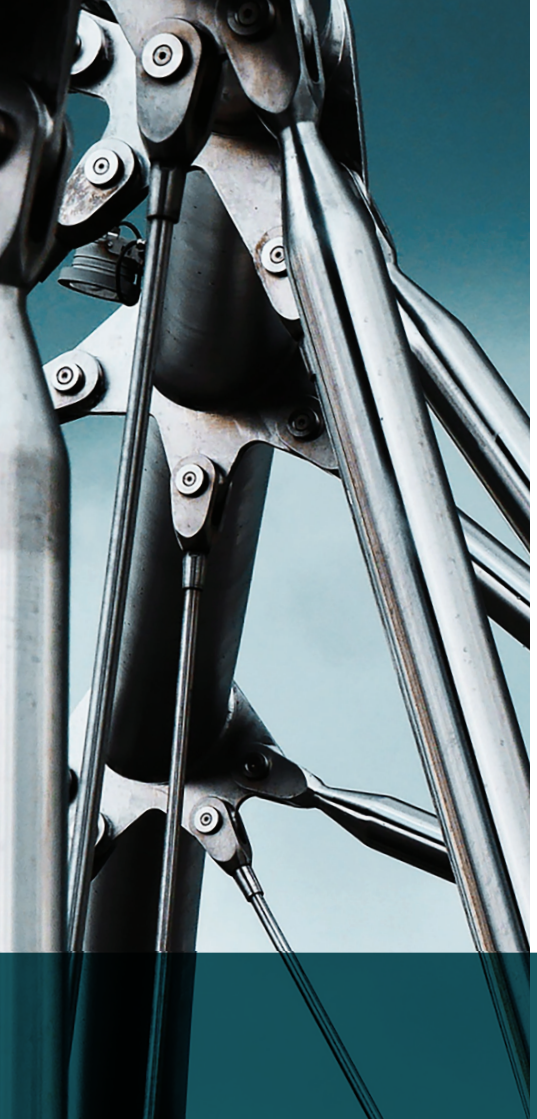

eurosteel
SHEFFIELD 2021

The 9th European Conference on Steel and Composite Structures

1–3 September 2021

PROGRAMME

The Eurosteel 2021 Proceedings are published in

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PROGRAMME

The 9th European Conference on Steel and Composite Structures

1-3 September 2021

eurosteel
SHEFFIELD 2021

Welcome to Eurosteel 2021 Sheffield

The 9th European Conference on Steel and Composite Structures, 1-3 September 2021

The Eurosteel conference series

The sequence of Eurosteel conferences started in 1995, in Athens. The second took place in Prague in 1999, and since then a three-year sequence has been established, with Eurosteel conferences in Coimbra (2002), Maastricht (2005), Graz (2008), Budapest (2011), Naples (2014) and Copenhagen (2017). The size and significance of the event has progressively increased over this time, with about 500 papers being presented in Copenhagen. The Sheffield event will be about 60% of this size due to the effects of the COVID19 pandemic, with around 330 papers. The necessity to avoid long-distance travel has meant that researchers in time-zones far removed from Europe cannot conveniently attend a series of plenary sessions. We all hope to return to the traditional format three years from now.

Eurosteel 2021

Eurosteel has retained its basic theme of being a forum within which academic and industrial researchers can interact with professionals from the steel production and steel construction industries, although the balance of areas covered by papers has, logically, changed over time. In the current programme we can see a number of papers on additive manufacturing; this is clearly a subject in which numbers will increase in future events. However, this technology is already at a stage where applications have been identified in construction, and significant research has been done. This topic is the theme of one of our five keynote lectures. Within the other keynotes the themes are also of current interest. They include:

- Applications of high-strength steels in seismic-resistant buildings.
- The state of the art in analysis of cold-formed steel structures.
- The challenges posed by support structures for offshore wind turbines.
- An update on the current updates to structural Eurocodes. These keynotes have all been published in *Steel Construction*.

Sheffield reflections

When the University of Sheffield launched its bid for Eurosteel 2020 at the Copenhagen conference in 2017, our concerns were familiar ones for prospective conference organizers. We were keen to show the international academic community our newly-opened Diamond building, designed to provide classroom and laboratory teaching facilities for all the mainstream engineering disciplines; this was to be the conference venue. For the evening social events we wanted to contrast our even newer, award-winning Heartspace, a development bridging century-old engineering buildings with a steel space structure roof, with the Georgian splendour of the City's Cutlers Hall. We wanted to show Sheffield's contributions to steelmaking over three centuries, from Huntsman's Crucible Steel process and Bessemer's process which greatly increased steelmaking volumes, to Harry Brearley's development of stainless steels.

