



Workshop | 5-6 September 2023

Imperial College London

Exploiting the Resilience of Masonry Arch Bridge Infrastructure

Intended for:

Practitioners and researchers involved in the assessment and/or design of masonry arch bridges.

Synopsis:

Masonry arch bridges continue to form the backbone of regional highway, railway and waterway networks in many parts of the world. However, though masonry arch bridges have served us well, a number of prominent failures suggest we may be at a tipping point – brought about by a perfect storm of the increasing age of the structures, new traffic loading demands, climate change effects pushing structures to new limits and severely restricted maintenance budgets. Conversely, the need to deliver low embodied carbon construction transport infrastructure may herald a renaissance in the design and construction of bridges formed from stone masonry.

This two-day workshop is designed to bring together practitioners and researchers involved in the assessment and/or design of masonry arch bridges:

- Day one will focus on state-of-the-art practice, encompassing recent changes to assessment codes, how outcomes from research can inform assessment practice, and how masonry arches can be incorporated in low-carbon bridge designs.
- Day two will focus on future research directions, with the emphasis being on cutting-edge developments in modelling and monitoring techniques for masonry arch bridges, presented by experts in the field.

Participants may opt to attend one or both days.

The workshop is being organised as part of the UK government-funded ERMABI (Exploiting the Resilience of Masonry Arch Bridge Infrastructure) project, involving the Universities of Leeds, Sheffield and Imperial College London. A key focus of this project is on gaining an improved understanding of 3D behaviour - the workshop will include presentations describing outcomes from the project, along with outcomes from research undertaken at a range of other institutions.

The workshop is intended to provide an invaluable opportunity for participants to exchange knowledge and ideas on masonry arch bridge infrastructure.

Registration: <https://ermabi.org/workshop>

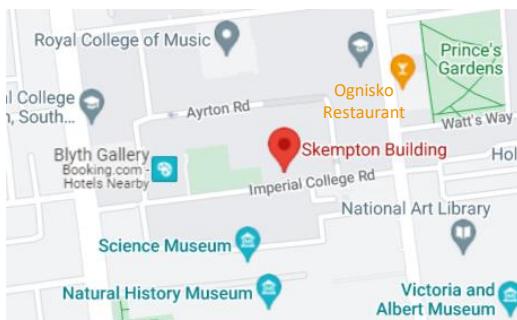
Fee: £40 - £100

Enquiries: civ-events@sheffield.ac.uk

Venue:

Skempton Building
Imperial College London
Imperial College Road
London SW7 2AZ

Ognisko Restaurant
Exhibition Road
London SW7 2PG



Event Programme

Day 1 | Tues 5 Sept 2023 | State-of-the-art practice

12:30 - 13:30	Arrival / lunch	
13:30 - 13:45	Event welcome	<i>Matthew Gilbert (University of Sheffield) & Lorenzo Macorini (Imperial College)</i>
13:45 - 14:15	Assessing masonry arch bridges: from CS 454 to the forthcoming assessment Eurocodes	<i>Jon Shave (WSP)</i>
14:15 - 14:45	Overview of the UK government funded ERMABI research project	<i>Matthew Gilbert (University of Sheffield)</i>
14:45 - 15:15	Tea / coffee	
15:15 - 15:45	Low carbon bridge engineering: from life extension of existing structures to new stone arch bridges	<i>Brian Duguid (Net Zero Bridges Group)</i>
15:45 - 16:15	Multi-level assessment of masonry arch bridges	<i>Lorenzo Macorini (Imperial College)</i>
16:15 - 17:00	Panel discussion: identifying key industry needs / closure	<i>Vasilis Sarhosis (Chair, University of Leeds), Brian Duguid (Net Zero Bridges Group), Bob Humphreys (CSS Wales) & Kafui Klutse (Network Rail)</i>
19:00	Workshop dinner (three-course meal in Ognisko Restaurant, Exhibition Road, London)	

Day 2 | Wed 6 Sept 2023 | Future research directions

08:45 - 09:00	Tea / coffee	
09:00 - 09:30	Gaining understanding from laboratory tests on medium-scale masonry arch bridges	<i>Colin Smith (University of Sheffield) & Serena Amodio (University of Sheffield)</i>
09:30 - 10:00	Laboratory testing of a full-scale masonry arch bridge	<i>Vasilis Sarhosis (University of Leeds) & Bowen Liu (University of Leeds)</i>
10:00 - 10:30	Risk assessment and monitoring of masonry bridges exposed to scour	<i>Enrico Tubaldi (University of Strathclyde)</i>
10:30 - 11:00	Tea / coffee	
11:00 - 11:30	High-fidelity simulation of masonry arch bridges	<i>Stanislav Grosman (Imperial College) & Mohamed El Ashri (Imperial College)</i>
11:30 - 12:00	Monitoring and detecting damage in bridges in the field	<i>Sinan Acikgoz (University of Oxford)</i>
12:00 - 12:30	A 3D discrete-macro-element-method for the structural assessment of masonry bridges	<i>Ivo Caliò (University of Catania, Italy)</i>
12:30 - 13:30	Lunch	
13:30 - 14:00	Fast-running analysis models for masonry arch bridges	<i>Nicola Grillanda (University of Sheffield) & Linwei He (University of Sheffield)</i>
14:00 - 15:00	Panel discussion: key future research challenges / closure	<i>Matthew Gilbert (Chair, University of Sheffield), Ivo Caliò (University of Catania, Italy), Hamish Harvey (Bill Harvey Associates) & Sinan Acikgoz (University of Oxford)</i>

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