Cost-Effective Solution with Zero Leakage & High Mechanical Performance	Laurent Dubourg	Stirweld
12:10	MiRoStir — Development of Micro Tools for Robotic Friction Stir Welding	Stephan Kallee	AluStir
12:30	Interpretable Machine Learning for FSW: Understanding CNN-Based Weld Surface Analysis	Daniel Langan	PAR Systems LLC
12:50	Same Alloy, Same Penetration – Different Outcome: The Hidden Complexity of Thick-Walled FSW	Iurii Golubev	RIFTEC GmbH
Friction Stir Spot & Lap Welding			
14:10	Refill Friction Stir Spot Welding in a Lunar Environment	David Hofferbert	Bond Technologies, Inc.
14:30	Investigation of weld orientation and lap weld characteristics on the mechanical properties of friction stitch welds made with a robot guided welding gun	Dominik Walz	MPA University of Stuttgart
14:50	Refill Friction Stir Spot Welding for Space Applications	Pedro Santos	TWI
15:10	Impact of Enlarging Tool Size on the Fatigue Strength of Friction Stir Lap Welds	Steve Ales	Papua New Guinea University of Technology
	Repairing friction stir welding exit holes in cryogenic fuel tanks using RFSSW	Benjamin Klusemann	Leuphana University Lüneburg
Friction Stir Welding: Quality Control			
16:00	Effects of Average Flow Stress and Energy Density on Quality and Properties of Friction Stir Welded Aluminum	Kevin Colligan	CTC
16:20	Development, implementation & quality control of FSW as a robust production technology for the road tanker industry	Dreyer Bernard	eNtsa (Nelson Mandela University)
16:40	Qualification of the FSW-Process an Using Advanced Numerical Framework	Henning Venghaus	CIMNE

Programme Day 2 | Lecture Room 2
Wednesday 20th May

Linear Friction Welding: Opportunities & Challenges			
10:20	Linear Friction Welding: Opportunities & Challenges Panel Discussion		
Friction Welding : Modelling & Weld Performance			
11:50	An Energy-Based Analysis of RFW Using the Example of an Aluminium–Steel Joint	Marian Winkler	University for Applied Science Magdeburg-Stendal
12:10	Using numerical modelling to develop an LFW process control strategy	Achilles Vairis	University of West Attica
12:30	AI-driven microstructure characterisation of LFW titanium joints	Lukas Christl	MTU Aero Engines
12:50	A physics-informed neural network-based model for predicting temperature evolution during LFW	Alexander Bikmeyev	Mavlyutov Institute of Mechanics, UFRC RAS
Rotary Friction Welding: Weld Properties			
14:10	Influence of process parameters and joint geometry on IFW of wrought and cast aluminum alloys	Carina Vauderwange	Mercedes-Benz AG
14:30	In-Situ Synchrotron XRD and Post Weld Microstructural Analysis of IFW Inconel 738	Richard Evans	University of Nottingham
14:50	Replacing adhesives with RFW for GRE pipe	Stuart Lewis	TWI
15:10	Joining of Inconel718 and En24 alloy steel using RFW	Vijay Gaikwad	KCTI, Bharat forge Ltd, Pune
	Joining Ultra Thin Using Induction, Forge and Shear (Friction)	Paul Cheng	FuseRing Inc.
Friction Welding In-Process Monitoring			
16:00	FLEX 19 (Friction-based Landing-gear Engineering eXemplars with MLX-19 and bespoke tooling) – The AFRC Fingerprint.	Matthew Ferguson	FFRC
16:20	In-Situ Weld Assessment During Friction Welding: An Investigation into Feature Extraction, Dimensional Reduction, and Novelty Detection	Daniel Hartman	Manufacturing Behavioral Science, LLC
16:40	Development of a RFW Machine with Integrated Monitoring and Control System	Antonio Monaco da Silva	Lortek S.Coop.

Remember the Day 2 Evening Event:

Social Dinner & Entertainment at Duxford Air Museum

Attendance and transport is Included in your IFWC registration fee
Buses will depart TWI, Granta Park at 18:15 Wednesday 20th May

