



## Commission XIII

### Agenda Commission and working group meetings

#### XIII-3027-2024

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Delegation of Germany  
Delegation of Norway  
XIII-3027-2024-R9

## Commission XIII - Fatigue of welded components and structures

### Draft Agenda for the 77<sup>th</sup> IIW Annual Assembly 2024 7<sup>th</sup> – 11<sup>st</sup> July 2024, Rhodes Island, Greece

#### Salon Des Roses A

Rodos Palace Hotel  
Trianton Avenue, Ixia, 85100.  
Rhodes Island, Dodekanesos Complex, Greece

#### Overview of C-XIII Meetings

**Note:** The schedule time is according to the local time in Greece

Sunday, 7 <sup>th</sup> July	Monday, 8 <sup>th</sup> July	Tuesday, 9 <sup>th</sup> July	Wednesday, 10 <sup>th</sup> July
C-XIII Working Group meetings	C-XIII main Commission meetings	C-XIII main Commission meetings	C-XIII main Commission meetings
09:00 – 17:30	09:00 -18:00	09:00-18:00	C-XIII Working Group meetings 09:00 – 18:30

**COMMISSION XIII WORKING GROUP MEETINGS**

**Sunday, 7<sup>th</sup> July**  
**Salon Des Roses A**  
**Day 1**

**09:00 – 17:30**

<b>Working Group</b>	<b>Chair</b>	<b>Time</b>
Welcome	K. Macdonald M. Farajian	09:00- 09:15
WG3 Stress Analysis	J. Baumgartner	09:15- 10:45
Coffee/Tee Break		10:45- 11:15
WG4 Effects of weld imperfections on fatigue strength	H. Remes M. Leitner	11:15- 12:30
JWG XIII/XV	J. Baumgartner A. Hobbacher	12:30- 13:00
Lunch Break		13:00- 14:30
WG 6 Residual Stress effects in fatigue	J. Hensel	14:30- 15:45
WG2 Fatigue improvement and retrofit engineering techniques	M. Farajian Z. Barsoum	15:45- 16:15
Coffee/Tea Break		16:15- 16:45
WG2 Fatigue improvement and retrofit engineering techniques	M. Farajian Z. Barsoum	16:45- 17:15
Commission business Any other business Buffer time		17:15- 17:30
End of the day 1		17:30

**Information: 18:30-20:00 IIW Opening Ceremony**



## MAIN COMMISSION XIII MEETINGS

**Monday, 8<sup>th</sup> July**  
**Salon Des Roses A**  
**Day 2**

**09:00 – 13:00**

<b>Main topic: Fatigue testing and evaluation of data for design (WG1)</b>			
Welcome, Agenda, opening remarks IIW AA2024 App IIW Secretariat			09:00- 09:30
XIII-3045-2024	Data-driven fatigue life assessment of welded joints based on transfer learning	Jan Schubnell	09:30- 09:45
XIII-3071-2024	Weld Surface Geometry's Impact on Generalizability of Machine Learning Models for Fatigue Life Prediction	Marten Beiler	09:45- 10:00
XIII-3074-2024	Unsupervised machine learning for true peak stress identification in fatigue analysis of welded joints	Mehdi Ghanadi	10:00- 10:15
XIII-3075-2024	Fatigue strength of robot welded tubular joints for offshore wind energy converters	Philippe Thibaux	10:15 10:30
Commission business 2 Best practice documents Standards Buffer time			10:30- 10:45
Coffee/Tea break			10:45- 11:15
<b>Main topic: Fatigue testing and evaluation of data for design (WG1)</b>			
XIII-3089-2024	2024 REPORT OF WORK IN PROGRESS (WIP) ON FATIGUE STRENGTH OF WELDED JOINTS IN FRANCE	Fabien Lefebvre	11:15- 11:30
XIII-3049-2024	Numerical Prediction of Fatigue Crack Initiation Locations in Offshore Tubular T-Joints using Actual and Idealized Weld Geometries	Sascha Maurice Küster	11:30- 11:45
XIII-3080-2024	Corrosion fatigue of welded offshore steel structures	Sulaiman Shojai	11:45- 12:00
XIII-3055-2024	Fatigue assessment of the welded structures and additively manufactured structures with multiscale experimental and simulation approach	Masoud Moshtaghi	12:00- 12:15

XIII-3054-2024	Recent Fatigue Testing of Wire-DED Materials	Curtis Decker	12:15-12:30
XIII-3067-2024	Fatigue performance of explosion-cladded steel-to-aluminum transition joints for marine applications	Kalle Lipiäinen	12:30-12:45
Commission business			12:45-
Buffer time			13:00
Lunch break			13:00-14:30

