Welding and Fabrication Innovation: The New Zealand Experience

From Seismic Resilience and Certification to Circular Design, Automation and AI

7, 8 December 2026

Webinar – NOW AVAILABLE – Register below



Dr Michail Karpenko

With the advent of greater demand for online training, HERA, IIW-India, SAIW and the CWB Association are cooperating and collaborating to transfer the knowledge and experience of world experts into as many countries on a global basis.

The four organisations will arrange for webinars and eCourses to be presented by such world experts to meet the challenges of different time zones, the need to assist individuals and industries to optimise their training times as well as improve their national welding capabilities.

You can make enquiries and bookings with each organisation offering the webinar or course most suitable for your needs.

Links for registration for this Webinar are given later in this brochure on page 4.

This presentation is brought to you by:

Dr Michail Karpenko
General Manager | Fabrication 4.0 Welding Centre, HERA
(Heavy Engineering and Research Association, New Zealand)

Contacts at each organisation for more detailed discussion on this Webinar:

Daniela Torelli • CWB Association • email: Daniela.Torelli@cwbgroup.org • Americas

Confidence Lekoane • SAIW • email: confidence.lekoane@saiw.co.za • Africa and Europe

R. Srinivasan • IIW-India • email: iiwmum01@gmail.com • SAARC and Middle East

Welding and Fabrication Innovation: The New Zealand Experience

From Seismic Resilience and Certification to Circular Design, Automation and AI



Presenter: Dr. Michail Karpenko

General Manager | Fabrication 4.0 | Welding Centre, HERA
(Heavy Engineering and Research Association, New Zealand)

This webinar will:

- Present New Zealand's integrated approach to advancing welding and steel fabrication through applied research, standards development, industry training and certification.
- Demonstrate how research and technology are being translated into practical improvements in structural safety, resilience, sustainability, quality and fabrication productivity.

Michail Karpenko, Dr.-Ing., IWE is General Manager of Fab 4.0 and the Welding Centre at HERA, New Zealand, and General Manager of HERA Certifications Ltd. He is an International Welding Engineer with extensive experience in welding engineering, applied research, industry technology development, certification, and standards across Europe, New Zealand, and Australia.

Michail holds a degree in Mechanical and Welding Engineering from Kyiv Polytechnic Institute and a PhD (Dr.-Ing.) from Otto von Guericke University, Magdeburg, Germany. He contributes to Standards Australia committees including WD-003, WD-002 and ME-001, supporting the development and revision of key welding and fabrication standards.

He played a key role in the development and implementation of New Zealand's Steel Fabrication Certification (SFC) scheme and the establishment of the IIW MCS ISO 3834 certification framework in New Zealand. His contribution has been recognised with the SCNZ Chairman's Award in 2022 and the International Institute of Welding Chris Smallbone Award in 2025.

As the General Manager of Fab 4.0 and the Welding Centre at HERA, he is responsible for leading a team of experts who deliver a range of technical services to companies, including consulting, training, audits, and the acquisition and delivery of various research and development projects and grants resulting in major improvements in many areas including New Zealand's National Welding Capability.

His technical and research interests include welded connection design for seismic and fatigue applications, fracture mechanics, welding metallurgy, automation and robotics, AI-enabled quality systems, and productivity improvement in steel fabrication. He has authored and co-authored more than 80 journal and conference publications.

1. New Zealand's welding and fabrication innovation ecosystem

The role of HERA as a membership-based, not-for-profit industry association. Connecting industry needs with applied research, standards, guidance, training and certification.

2. Seismic performance of welded steel structures

Full-scale low-cycle fatigue testing of welded connections. Translating research outcomes into fabrication guidance and industry practice.

3. Circular design and sustainable steel construction

Designing steel structures for resilience, efficient fabrication, adaptation and reuse. Structural and fabrication optimisation.

4. Railway bridge optimisation

Fatigue testing and assessment of welded bridge details. Improving structural and fabrication efficiency. Moving from isolated component optimisation towards a holistic design approach.

6. Emerging fabrication technologies

Laser-based surface preparation as an alternative cleaning technology. Friction Stir Deposition and its potential applications in additive manufacturing and repair.

7. AI and digital transformation in steel fabrication

Mapping industry needs, constraints and technology-readiness. Practical barriers to industry adoption, including data quality, system integration and workforce capability. Potential applications of AI in quality assurance and fabrication workflows.

8. Certification as a driver of industry capability

Development and implementation of New Zealand's Steel Fabrication Certification scheme. Integration of AS/NZS 5131 and ISO 3834 requirements.

9. Conclusions and international collaboration

WHERE and WHEN:

The WEBINAR will be of one and a half hours duration including half an hour for questions and discussion. It will be held on two separate occasions to accommodate the four different regions of the globe: The Americas; Africa and Europe; Indian sub-continent, Asia and Australasia.

WHO SHOULD ATTEND?

Personnel of all types and at all levels in manufacturing, fabrication, construction, maintenance, standards, regulatory, education, training and research organisations related to design, fabrication and construction are welcome to attend. Delegates are welcome to bring along their questions to contribute to discussions and positive outcomes.

WHAT INDUSTRY SECTORS IS THE WEBINAR RELEVANT FOR?

All fabrication and construction related industry sectors will benefit from involvement in the webinar.



HERA (Heavy Engineering Research Association) is a membership-based, not-for-profit industry association supporting New Zealand's steel and heavy engineering sectors. HERA works to strengthen industry capability through technical expertise, applied research, the development of standards and industry guidelines, specialist training, certification and technical support. Its mission is to help industry improve quality, productivity and technical capability while enabling the delivery of safer, more resilient and sustainable steel structures in New Zealand.



SAIW / IIW-India

COURSE PART	COURSE DATE	LOCATION / TIME ZONE / STARTING TIME
1	Tuesday, 8 December 2026	Johannesburg . ... 11:00-12:30 Mumbai ... ... 14:30-16:00 London, Lisbon ... ... 09:00-10:30 Istanbul ... ... 12:00-13:30 Bangladesh . ... 15:00-16:30 Saudi Arabia, Kuwait... ... ... 12:00-13:30 Singapore, Perth, Shanghai, Nairobi .. .. 17:00-18-30 Seoul and Tokyo.. ... ... 18:00-19:30 Sydney ... ... 20:00-21:30 Auckland 22:00-23:30

- **Registration Link:**
  Welding and Fabrication Innovation: The New Zealand Experience

CLICK HERE TO REGISTER

CWB Group Canada (Americas North and South)

COURSE PART	COURSE DATES	LOCATION / TIME ZONE / STARTING TIME
1	Monday, 7 December 2026 Tuesday, 8 December 2026	Toronto, New York ... ... 17:00-18:30 West Coast Canada and USA. ... ... 15:00-16:30 Rio de Janeiro, Santiago. ... ... 19:00-20:30 Sydney ... ... 09:00-10:30 New Zealand... ... ... 11:00-12:30

- **Registration Link:**
  Welding and Fabrication Innovation: The New Zealand Experience

CLICK HERE TO REGISTER

NOTE: Registrants are advised to check the correct times of the webinars in their locations based on the times in Toronto (7 December) and Mumbai (8th December).

Register Today – To register, follow the registration links above.

Cost – The webinars are free except for the CWB Association webinar where free CWB Association membership is available for registrants otherwise a small registration fee applies to non-members *(See registration link)*.

Cancellations – *Please note:* The organisers reserve the right to cancel the webinars due to insufficient registrations or other reasons beyond their control, as well as altering the programme if they deem it necessary. The organisers also have the right to refuse registrations.

Stay tuned for future webinars and courses by WIN!!