C-XIII Fatigue of welded components and structures

XIII-2766-19

Draft Agenda for the 72nd Annual Assembly

72nd IIW Annual Assembly and International Conference 2019, Bratislava, 7–12 July 2019

Overview of C-XIII meeting schedule

	Sunday, 7 July	Monday, 8 July	Tuesday, 9 July	Wednesday, 10 July	Thursday, 11 July
Morning	C-XIII working group meetings	C-XIII main Commission meetings	C-XIII main Commission meetings	C-XIII main Commission meetings	C-XIII working group meetings
Afternoon			Joint meeting: C X, C-XIII and C-XV	C-XIII main Commission meetings	

0. WORKING GROUPS – DAY 1

Sunday, 7 July, HALL 1, Vienna (Crowne Plaza Hotel) 08:15 – 18:00	
08:15	Welcome *K.A. Macdonald*
08:15-10:15	**WG2 Fatigue Strength Improvement and Life Extension** Including XIII-2769-19 Annual report 2019 of Commission XIII Working Group WG2 *M. Farajian and Z. Barsoum*
10:15-10:45	Break
10:45-12:30	**WG3 Stress analysis** Including XIII-2770-19 Annual report 2019 of Commission XIII Working Group WG3 and XV-A Activities, Stress Analysis *J. Baumgartner*
12:30-14:15	Lunch
14:15-16:15	**WG6 Residual stress effects in fatigue** Including XIII-2772-19 Annual report 2019 of Commission XIII Working Group WG6 *Th. Nitschke-Pagel*
16:15-16:45	**Break**
16:45-18:00	**WG4 Effects of weld imperfections on fatigue strength** Including XIII-2771-19 Annual report 2019 of Commission XIII Working Group WG4 *H. Remes*
18:15-22:00	**Opening Ceremony and Welcome Reception** (Double Tree by Hilton)

MAIN COMMISSION XIII MEETINGS

Monday, 8 July, HALL 3, London 1 (Crowne Plaza Hotel)
08:15 – 12:30

1. PRELIMINARY ITEMS

08:15- 08:25	XIII-2777-19 XIII-2778-19	Review of C-XIII Delegates and Members lists	*K.A. Macdonald*
	XIII-2766-19	Commission XIII agenda for the 2019 Annual Assembly	
	XIII-2767-19	Annual Assembly 2019 List of Documents	

2. REVIEW OF COMMISSION XIII

08:25- 08:35	XIII-2774-19	Commission XIII Annual Report, 2019	*K.A. Macdonald*
	XIII-2764-19	Draft minutes from 2018 Annual Assembly in Bali	
	XIII-2775-19	Executive summary (part of XIII-2774-19)	

3. WORK IN PROGRESS

08:35-08:55	XIII-2806-19	2019 report of Work in progress on fatigue of welded joints in France	*Fabien Lefebvre*
08:55-09:15	XIII-2808-19	2019 report of Work in progress on fatigue strength of welded joints in Japan	*Naoki Osawa and Eiichi Sasaki*

4. STRESS ANALYSIS

09:15-09:35	XIII-2784-19	Determination of notch factors for welded butt joints based on numerical analysis and metamodeling	*Markus Oswald, Josef Neuhaeusler, Klemens Rother*
09:35-09:55	XIII-2792-19	Increased accuracy through consideration of the statistical size effect within the notch stress concept	*A.Deinböck, M.Wächter, A.Hesse, J.Hensel, A.Esderts*
09:55- 10:15	XIII-2793-19	Influence of weld geometry on notch stress distribution and stress concentration factors	*A.Hesse, J.Hensel, A.Deinböck, M.Wächter, K.Dilger*
10:15-10:45	Coffee Break		
10:45-11:05	XIII-2791-19	Structural FE-Analysis of porous laser welded aluminium die castings based on x-ray computed tomography data	*F.Teichmann, A.Ziemer, M.Leitner, J.Hensel, K.Dilger*
11:05-11:25	XIII-2799-19	An evaluation of multiaxial fatigue criteria for welded joints based on the notch stress, structural stress and nominal stress approach	*Markus Faß, Simone Cavecchia, Jörg Baumgartner, Cesare Mario Rizzo*
11:25-11:45	XIII-2810-19	A Study on the Type-B Hot Spot Stress	*Norio Yamamoto, Tomohiro Sugimoto, Kinya Ishibashi and Satoyuki Tanaka*
11:45-12:05	XIII-2812-19	Fatigue life prediction method for non-load carrying fillet joints using an unconventional elasto-plasticity model	*Kasumi Morita, Masashi Mouri, Seiichiro Tsutsumi and Riccardo Fincato*
12:05-12:25	XIII-2816-19	Numerical Study of Crack Growth in Welded Structures Using Characteristic Tensor Method - Preliminary study on fatigue crack growth	*Hidekazu Murakawa*
12:30-14:15	**Lunch Break**		
19:00-23:00	**Slovak Evening** (The Old Market Hall)		