### MAIN COMMISSION XIII MEETINGS

**Monday, 8<sup>th</sup> July**  
**Salon Des Roses A**  
**Day 2**

**14:30 – 18:00**

<b>Main topic: Fatigue improvement and retrofit engineering techniques (WG2)</b>			
Commission business			14:30-
Opening remarks			14:45
XIII-3031-2024	IIW Recommendations for the HFMI Treatment for Improving the Fatigue Strength of Welded Joints, 2nd edition	Gary Marquis	14:45-15:00
XIII-3032-2024	New developments and guideline updates for HFMI treatment for improving the fatigue strength of welded joints	Gary Marquis	15:00-15:15
XIII-3037-2024-P	Current status of the design rules and requirements for HFMI in the Eurocode (EN 1993-1-9/12)	Imke Engelhardt	15:15-15:30
XIII-3079-2024	Mechanized HFMI for improved fatigue life in complex weld shapes	Thomas Stenberg	15:30-15:45
XIII-3076-2024	Evaluation of crack depth impact on HFMI treated pre-fatigued welded bridge details	Martin Edgren	15:45-16:00
Buffer time			16:00-16:15
Coffee/Tea break			16:15-16:45
<b>Main topic: Fatigue improvement and retrofit engineering techniques (WG2)</b>			
XIII-3059-2024	Fatigue strength assessment of HFMI-treated steel joints under bending loading	Martin Leitner	16:45-17:00
XIII-3041-2024	Fatigue performance of repair-welded and HFMI-treated transverse stiffeners	Jan Schubnell	17:00-17:15
XIII-3057-2024	Fatigue strength assessment of welded high-strength and ultra-high-strength steel joints in the as-welded and high frequency mechanical impact (HFMI)-treated conditions under variable amplitude loading	Antti Ahola	17:15-17:30

XIII-3078-2024	Fatigue strength maximization potential of different post weld treatment procedures with regard to the enhanced application of high strength structural steels	Tom Werner	17:30-17:45
Buffer time			17:45-18:00
End of the day 2			18:00

### MAIN COMMISSION XIII MEETINGS

**Tuesday, 9<sup>th</sup> July**  
**Salon Des Roses A**  
**Day 3**

**09:00 – 13:00**

<b>Main topic: Stress Analysis (WG3)</b>			
Opening remarks			09:00-09:15
XIII-3090-2024	FATIGUE STRENGTH ASSESSMENT OF TUBE-TO-FLANGE STEEL WELDED JOINTS WITH REINFORCEMENT RIBS UNDER CONSTANT AND VARIABLE AMPLITUDE LOADINGS ACCORDING TO THE PEAK STRESS METHOD	Giovanni Meneghetti	09:15-09:30
XIII-3064-2024	Sensitivity analysis of stress-strain fields below notch root using plasticity approximation rules under cyclic loading	Anton Asplund	09:30-09:45
XIII-3033-2024	Engineering applicable Fatigue Strength of Welded Joints Based on Notch Strains and the Influence of Weld Modelling	Klemens Rother	09:45-10:00
XIII-3060-2024	Stress ratio effect on fatigue crack growth rate within high strength steel fillet welds - Assessment via thermoelastic stress analysis	Florent BRIDIER	10:00-10:15
XIII-3039-2024	Experimental and computational fatigue strength analysis of typical penstock welds	Claudia Pollak-Reibenwein	10:15-10:30
Buffer time			10:30-10:45
Coffee/Tea break			10:45-11:15
<b>Main topic: Stress Analysis (WG3)</b>			
XIII-3038-2024	Validation of the extended Gough-Pollard approach considering multiaxial stress states with stresses acting parallel to the weld at laser-beam welded butt joints	Jörg Baumgartner	11:15-11:30
XIII-3065-2024	Fatigue performance of welded joints made of high-strength steel under variable amplitude loading conditions and varying mean stress	Kiia Grönlund	11:30-11:45
XIII-3035-2024	Structural Durability Assessment of Aluminum WAAM Structures Considering the Surface Topography	Benjamin Möller	11:45-12:00
XIII-3066-2024	Fatigue assessment of arc-welded aluminum joints using effective notch stress approach and 4R method	Juho Havia	12:00-12:15

XIII-3051-2024	A comprehensive study on predicting fatigue life of welded joints under out-of-phase loading for ductile materials	Niklas Bauer	12:15-12:30
XIII-3087-2024	INTRODUCTION OF CRACK CLOSURE ASSESSMENT OF SURFACE CRACKS IN BUTT JOINTS BASED ON EQUIVALENT DISTRIBUTED STRESS CONCEPT CONSIDERING RESIDUAL STRESS	Naoki Osawa	12:30-12:45
Buffer time			12:45-13:00
Lunch break			13:00-14:30

### MAIN COMMISSION XIII MEETINGS

Tuesday, 9<sup>th</sup> July  
Salon Des Roses A  
Day 3

14:30 – 18:00

<b>Main topic: Effects of Weld Imperfections on Fatigue Strength (WG4)</b>			
Commission business Opening remarks			14:30-14:45
XIII-3070-2024	Fatigue crack initiation and propagation in plain and notched PBF-LB/M, WAAM, and wrought 316L stainless steel specimens	Moritz Braun	14:45-15:00
XIII-3068-2024	Fatigue strength assessment of additively manufactured component considering local quality	Kalle Lipiäinen	15:00-15:15
XIII-3072-2024	Numerical determination of stress concentrations in laser hybrid welded butt joints with severe imperfections using 3D scanning and reverse engineering	M. Hasan Tanvir	15:15-15:30
XIII-3062-2024	Fatigue strength assessment of complex welded connection	Matti Rautiainen	15:30-15:45
XIII-3061-2024	Validating analytical stress magnification factors for butt-welded thin plates	Federica Mancini	15:45-16:00
Buffer time			16:00-16:15
Coffee/Tea break			16:15-16:45
<b>Main topic: Effects of Weld Imperfections on Fatigue Strength (WG4)</b>			
XIII-3044-2024	Round Robin study on the determination of weld geometry parameters – Part B: Analysis of welded specimen	Jan Schubnell	16:45-17:00