In early 2020 our plans for Eurosteel 2020 were put at risk. Whereas the general feeling initially was that the COVID19 pandemic would have run its course by mid-Summer, it became evident that, even if this was the case, confidence in international air-travel would not have been restored by September. With universal agreement from our Steering Committee the conference was postponed by a year, and became Eurosteel 2021. As time progressed and new variants of the virus appeared, it was eventually inevitable that the conference would have to be held in virtual format, but without further delays.

Creating a large virtual conference has been an interesting experience in which we have often felt that we were engaged in an original research and development exercise. Most researchers have by now participated in online events over the past year, but the logistics of running an 8-track conference in which delegates would have the freedom to move between presentations in different tracks has been challenging but we believe we have succeeded. We have prioritized ensuring that researchers have the opportunity to present their work as effectively as possible in the plenary sessions. Attendees can also conveniently download the original papers to study if they wish. Live discussion of the presentations will be facilitated through a chat function and Chairs of each session will put the audience's questions to the speakers who will join the Chair online at the conclusion every session. We would like to encourage all delegates to participate and contribute to a lively conference. Between sessions please take sometime away from your screen. For those who would like to catch up with old acquaintances or make new contacts, a social area arranged by conference topic themes has been set up. Delegates who use social media channels may wish to provide their details so that others may contact them if they wish.

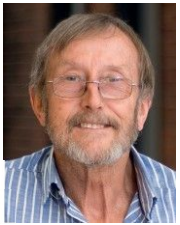
In Conclusion

The Proceedings are published in the Ernst & Sohn e-journal *ce/papers: The online collection for conference papers in civil engineering*, for which all delegates have a security key. The Elsevier/IStructE journal *Structures* will invite a number of authors to prepare enhanced versions of their papers for a Eurosteel special edition of the journal over the next few months. Ernst & Sohn have kindly offered prizes for the papers voted Best Overall and Best by a Young Researcher. Please take part in the voting!

An academic conference of the status of Eurosteel depends highly on its reviewers. We have relied heavily on our international Steering and Scientific Committees, who have reviewed abstracts and full papers, and in many cases revised versions of these papers. We are grateful to them for their hard work. We would also like to thank the Local Organizing Committee and Secretariat, the Department of Civil and Structural Engineering and Faculty of Engineering at the University of Sheffield, and Technative Ltd, for their help throughout the planning process.

We wish all delegates a worthwhile and enjoyable experience of Eurosteel 2021.

Ian Burgess
Buick Davison



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Supporters of Eurosteel 2021

Information for all delegates to Eurosteel 2021 Sheffield

The Eurosteel platform

Eurosteel 2021 is being presented as a live virtual conference. We have enlisted a broadcasting company called Technative to help us deliver this event. Access codes will be sent out directly to delegates from Technative platform, in the week preceding the conference.

To enter the conference you simply need to click on the link in the email, then insert your email address and the code provided. Upon first entry into the conference platform you will be asked to set up a personal profile. Here you can include links to your social media (Twitter & LinkedIn). The platform works on all modern browsers but Chrome is recommended. If you require any technical assistance during the conference please use the 'Contact Us' link.

You may attend any of the live parallel sessions using the Watch link on the interface. Each day's sessions will also be available to watch later for those wishing to see a particular session or presentation they may have missed during the conference. Navigate to sessions and presentations using the Programme link. PDFs of all of the papers featured in the conference can be downloaded from the Programme page for the session.

To ensure that the Conference has a "live" feel, each session will be chaired live, and you can ask the presenters questions at the conclusion of each session. Questions from the audience should be submitted using the online Chat column to the right of the main screen, and the Chair will put these to the presenters, who will join the session live to answer any questions raised by delegates.

Delegates may meet up with one another using our *Wonder* Eurosteel room. This is available by clicking Networking on the menu bar. When you first use this link you will be asked to allow access to your microphone and camera. You can then set up a profile, adding both your name and a picture. You will be taken to the networking page, where you can move your avatar between topics of interest. These include Cold Formed Steel, Connections, Fire, Codification, Fatigue & Fracture, Earthquake, Stability, Composite Structures and High Strength Steel. To join a conversation simply move your avatar close to other delegates, and to leave the conversation move away.