MAIN COMMISSION XIII MEETINGS

Tuesday, 9 July, HALL 8, Dunaj (Austria Trend)
08:15 – 12:30

5. FATIGUE DESIGN, ASSESSMENT AND TESTING

08:15-08:35	XIII-2779-19	Fatigue analysis on the transverse fillet welded joints made of ultra-high-strength steel – mean stress correction using 4R method	*Antti Ahola, Tuomas Skriko, Timo Björk*
08:35-08:55	XIII-2780-19	Fatigue strength of fillet-welded joints at sub-zero temperatures	*Moritz Braun, Robert Scheffer, Wolfgang Fricke, Sören Ehlers*
08:55-09:15	XIII-2786-19	Fatigue Properties of Austempered Ductile Iron-to-Steel dissimilar Arc-Welded Joints	G. Meneghetti, A. Campagnolo, D. Berto, E. Pullin, S. Masaggia
09:15-09:35	XIII-2787-19	FAT Classes of Welded Steel Details Derived from the Master Design Curve of the Peak Stress Method	*Michele Zanetti, Vittorio Babini, Giovanni Meneghetti*
09:35-09:55	XIII-2788-19	A Comparison of Analysis Methods on a Fatigue Failure	*Joseph Bailey*
09:55-10:15	XIII-2797-19	Fatigue Assessment of Laser Beam and Friction Stir Welded Joints Made of Aluminium	*G. Mucci, J. Bernhard, J. Baumgartner, and F. Frendo*
10:15-10:45	Coffee Break		
10:45-11:05	XIII-2798-19	Integral Treatment of Butt Joints for the Fatigue Life Assessment in the Low Cycle Fatigue Regime	*Benjamin Möller*
11:05-11:25	XIII-2800-19	High Cycle Fatigue Behavior of Thin Sheet Joints of Aluminium-Lithium Alloys Under Constant and Variable Amplitude Loading	*Sviatoslav I. Motrunich*
11:25-11:45	XIII-2815-19	Experimental Investigation of Fatigue Strength of Out-of-Plane Gusset Welded Joints under Variable Amplitude Loading in Long Life Region	*Yuki Banno and Koji Kinoshita*
11:45-12:05	XIII-2817-19	A Reanalysis of Fatigue Test Data for Longitudinal As-Welded Gusset Joints	*Yuki Ono, Claudia A. Pereira Baptista, Koji Kinoshita, Alain Nussbaumer*
12:05-12:25	XIII-2820-19	On the low-cycle fatigue behaviour of friction stir welded Al-Si12 parts produced by selective laser melting	*Ghazal Moeini*
12:30-14:15	**Lunch Break**		

COMMISSION X, XIII, XV JOINT MEETING

Tuesday, 9 July, HALL 7, Morava and HALL 8, Dunaj (Austria Trend)
14:15 – 18:15

6. RESIDUAL STRESS AND DISTORTION

14:15-14:35	XIII-2795-19	Mean stress correction in fatigue design under consideration of welding residual stress (Henry Granjon Prize Category C: Design and Structural Integrity)	*J.Hensel*
14:35-14:55	XIII-2826-19	An enhancement of the current design concepts for the improved consideration of residual stresses in fatigue loaded welds	*Thomas Nitschke-Pagel and J.Hensel*
14:55-15:15	XIII-2785-19	Assessment of computational weld mechanics concepts for estimation of residual stresses in welded box structures	J. Zhua, M. Khurshida, Z. Barsoum
15:15-15:35	XIII-2813-19	Study on the Stability of Compressive Residual Stress Induced by High Frequency Mechanical Impact under Cyclic Loadings with Spike Loads	*Hector Ruiz, Naoki Osawa, Sherif Rashed, Ninshu Ma, Luis De Gracia*
15:35-15:55	XIII-2819-19	Assessment of residual stresses using the metal magnetic memory method	*Anatoly Dubov, Sergey Kolokolnikov*
15:55-16:15	XIII-2804-19	Non-destructive Measurements of Residual Stresses in Structural Details using Ultrasound	*Jacob Kleiman*
16:15-16:45	Coffee Break		

7. DESIGN, FRACTURE AND FATIGUE TOPICS

16:45-17:05	XIII-2789-19	Investigation of Fatigue and Fracture Characteristics for Low Temperature Materials considering the Effect of Different Alloying Components	*Jeong Yeol Park and Myung Hyun Kim*
17:05-17:25	XIII-2822-19 X-1953-19	A set of parametric K solutions for fatigue modelling of short cracks in round bar components	*Dong, P., Pei, X., and Song, S*
17:25-17:45	XIII-2823-19 X-1954-19	Fracture mechanics based evaluation of recent fatigue test data of metallic AM components	*Dong, P. and Song, S*
17:45-18:05	XIII-2824-19 X-1955-19	The use of effective full penetration of T-butt welds in welded moment connections	*Hafez Taheri, G. et al.*
19:00 – 23:00	**Young professionals' evening** (Danube Brewery)		