XIII-3034-2024	The Influence of Acute Toe Reentrant Angle at a Weld Start on Fatigue Life Determined Through Analysis and Physical Testing	Christy Lee	17:00-17:15
XIII-3047-2024	Fatigue assessment of welded joints based on geometric profile of the weld toe	Lauriane Guilmois	17:15-17:30
XIII-3050-2024	Comparison of automatic algorithms for the evaluation of weld toe radius and flank angle based on 3D-Scans	Christian Dänekas	17:30-17:45
Buffer time			17:45-18:00
End of the day 3			18:00

**Information: 20:00 begin of the National Evening**



### MAIN COMMISSION XIII MEETINGS

**Wednesday, 10<sup>th</sup> July**

**09:00 – 13:00**

**Salon Des Roses A**

**Day 4**

<b>Main topic: Residual Stress Effects in fatigue (WG6)</b>			
Opening remarks JWG AM Commission business			09:00- 09:15
XIII-3056-2024-P	Joint integrity evaluation of welded additive manufactured Aluminium components	Ghazal Moeini	09:15- 09:30
XIII-3043-2024	Numerical and experimental analysis of residual stresses in single-track steel walls manufactured by wire arc additive manufacturing	Ardeshir Sarmast	09:30- 09:45
XIII-3063-2024	Influence of surface integrity on short crack growth behavior in high-performing welded joints	Yuki Ono	09:45- 10:00
XIII-3040-2024	Accounting for Temperature Influence in Non-destructive Measurements of Applied and Residual Stresses by Ultrasonic Method	Jacob Kleiman	10:00 10:15
XIII-3081-2024	Study on heterogeneous microstructure and fatigue damage of laser-cladded Ti60 titanium alloy	Jinhan Chen	10:15- 10:30
Buffer time			10:30- 10:45
Coffee/Tea break			10:45- 11:15
<b>Main topic: Residual Stress Effects in fatigue (WG6)</b>			
XIII-3086-2024	Effect of Peening Treatment on Grain Refinement and Fatigue Strength Improvement of Aged Steel	Koji KINOSHITA	11:15- 11:30
XIII-3073-2024	Fatigue analysis of thermal cut edges with defined post-processing treatment in normal- and high-strength steel	Moritz Braun	11:30- 11:45
XIII-3048-2024	Effect of preload on the fatigue behaviour	Lauriane Guilmois	11:45- 12:00
XIII-3052-2024	High cyclic fatigue behavior of 3D printed titanium alloy TA15	Sviatoslav Motrunich	12:00- 12:15
XIII-3069-2024	An investigation for mean stress effect in low-cycle fatigue regime of high strength steel	Myung Hyun Kim	12:15- 12:30
Commission business			12:30-
Buffer time			13:00
Lunch break			13:00- 14:30

**WORKING GOUP AND MAIN COMMISSION XIII MEETINGS**

**Wednesday, 10<sup>th</sup> July**  
**Salon Des Roses A**  
**Day 4**

**14:30 – 18:30**

<b>Working Group</b>		<b>Chair/Presenters</b>	
WG5 Maintenance of Welded Structures		Takeshi Hanji	14:30-15:00
<b>Main topic: Maintenance of Welded Structures (WG5)</b>			
XIII-3088-2024	2024 REPORT OF WORK IN PROGRESS (WIP) ON FATIGUE STRENGTH OF WELDED JOINTS IN JAPAN	Takeshi Hanji	15:00-15:15
XIII-3085-2024	Life Extension of Orthotropic Steel Decks with Fatigue Crack from Rib-To-Deck Weld Bead to Trough Rib by Crack Closure Retrofit Treatment	Yuki Banno	15:15-15:30
XIII-3084-2024	Extending fatigue life of weld roots in fillet-welded cover plates by Installing tap bolt joints	Yuichiro NIWA	15:30-15:45
XIII-3083-2024	Numerical Simulation of Fatigue Crack Propagation and Repair with Drilled Hole in Trough-Girder Bridges	Takeshi HANJI	15:45-16:00
Buffer time			16:00-16:15
Coffee/Tea break			16:15-16:45
<b>Working Group</b>		<b>Chair</b>	<b>Time</b>
WG1		F. Lefebvre	16:45-17:45
Closing remarks and Commission business			17:45-
Commission XIII WITW paper recommendations			18:30
Commission XIII decisions			
2025 Spring Intermediate meetings			
Any other business			
End of the day 4			18:30

**Information: 20:00 beginning of the Gala Banquet**

**Majid Farajian**  
**Ken Macdonald**