Access to our Supporters section can be found on the menu bar of the platform. Here you can find information about the companies and Institutions supporting Eurosteel 2021, and information about both the University and the City of Sheffield.

Vote for your favourite papers

We are impressed by the high quality of the papers that have been submitted to the conference. In line with Eurosteel tradition, we wish to recognise the papers you have most enjoyed, and ask you to vote for your favourites. The publishers of our Proceedings, Ernst & Sohn, will award prizes for (1) the best paper overall and (2) the best paper by a young researcher. Please select up to five papers that in your opinion are the best you have seen presented at the conference (or that you have read as full papers). A simple questionnaire can be accessed via Links. To ensure transparency of voting you will be asked to give your name, but this information will not be disclosed.

If you are presenting a paper

Thank you for pre-recording and uploading your presentation. Please check the session in which you will be presenting. After all the papers in the session have been presented the Chair will ask the audience for questions. Please ensure that you are online at this time to answer any questions about the research you have presented. Attendees will ask questions through a chat facility and the Chair of the session will put these to the relevant presenters live on air. You will then have an opportunity to respond to these questions. As it will not be possible to replay the slides from your presentation, please have a copy of it available in case a question is raised that relates to a specific slide. For detailed discussions you can arrange to meet the questioner later in the *Wonder* meetings area.

If you are chairing a session

Thank you for agreeing to chair a session of Eurosteel 2021. Your assistance will enhance the delegates' experience of the conference and help create a live feel to the event.

As you know, all talks have been pre-recorded and will be available for broadcasting in their scheduled sessions. In the week preceding the conference a Google drive folder containing the PDF papers will be shared with you. Please use this programme to identify the papers which will be presented in your session and access these PDFs prior to the conference to familiarise yourself. The presenter's name is underlined in the list of authors. If you have any problems accessing these papers please email:

eurosteel2020@sheffield.ac.uk

As Chair you will welcome delegates to the session with a few brief opening comments about the theme of the session. You will briefly introduce each paper, stating the title, the research institution(s) and the name and affiliation of the presenting author. Following this brief introduction the recorded presentation will be played by the AV Engineer providing technical support to your session. Following the presentation, you may make a few brief remarks about the paper and thank the presenter for their contribution before introducing the next speaker.

In the unlikely event that a presentation for a paper in your session is not available, a holding slide will be displayed. Please encourage delegates to use the time to look at the PDF file of the paper. The next presentation will commence at the scheduled time.

After all papers have been presented, there will be an opportunity for attendees to ask questions of the presenters, who will join the session online. Questions should be asked in the Chat column for the session. The questions asked will appear on the right of your screen. Please encourage attendees to ask questions - as Chair you will select which ones to put to the presenters. It would be helpful if you could prepare a few questions yourself, to fill any pauses whilst attendees are formulating their questions. The AV Engineer will control the broadcasting of the Chair and the presenters, who will simply need to ensure that their cameras and microphones are enabled. Presenters have been asked to have a copy of their presentation available should a question relate to a specific slide. It will not be possible to replay the presentations during Q&A.

Conference overview

Schedule Day 1	Wednesday 1/9/2021	Schedule Day 2	Thursday 2/9/2021	Schedule Day 3	Friday 3/9/2021
08:45-08:55	Welcome to the University of Sheffield				
08:55-09:05	Steel Construction in the 21st Century				
09:05-09:15	Good Morning	09:05-09:15	Good Morning		Good Morning
09:15-10:00	Keynote 1	09:15-10:00	Keynote 3	09:15-10:00	Keynote 5
10:00-11:15	Parallel sessions	10:00-11:15	Parallel sessions	10:00-11:15	Parallel sessions
11:15-11:30	Break				
11:30-12:45	Parallel sessions	11:30-12:45	Parallel sessions	11:30-12:45	Parallel sessions
12:45-13:30	Mid-day break				
13:30-14:15	Keynote 2	13:30-14:15	Keynote 4	13:30-14:30	Discussion Forum
14:15-15:30	Parallel sessions	14:15-15:30	Parallel sessions	14:35-15:50	Parallel sessions
15:30-15:45	Break				
15:45-17:00	Parallel sessions	15:45-17:00	Parallel sessions	15:55-16:20	Next Eurosteel announcement
17:00	End of Day 1		End of Day 2		End of conference

IMPORTANT: All times are in BST (GMT+1). Please be aware of the correct times in your local time-zone.