MAIN COMMISSION XIII MEETINGS

Wednesday, 10 July, HALL 3, London 1 (Crowne Plaza Hotel)
08:15 – 18:15

8. WELD QUALITY AND ADDITIVE MANUFACTURING

08:15-08:35	XIII-2783-19	Estimation of fatigue in welded joints based on laser scanning - Correlation between weld quality and fatigue life	*Gustav Hultgren, Zuheir Barsoum, Kurt Broeckx and Jon Skagersten*
08:35-08:55	XIII-2790-19	Influence of competing notches on the fatigue strength of cut plate edges	*P.Diekhoff, J.Hensel, Th.Nitschke-Pagel, K.Dilger*
08:55-09:15	XIII-2796-19	Consideration of defects in a fatigue assessment of additively manufactured metallic structures	*Kai Schnabel, Jörg Baumgartner, Benjamin Möller*
09:15-09:35	XIII-2805-19	Microstructural and mechanical properties of additive manufactured welded joints	*Ghazal Moeini*

9. FATIGUE TESTING AND EVALUATION

09:35-09:55	XIII-2807-19	Best practice guideline for statistical analyses of fatigue results	*Fabien Lefebvre*
09:55-10:15	XIII-2827-19	Mapping of scatter in fatigue life assessment of welded structures - A Round Robin Study	*Peter Haglund, Mansoor Khurshid, and Zuheir Barsoum*
10:15-10:45	**Coffee Break**		

10. FATIGUE STRENGTH IMPROVEMENT

10:45-11:05	XIII-2781-19	Application of high frequency mechanical impact treatment to improve the fatigue strength of welded joints in corrosive environment	*Joscha Weinert, Stefanos Gkatzogiannis, Imke Engelhardt, Peter Knoedel, Thomas Ummenhofer*
11:05-11:25	XIII-2782-19	Sequence effect of p(1/3) spectrum loading on fatigue strength of as-welded and high frequency mechanical impact (HFMI)-treated transverse stiffeners of mild steel	*Schiller, R., Löschner, D., Diekhoff, P., Engelhardt, I., Nitschke-Pagel, Th., Dilger, K.*
11:25-11:45	XIII-2801-19	Evaluating fatigue life improved welds for production	*Karthikeyan Thalavai Pandian, Ebrahim Harati and Erik Åstrand*
11:45-12:05	XIII-2802-19	Weld penetration and process parameters - a probabilistic model	*Rami Mansour, Jinchao Zhu, Martin Edgren, Zuheir Barsoum*
12:05-12:25	XIII-2803-19	Fatigue Improvement of Welded Elements by Ultrasonic Impact Treatment – 30 Years of Practical Application	*Yuri Kudryavtsev*
12:30-14:15	**Lunch Break**		
14:15-14:35	XIII-2809-19	Fatigue strength of transverse attachment joints with single-sided weld using low transformation temperature welding consumable	*Takeshi Hanji et al.*
14:35-14:55	XIII-2811-19	Experimental Investigation on UIT Application to Existing Steel Bridge Girders	*Koichi Yokozeki et al.*
14:55-15:15	XIII-2814-19	Enhancing Fatigue Strength of Welded Joints using SBHS700 by Hammer Peening with ICR Apparatus and UIT	*Yuki Ono and Koji Kinoshita*
15:15-15:35	XIII-2818-19	Fatigue strength assessment of HFMI-treated steel joints under variable amplitude loading	*Martin Leitner, Michael Stoschka, Zuheir Barsoum, Majid Farajian*

15:35-15:55	XIII-2821-19	Comparison of effect of shot-peening with HFMI-treatment or use of LTT consumables on fatigue strength of 1300 MPa yield strength steel weldments	*Ebrahim Harati, Lars-Erik Svensson and Leif Karlsson*
15:55-16:15	XIII-2828-19	High Frequency Mechanical Impact (HFMI) Treated Welded Structures under Service Loading to Increase the Fatigue Life for Lightweight Design	*Halid Yildirim, Heikki Remes and Alain Nussbaumer*
16:15-16:45	Coffee Break		
16:45-17:05	XIII-2829-19	Residual Stress Relaxation in HFMI-treated Fillet Welds after Over Load Peaks	*Jan Schubnell et al.*

11. OTHER COMMISSION XIII BUSINESS

17:05-17:25	(a) Commission XIII resolutions (b) 2020 Annual Assembly in Singapore, 19th-24th July 2020 (c) 2020 Spring Intermediate meetings of Working Groups - venue (d) Any other business
19:30 - 23:00	**Gala banquet,** (Refinery Gallery)

COMMISSION XIII WORKING GROUP MEETINGS

Thursday, 11 July, HALL 1, Vienna (Crowne Plaza Hotel)
08:15 – 12:30

12. WORKING GROUPS – DAY 2

08:15-10:15	**JWG XIII/XV Fatigue design rules** Including XIII-2773-19 Annual report 2019 of Joint Working Group XIII / XV Fatigue design	*A. Hobbacher*
10:15-10:45	**Morning Coffee Break**	
10:45-12:30	**WG1 Fatigue testing and evaluation of data for design** Including XIII-2768-19 Annual report 2019 of Commission XIII Working Group WG1	*F. Lefebvre*
12:30-14:15	**Lunch**	