



## Commission XIII - Fatigue of welded components and structures

### Draft Agenda for the 72<sup>nd</sup> Annual Assembly

Bratislava, Slovakia

7<sup>th</sup> – 12<sup>th</sup> July 2019

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Overview of C-XIII meeting schedule

	Sunday, 7 <sup>th</sup> July	Monday, 8 <sup>th</sup> July	Tuesday, 9 <sup>th</sup> July	Wednesday, 10 <sup>th</sup> July	Thursday, 11 <sup>th</sup> 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	

**COMMISSION XIII WORKING GROUP MEETINGS****Sunday 7<sup>th</sup> July, HALL 1, Vienna (Crowne Plaza Hotel)****08:15 – 18:00****0. WORKING GROUPS – DAY 1**

<b>Working Group</b>	<b>Chair</b>	<b>Time</b>
Welcome	K.A. Macdonald	08:15
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	08:15- 10:15
Break		10:15- 10:45
WG3 Stress analysis Including XIII-2770-19 Annual report 2019 of Commission XIII Working Group WG3 and XV-A Activities, Stress Analysis	J. Baumgartner	10:45- 12:30
Lunch		12:30- 14:15
WG6 Residual stress effects in fatigue Including XIII-2772-19 Annual report 2019 of Commission XIII Working Group WG6	Th. Nitschke-Pagel	14:15- 16:15
Break		16:15- 16:45
WG4 Effects of weld imperfections on fatigue strength Including XIII-2771-19 Annual report 2019 of Commission XIII Working Group WG4	H. Remes	16:45- 18:00

**Opening Ceremony and Welcome Reception (Double Tree by Hilton)****18:15-22:00**



## MAIN COMMISSION XIII MEETINGS

Monday 8<sup>th</sup> July, HALL 3, London 1 (Crowne Plaza Hotel)

08:15 – 12:30

### 1. PRELIMINARY ITEMS

XIII-2777-19 XIII-2778-19	Review of C-XIII Delegates and Members lists	K.A. Macdonald	08:15- 08:25
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

XIII-2774-19	Commission XIII Annual Report, 2019	K.A. Macdonald	08:25- 08:35
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

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

### 4. STRESS ANALYSIS

XIII-2784-19	Determination of notch factors for welded butt joints based on numerical analysis and metamodelling	Markus Oswald, Josef Neuhaeusler, Klemens Rother	09:15- 09:35
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	09:35- 09:55
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	09:55- 10:15
Coffee Break			10:15- 10:45
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	10:45- 11:05



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	11:05- 11:25
XIII-2810-19	A Study on the Type-B Hot Spot Stress	Norio Yamamoto, Tomohiro Sugimoto, Kinya Ishibashi and Satoyuki Tanaka	11:25- 11:45
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	11:45- 12:05
XIII-2816-19	Numerical Study of Crack Growth in Welded Structures Using Characteristic Tensor Method - Preliminary study on fatigue crack growth	Hidekazu Murakawa	12:05- 12:25
Lunch Break			12:30- 14:15

**Slovak Evening** (The Old Market Hall)**19:00-23:00**



**MAIN COMMISSION XIII MEETINGS**

Tuesday 9<sup>th</sup> July, HALL 8, Dunaj (Austria Trend)

**08:15 – 12:30**

**5. FATIGUE DESIGN, ASSESSMENT AND TESTING**

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	08:15- 08:35
XIII-2780-19	Fatigue strength of fillet-welded joints at sub-zero temperatures	Moritz Braun, Robert Scheffer, Wolfgang Fricke, Sören Ehlers	08:35- 08:55
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	08:55- 09:15
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	09:15- 09:35
XIII-2788-19	A Comparison of Analysis Methods on a Fatigue Failure	Joseph Bailey	09:35- 09:55
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	09:55- 10:15
Coffee Break			10:15- 10:45
XIII-2798-19	Integral Treatment of Butt Joints for the Fatigue Life Assessment in the Low Cycle Fatigue Regime	Benjamin Möller	10:45- 11:05
XIII-2800-19	High Cycle Fatigue Behavior of Thin Sheet Joints of Aluminium-Lithium Alloys Under Constant and Variable Amplitude Loading	Sviatoslav I. Motrunich	11:05- 11:25
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	11:25- 11:45
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	11:45- 12:05
XIII-2820-19	On the low-cycle fatigue behaviour of friction stir welded Al-Si12 parts produced by selective laser melting	Ghazal Moeini	12:05- 12:25
Lunch Break			12:30- 14:15