Day 1 programme

	Opening of Eurosteel 2021							
08:45-08:55	**Welcome to the University of Sheffield** Professor Jim Litster, *Interim Pro-Vice-Chancellor, Faculty of Engineering*							
08:55-09:05	**Steel Construction in the 21st Century** Professor David Nethercot, *Imperial College London*							
09:05-09:15	**Welcome to Eurosteel 2021** Ian Burgess, *Conference Chair*							
	Keynote Lecture							
09:15-10:00	**663**		**3D-Printing with Steel - Additive Manufacturing Connections and Structures**			**Jorg Lange, Thilo Feucht, Maren Erven**		
Schedule	**Track 1**	**Track 2**	**Track 3**	**Track 4**	**Track 5**	**Track 6**	**Track 7**	**Track 8**
10:00-11:15	Bridges, masts and towers	Bolted connections	Composite structures	Fire and robustness	Seismic resistance, dynamics and vibration	Stability	High-Strength & Other Steels	Cold-Formed Structures
11:15-11:30	Break							
11:30-12:45	Bridges, masts and towers	Bolted connections	Composite structures	Fire and robustness	Seismic resistance, dynamics and vibration	Stability	High-Strength & Other Steels	Cold-Formed Structures
12:45-13:30	Mid-day break							
	Keynote Lecture							
13:30-14:15	**668**		**High Strength Steel and Fuse Dissipative Solutions for Seismic Resistant Building Structures**			**Dan Dubina, Florea Dinu, Aurel Stratan**		
Schedule	**Track 1**	**Track 2**	**Track 3**	**Track 4**	**Track 5**	**Track 6**	**Track 7**	**Track 8**
14:15-15:30	Bridges, masts and towers	Bolted connections	Composite structures	Fire and robustness	Seismic resistance, dynamics and vibration	Plates & Shells	High-Strength & Other Steels	Cold-Formed Structures
15:30-15:45	Break							
15:45-17:00	Bridges, masts and towers	Bolted connections	Composite structures	Fire and robustness	Seismic resistance, dynamics and vibration	Plates & Shells	High-Strength & Other Steels	Cold-Formed Structures
17:00	End of Day 1							

IMPORTANT: All times are in BST (GMT+1). Please be aware of the correct times in your local time-zone.

Track 1: Day 1 (Wednesday 1 September)

Bridges, masts and towers Chair: Luis Simoes da Silva

Schedule	ID	Title	Authors
10:00-10:15	51	Use of thick, heavy plates for bridge construction	Tobias Lehnert, Jessica Gola, Bertram Kahn, Tim Krieglstein, Cecile Merlin
10:15-10:30	73	Analysis of Technological Cracks in Welded Joints of Railway Bridges in Service	Janusz Holowaty, Bernard Wichtowski
10:30-10:45	475	Experimental and numerical analysis of three-point bending tests of steel beams with web holes	Helder Craveiro, Tiago Lopes, Rui Matos, Riccardo Zanon, Mike Tibolt
10:45-11:00	503	Mechanical Behavior of Steel Bridge Deformed by Collision	Eiki Yamaguchi, Takuya Amamoto
11:00-11:15		Discussion	

Break

Bridges, masts and towers Chair: Luis Simoes da Silva

Schedule	ID	Title	Authors
11:30-11:45	86	The Bottom triangular cell: a significant improvement for patch loading resistance in launched bridges	Tomas Ripa Alonso, Lucía López-de Abajo López
11:45-12:00	197	Influence on the buckling behaviour from imperfections of different launching bearings	Nadine Maier
12:00-12:15	218	New ideas for steel-concrete composite bridges overpassing highways	Riccardo Zanon, Dennis Rademacher, Gunter Seidl, Damien Champenoy
12:15-12:30	696	Cable structure design of suspension bridges through strand reduction method	Acuner Acun
12:30-12:45		Discussion	

Mid-day break

Track 1: Day 1 (Wednesday 1 September)

Bridges, masts and towers Chair: Riccardo Zanon

Schedule	ID	Title	Authors
14:15-14:30	730	Evaluating design rules of stiffened plates subjected by compression and transverse load	Arne Aalberg, Svein-Rune Kleppe, Live Eltvik
14:30-14:45	114	New Athens-Thessaloniki high speed railway line: Detailed design and construction engineering of a steel tied-arch bridge	Georgios I. Mavrakis
14:45-15:00	349	Advanced fatigue verification method for record breaking bridges	Simon Bjaerre, Jesper W. Sorensen, Henrik Polk
15:00-15:15	198	Net-arch bridges with heavy HD sections - an experimental and numerical study on butt weld splices	Teodora Bogdan, Miguel Candeias, Mike Tibolt, Wojciech Ochojski, Dennis Rademacher
15:15-15:30		Discussion	