Programme Day 3 | Lecture Room 1

Thursday 21st May

08:50	**Opening Day 3 & Announcements**		
Friction Stir Welding: A review of Standards			
09:00	Friction Stir Welding: Standards Panel Discussion: Scott Rose (Boeing), Axel Meyer (Riftec), Jorge Dos Santos (Stirtec), Jonathan Martin (TWI)		
Friction Stir Welding: Steel			
10:10	Orbital welding of high strength steel pipelines	Jorge Dos Santos	Stirtec
10:30	The sequential double-sided FSW of thick gauge (>20mm) steel	Branislav Dzepina	Element Six (UK) Ltd.
10:50	FSW Steel Technology Readiness Assesment	Mike Russell	KUKA
11:20	Progress in use of FSW welding for overhead position root pass in thick section fabrication	Chris Punshon	Cambridge Vacuum Engineering
11:40	Assessment of Pulsed Gas Metal Arc Welding and FSW of Armor Steels for Ballistic Performance	Jhoan Guzman	The Ohio State University
12:00	FSW of Reduced Activation Ferritic-Martensitic Steels for Fusion Energy	Frances Livera	UKAEA
Friction Stir Welding: Thermal Modelling			
13:10	A Hybrid AI/ML Framework for Distortion-Minimized FSW of Thick Al-Li Panels	Michael Eff	EWI
13:30	Efficient Thermo-Mechanical Field Prediction in FSW Using Model Reduction Techniques	Narges Dialami	CIMNE
13:50	Reduction of residual stresses and simulation approach of FSW aluminium alloys	Sébastien Galisson	IRT Jules Verne
14:10	FSW-Generated Residual Stresses and Distortions in a Hydrogen Storage Tank Made of Thin Al Plates	Siamak Shishvan	TWI
Friction Stir Welding: Weld Properties			
15:00	Effect of microstructural heterogeneities within a FSW on the strain localization studied by laser scanning confocal microscopy	Tanguy Suchel	Airbus Central R&T (ICA)
15:20	Mechanical properties and phase stability in the stir zone of FSW super Invar alloy: an in situ neutron diffraction study	Takayuki Yamashita	The University of Osaka
15:40	Local microstructural and mechanical properties of high speed FSW, & practical application in press forming of dish-ends for road tankers	Dreyer Bernard	eNtsa (Nelson Mandela University)
16:00	**Awards Presentation and Conference Close**		

Programme Day 3 | Lecture Room 2
Thursday 21st May

Friction Processes & Variants			
10:10	Friction Stir Processing Evaluation with In Situ Volumetric Non-Destructive Testing	Jason Jones	Hybrid Manufacturing Technologies
10:30	Phase Stability and Microstructural Refinement in CrFeNi MEA via Friction Consolidation	Harikrishna Rana	Leuphana University of Lüneburg
10:50	Microstructural Characterization and Mechanical Behavior of Novel High-Strength Aluminum Alloys Processed by Friction Surfacing	Javier Vivas	LORTEK-BRTA
11:20	Friction Extrusion – Solid-State Metal Synthesis in Sustainable Manufacturing	Zhilli Feng	Oak Ridge National Laboratories
11:40	Coreflow A Review	Sam Holdsworth	TWI
Novel Additive Friction Processes			
13:10	Development of a Highly Efficient Linear Friction Additive Manufacturing Method	Koki Somekawa	JWRI, The University of Osaka
13:30	Precipitation Kinetics and Phase Transformation Modeling in Al-Mg-Si Alloy Fabricated by Friction Screw Extrusion Additive Manufacturing	Saed Sayyad Rezaeinejad	University of Twente
13:50	Single Step Conversion of Cast Composition into Wrought Metal Components Using Solidstir® Additive Manufacturing	Kumar Kandasamy	Enabled Engineering
14:10	Bridgeability of large gaps in high-strength aluminium alloys by wire-based friction stir welding with a multi-pin tool	Stefan Donaubauer	MPA University of Stuttgart
14:30	Additive Friction Stir Welding for Aerospace Applications	Emily Davison	TWI
Additive Friction Stir Deposition: High Temperature Materials			
15:00	Enabling Bulk Additive Friction Stir Deposition of 316L Stainless Steel	Yuri Hovanski	Brigham Young University
15:20	Repair of Steel Railroad Rail via Additive Friction Stir Deposition	Michael Eff	EWI
15:40	Advancements in Additive Friction Surfacing for High-melt temperature materials	Ken Ross & Uche Okeke	PNNL

AWARDS:

The Wayne Thomas Innovation Award

Best Presentation - 14th International Symposium on Friction Stir Welding

Best Presentation - 6th International Symposium on Linear Friction Welding

Awards will be presented in Lecture Room 1 at 16:00 on Day 3 Thursday 21st May

Programme Day 2 | Social Dinner

Wednesday 20th May

17:00
Refreshments
The Street, TWI

19:00
Drinks
IWM Duxford

20:00
Entertainment
IWM Duxford

22:10
Bus Arives
Whittlesford

22:20
Bus Arives
The Plane, TWI

18:30
Bus Departs
The Plane, TWI

19:30
Buffet Dinner
IWM Duxford

22:00
Bus Departs
IWM Duxford

22:30
Bus Arrives
Cambridge Station

Programme Day 4 | Tour & Demonstrations

Friday 22nd May 09:00 - 12:00

Tours Feature:

TWI Cambridge Friction Welding And Processing Capabilities Including Demonstrations:

- Stirweld Retracting Probe Friction Stir Welding
- Linear Friction Welding Ti-6Al-4V
- Element 6 Friction Stir Welding Stainless Steel

TWI Welding Capabilities (inc. Arcs, Electron Beam, Lasers)

TWI Thermal & Cold Spray Capabilities

TWI Microstructural & Mechanical Testing Capabilities

Free Registration for Tours & Demonstrations:

ifwconference.com