**COMMISSION X, XIII, XV JOINT MEETING**

**Tuesday 9<sup>th</sup> July, HALL 7, Morava and HALL 8, Dunaj (Austria Trend)**

**14:15 – 18:15**

**6. RESIDUAL STRESS AND DISTORTION**

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	14:15-14:35
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	14:35-14:55
XIII-2785-19	Assessment of computational weld mechanics concepts for estimation of residual stresses in welded box structures	J. Zhua, M. Khurshida, Z. Barsoum	14:55-15:15
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	15:15-15:35
XIII-2819-19	Assessment of residual stresses using the metal magnetic memory method	Anatoly Dubov, Sergey Kolokolnikov	15:35-15:55
XIII-2804-19	Non-destructive Measurements of Residual Stresses in Structural Details using Ultrasound	Jacob Kleiman	15:55-16:15
Coffee Break			16:15-16:45

**7. DESIGN, FRACTURE AND FATIGUE TOPICS**

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	16:45-17:05
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	17:05-17:25
XIII-2823-19 X-1954-19	Fracture mechanics based evaluation of recent fatigue test data of metallic AM components	Dong, P. and Song, S	17:25-17:45
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.	17:45-18:05

**Young professionals' evening (Danube Brewery)**

**19:00 – 23:00**



**MAIN COMMISSION XIII MEETINGS**

**Wednesday 10<sup>th</sup> July, HALL 3, London 1 (Crowne Plaza Hotel)**

**08:15 – 18:15**

**8. WELD QUALITY AND ADDITIVE MANUFACTURING**

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	08:15-08:35
XIII-2790-19	Influence of competing notches on the fatigue strength of cut plate edges	P.Diekhoff, J.Hensel, Th.Nitschke-Pagel, K.Dilger	08:35-08:55
XIII-2796-19	Consideration of defects in a fatigue assessment of additively manufactured metallic structures	Kai Schnabel, Jörg Baumgartner, Benjamin Möller	08:55-09:15
XIII-2805-19	Microstructural and mechanical properties of additive manufactured welded joints	Ghazal Moeini	09:15-09:35

**9. FATIGUE TESTING AND EVALUATION**

XIII-2807-19	Best practice guideline for statistical analyses of fatigue results	Fabien Lefebvre	09:35-09:55
XIII-2827-19	Mapping of scatter in fatigue life assessment of welded structures - A Round Robin Study	Peter Haglund, Mansoor Khurshid, and Zuheir Barsoum	09:55-10:15
Coffee Break			10:15-10:45
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	10:45-11:05
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.	11:05-11:25
XIII-2801-19	Evaluating fatigue life improved welds for production	Karthikeyan Thalavai Pandian, Ebrahim Harati and Erik Åstrand	11:25-11:45



XIII-2802-19	Weld penetration and process parameters - a probabilistic model	Rami Mansour, Jinchao Zhu, Martin Edgren, Zuheir Barsoum	11:45-12:05
XIII-2803-19	Fatigue Improvement of Welded Elements by Ultrasonic Impact Treatment – 30 Years of Practical Application	Yuri Kudryavtsev	12:05-12:25
Lunch Break			12:30-14:15
XIII-2809-19	Fatigue strength of transverse attachment joints with single-sided weld using low transformation temperature welding consumable	Takeshi Hanji et al.	14:15-14:35
XIII-2811-19	Experimental Investigation on UIT Application to Existing Steel Bridge Girders	Koichi Yokozeki et al.	14:35-14:55
XIII-2814-19	Enhancing Fatigue Strength of Welded Joints using SBHS700 by Hammer Peening with ICR Apparatus and UIT	Yuki Ono and Koji Kinoshita	14:55-15:15
XIII-2818-19	Fatigue strength assessment of HFMI-treated steel joints under variable amplitude loading	Martin Leitner, Michael Stoschka, Zuheir Barsoum, Majid Farajian	15:15-15:35
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	15:35-15:55
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	15:55-16:15
Coffee Break			16:15-16:45
XIII-2829-19	Residual Stress Relaxation in HFMI-treated Fillet Welds after Over Load Peaks	Jan Schubnell et al.	16:45-17:05

**10. OTHER COMMISSION XIII BUSINESS**

(a) Commission XIII resolutions	17:05-
(b) 2020 Annual Assembly in Singapore, 19 <sup>th</sup> -24 <sup>th</sup> July 2020	17:30
(c) 2020 Spring Intermediate meetings of Working Groups - venue	
(d) Any other business	

**Gala banquet, (Refinery Gallery)**

**19:30 - 23:00**





### COMMISSION XIII WORKING GROUP MEETINGS

Thursday 11<sup>th</sup> July, HALL 1, Vienna (Crowne Plaza Hotel)

08:15 – 12:30

#### 11. WORKING GROUPS – DAY 2

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