Break

Bridges, masts and towers Chair: Riccardo Zanon

Schedule	ID	Title	Authors
15:45-16:00	26	Telecommunication and transmission lattice towers from angle sections- the ANGLEHY project	Ioannis Vayas, Jean-Pierre Jaspart, Alain Bureau, Mike Tibolt, Sebastien Reygner, Mihalis Papavasileiou
16:00-16:15	76	Experimental investigations on rolled angle sections reinforced with CFRP plates	Konstantinos Vlachakis, Sebastien Reygner, Mike Tibolt, Ioannis Vayas
16:15-16:30	96	The design of a steel lattice transmission tower in Central Europe	Mike Tibolt, Marios-Zois Bezas, Ioannis Vayas, Jean-Pierre Jaspart
16:30-16:45	411	Damage to transmission towers under thunderstorm winds	Ileana Calotescu, Marius Birsan
16:45-17:00		Discussion	

Track 2: Day 1 (Wednesday 1 September)

Bolted connections Chair: Mael Couchaux

Schedule	ID	Title	Authors
10:00-10:15	43	Enhanced Composite Behavior of CFST with Blind Bolted Connections Under Tensile Pull-out Tests	Partha Pratim Debnath, Tak-Ming Chan
10:15-10:30	192	Experimental study on tensile behavior of blind bolt	Yunhan Jiang, Guoqiang Li, Sixian Zhang, Ce Wen
10:30-10:45	301	Experimental Analyses on the Resistance of Tapped Blind Holes	Matthias Kraus, Bjorn Wittor, Martin Klaus
10:45-11:00	362	An investigation of the bearing capacity of stainless steel bolted connections	Kelvin Sobrinho, Andre Silva, Monique Rodrigues, Jose Henriques, Luciano Lima, Pedro Vellasco
11:00-11:15		Discussion	

Break

Bolted connections Chair: Mael Couchaux

Schedule	ID	Title	Authors
11:30-11:45	159	Weathering impacts on the tightening behaviour of HV/HR-bolting assemblies for preloading	Natalie Stranghoener, Dominik Jungbluth, Christoph Abraham
11:45-12:00	204	Loss of preload in preloaded bolted connections over the service life	Natalie Stranghoener, Lukas Makevicius, Knuth-Michael Henkel, Ralf Glienke, Maik Doerre
12:00-12:15	216	Investigation of the Effects of an over-elastic prestress on the load-bearing Behavior of high-strength Bolt and Nut Assemblies	Jan Reinheimer, Jorg Lange
12:15-12:30	295	Assembling Bolted Joints Under Water: Influence of a Surrounding Medium on Bolt Preload and Slip Factor	Benjamin Ripsch, Knuth-Michael Henkel
12:30-12:45		Discussion	

Mid-day break

Track 2: Day 1 (Wednesday 1 September)

Bolted connections Chair: Buick Davison

Schedule	ID	Title	Authors
14:15-14:30	143	Numerical analysis of steel double side joints with flush and extended end plate under accidental situation	Kukla Damian, Kozlowski Aleksander, Siwowski Tomasz
14:30-14:45	422	Experimental study of slip-resistant connections under cyclic load	Nenad Fric, Zoran Miskovic, Dragan Budjevac, Milan Veljkovic
14:45-15:00	485	Behaviour of Steel Tube Knee Joint Inserts used in Aluminium Portal Frames	Davor Skejic, Ivan Curkovic, Ivica Garasic, Ivan Cudina, Tihomir Doksanovic
15:00-15:15	712	Duroplastic gap filling materials in preloaded bolted connections	Natalie Stranghoener, Lukas Makevicius, Carsten Kunde, Sebastian Thelen
15:15-15:30		Discussion	

Break

Bolted connections Chair: Buick Davison

Schedule	ID	Title	Authors
15:45-16:00	537	Numerical analysis of ring flange connection with defined surface area	Lu Cheng, Haohui Xin, Milan Veljkovic
16:00-16:15	408	Analysis of EHB Joints to Concrete-filled Steel Columns: Combined Failure in Tension	Manuela Cabrera, Walid Tizani, Mohammed Mahmood
16:15-16:30	542	Distribution of the friction coefficient in the tension connections by the HV set using the combined method	Tomasz Dubiel, Miroslw Osetek, Monika Majka
16:30-16:45	732	Non-destructive damage detection on welded threaded bolts based on electromechanical impedance spectra	Daniel Sahm, Daniel Pak, Claus-Peter Fritzen, Anna-Lena Dreisbach, Gerhard Dietrich, Volkan Yokaribas
16:45-17:00		Discussion	

Track 3: Day 1 (Wednesday 1 September)

Composite structures Chair: Shan-Shan Huang

Schedule	ID	Title	Authors
10:00-10:15	150	Behavior of geopolymer concrete-filled circular steel tube columns	Han Fang, Phillip Visintin
10:15-10:30	196	Numerical investigation for the design of rectangular concrete encased steel composite columns	Ozgun Ergun, Markus Schaefer
10:30-10:45	384	Non-linear Analysis of Circular Composite Columns	Omer Anwaar
10:45-11:00	78	Behavior of Fully Encased Composite Columns under Cyclic Loads	Almoutazbellah Alsamawi
11:00-11:15		Discussion	

Break

Composite structures Chair: Shan-Shan Huang

Schedule	ID	Title	Authors
11:30-11:45	212	Structural response of aluminium alloy concrete filled tubular columns	Evangelia Georgantzia, Shafayat Bin Ali, Michaela Gkantou, George S Kamaris, Kunal Kansara, William Atherton
11:45-12:00	470	Innovative shear transfer system for concrete filled steel tubes (CFST) in columns	Milad Soltanalipour, Miquel Ferrer, Albert Albareda, Frederic Marimon, Miquel Casafont, Gorka Iglesias
12:00-12:15	526	Experimental Assessment of Stainless and Carbon Steel Double-Skin Tubular Stub Columns Filled with Recycled Aggregate Concrete	Deborah Castanheira, Luciano de Lima, Pedro Vellasco, Katherine Cashell, Leroy Gardner
12:15-12:30	464	Conception and design of high-performance steel-concrete composite slabs	Miguel Pereira, Rui Simoes, Helder Craveiro
12:30-12:45		Discussion	

Mid-day break

Track 3: Day 1 (Wednesday 1 September)

Composite structures Chair: Milan Veljkovic

Schedule	ID	Title	Authors
14:15-14:30	488	Study on the ductility of open-rib and reentrant composite slabs	Milad Soltanalipour, Miquel Ferrer, Frederic Marimon
14:30-14:45	710	Experimental study on the shrinkage behaviour of steel concrete composite slab	Masashi Yamamoto, Yusuke Imagawa, Osamu Ohyama
14:45-15:00	380	Comparison of HST and WO Shear Connector Behaviour in Composite Slim Floor	Shahrizan Baharom, Emad Hosseinpour, Muhamed Majdub
15:00-15:15	383	Partial shear diagram of slim-floor beams	Qingjie Zhang
15:15-15:30		Discussion	

Break

Composite structures Chair: Milan Veljkovic

Schedule	ID	Title	Authors
15:45-16:00	549	Shear resistance of concrete dowels in composite slim-floor beams	Eleftherios Aggelopoulos, Johannes Schorr, Ulrike Kuhlmann
16:00-16:15	699	Flexural Behaviour of Prefabricated Ultra-Shallow Steel-Concrete Composite Slabs	Ahmed Abdulla Alali, Konstantinos Daniel Tsavdaridis
16:15-16:30	713	Curved Sandwich Panels	Jorg Lange, Peter Groche, Stefan Schaefer, Soren Grimm, Mathias Moneke, Jakob Reising, Marvin Kehl
16:30-16:45	80	In-plane Seismic Performance of SC-wall-to-foundation connections	Neng Wang, Feng Zhou, Haitao Xu, Zhengyu Xu
16:45-17:00		Discussion	

Track 4: Day 1 (Wednesday 1 September)

Fire and robustness Chair: Tom Molkens

Schedule	ID	Title	Authors
10:00-10:15	44	Deformations of steel end-plate beam-to-column joint when subject to simulated steady-state and transient-state fire heating regimes	Mariusz Maslak, Michal Pazdanowski
10:15-10:30	19	A numerical study on the structural performance of a ductile connection under fire conditions	Yu Liu, Shan-Shan Huang, Ian Burgess
10:30-10:45	102	Fire performance of connections between high-strength steel tubular members	Finian McCann, Di Wang
10:45-11:00	194	Multi-scale bolt connection model for thermomechanical simulations	Qingfeng Xu
11:00-11:15		Discussion	

Break

Fire and robustness Chair: Ian Burgess

Schedule	ID	Title	Authors
11:30-11:45	219	Shallow composite floor beams - Proposal of a simplified analytical method for standard fire rating	Riccardo Zanon, Sevilay Yildiz, Renata Obiala, Matthias Braun
11:45-12:00	331	Behavior of Composite Floor Assemblies Subject to Fire: Influence of Slab Reinforcement	Lisa Choe, Selvarajah Ramesh, Chao Zhang, Charles Clifton
12:00-12:15	477	Fire design proposal for members with cold-formed lipped channel and sigma sections under compression	Flavio Arrais, Nuno Lopes, Paulo Vila Real
12:15-12:30	414	Fire design of composite beams and slabs: practical design considerations according to Eurocode 4	Ricardo Pimentel
12:30-12:45		Discussion	

Mid-day break

Track 4: Day 1 (Wednesday 1 September)

Fire and robustness Chair: Frantisek Wald

Schedule	ID	Title	Authors
14:15-14:30	190	Timber encasement of steel structures as an alternative fire insulation	Gisele Bihina, Sebastien Durif, Abdelhamid Bouchair, Veronique Saulnier, Bin Zhao
14:30-14:45	214	Experimental study on rotational restraint provided by sandwich panels at elevated temperature	Anita Lendvai, Attila Laszlo Joo, Laszlo Horvath
14:45-15:00	458	Advanced Numerical Study of Composite Steel-Concrete Members at High Temperature	Rafael Barros, Ricardo Silveira, Dalilah Pires, Agor Lemes
15:00-15:15	588	Experimental investigation on fire resistance of concrete-filled steel tube columns after earthquake	Jike Tan, Yuhang Wang, Qi Tang, Weiyong Wang, Meini Su
15:15-15:30		Discussion	

Break

Fire and robustness Chair: Ian Burgess

Schedule	ID	Title	Authors
15:45-16:00	189	Influence of the degree of utilization on the structural behaviour of stainless steel frames subject to fire	Guillermo Segura, Asal Pournaghshband, Sheida Afshan, Enrique Mirambell
16:00-16:15	365	Fire Testing of Grade 304 Stainless Steel Plates Under Transient-state Conditions	Mohammad Amin Farmani, Amin Heidarpour, Xingchen Du, Xiao-Ling Zhao
16:15-16:30	444	Performance of Stainless Steel Structures Following a Fire	Tom Molkens, Katherine Cashell, Fazal-Ur Rehman, Mikko Malaska, Mika Alanen, Barbara Rossi
16:30-16:45	474	Design of stainless steel elliptical hollow sections columns in case of fire: parametric study	Flavio Arrais, Nuno Lopes, Paulo Vila Real
16:45-17:00		Discussion	

Track 5: Day 1 (Wednesday 1 September)

Seismic resistance, dynamics and vibration Chair: Iman Hajirasouliha

Schedule	ID	Title	Authors
10:00-10:15	256	Seismic Design and Performance Assessment of Steel Frames Considering Joints' Behavior	Melaku Seyoum Lemma, Carlos Rebelo, Luis Simoes da Silva
10:15-10:30	310	Experimental assessment of bolted T-stubs under cyclic loading	Sara Oliveira, Ricardo Costa, Carlos Rebelo, Luis Simoes da Silva
10:30-10:45	309	Cyclic behaviour of steel beam-to-column joints and calculation tools	Sara Oliveira, Ricardo Costa, Carlos Rebelo, Luis Simoes da Silva
10:45-11:00	2	Cyclic Performance of Cold-formed Steel Moment Resisting Frames	Daniel McCrum, Andrzej Wrzesien, Jordan Simon, Michael Grimes, Brian Broderick, James Lim
11:00-11:15		Discussion	

Break

Seismic resistance, dynamics and vibration Chair: Iman Hajirasouliha

Schedule	ID	Title	Authors
11:30-11:45	14	Rapid Seismic Economic Loss Assessment for Steel Concentrically Braced Frames Designed to Eurocode 8	John Hickey, Brian Broderick
11:45-12:00	103	Seismic performance of MR steel frames via Incremental Dynamic Analysis	Claudio Bernuzzi, Davide Rodigari, Marco Simoncelli
12:00-12:15	413	Incremental dynamic analysis of concentric x-braced frames designed to the Turkish Building Earthquake Code 2018	Efecan Kor, Yigit Ozcelik
12:15-12:30	697	Seismic Performance of Steel Bridge Piers Corroded at Corners and Bottoms Due to Several Earthquake Motions	Takeshi Kitahara, Yuka Ohtani, Kazutoshi Nagata
12:30-12:45		Discussion	

Mid-day break

Track 5: Day 1 (Wednesday 1 September)

Seismic resistance, dynamics and vibration Chair: Marco Simoncelli

Schedule	ID	Title	Authors
14:15-14:30	65	Experimental Investigation of Steel Frames Equipped with Easily Replaceable Components	Roberto Andreotti, Giulia Giuliani, Nicola Tondini, Oreste S. Bursi
14:30-14:45	89	Seismic design of innovative steel frames with partially-prefabricated infill walls	Quintilio Piattoni, Fabio Freddi, Alessandro Zona, Graziano Leoni, Andrea dall'Asta, Alessio Argentoni
14:45-15:00	101	Residual Drift Estimation for Moment Resisting Frames with Steel Degradation Properties	Borjan Petreski, Igor Gjorgjiev
15:00-15:15	433	Novel adaptive steel hysteretic damper for an enhanced seismic structural performance	Emanuele Gandelli, Felix Weber, Sergey Chernyshov, Andreas Taras, Johann Distl
15:15-15:30		Discussion	

Break

Seismic resistance, dynamics and vibration Chair: Marco Simoncelli

Schedule	ID	Title	Authors
15:45-16:00	24	Evaluation of the Seismic Response of an Innovative Hybrid Steel-Timber Structure	Ahmed Mowafy Saad, Ali Imanpour, Ying Hei Chui
16:00-16:15	99	Investigation of the Seismic Performance of Special Truss Moment Frames with Shape Memory Alloys Incorporated	Dimitrios Sophianopoulos, Maria Ntina
16:15-16:30	220	Shake Table Testing of Self-Centring Concentrically Braced Frames	Jamie Goggins, Aleksandra Bogdanovic, Zoran Rakicevic, Ahmed Elghazouli, Hatim Alwahsh, Brian Broderick, Jiang Yadong, Suhaib Salawdeh, Igor Gjorgjiev, Borjan Petreski, Gerard J. O'Reilly, Angela Poposka, Igor Markovski
16:30-16:45	252	Cyclic loading in stainless steel vertical links	Rolando Chacon
16:45-17:00		Discussion	

Track 6: Day 1 (Wednesday 1 September)

Stability Chair: Leroy Gardner

Schedule	ID	Title	Authors
10:00-10:15	487	Analytical design method for the improvement of steel structures stability	Oriol Bove, Francesc Lopez Almansa, Miquel Ferrer, Miquel Casafont, Francesc Roure
10:15-10:30	521	Flexural buckling resistance of rectangular welded box section columns	Balazs Somodi, Balazs Kovesdi
10:30-10:45	544	Stabilizing forces in trapezoidal sheeting used as a part of the bracing system	Natalia Korcz-Konkol, Piotr Iwicki
10:45-11:00	594	Study of Second-order Effects of Steel Posts Supporting Rockfall Flexible Barriers	Jian-Wei He, Lei Zhao, Yao-Peng Liu, Siu-Lai Chan
11:00-11:15		Discussion	

Break

Stability Chair: Leroy Gardner

Schedule	ID	Title	Authors
11:30-11:45	701	Austenitic steel I-section beam-columns	Nina Feber, Michal Jandera
11:45-12:00	737	Buckling problems of patch loaded plates with and without stiffeners - analytical approach	Olga Mijuskovic, Ljiljana Zugic, Biljana Scepanovic, Branislav Coric
12:00-12:15	762	Numerical investigations on built-up cold-formed steel beams for long spans	Viorel Ungureanu, Ivan Lukacevic, Ioan Both, Dan Dubina
12:15-12:30	453	Constrained finite element method with displacement mapping	Trung Hoang, Sandor Adany
12:30-12:45		Discussion	

Mid-day break

Track 6: Day 1 (Wednesday 1 September)

Plates & Shells Chair: Peter Schaumann

Schedule	ID	Title	Authors
14:15-14:30	145	On the resistance of arbitrarily ring-stiffened welded bins subject to axial compression	Andreas Jaeger-Canas, Zheng Li, Hartmut Pasternak, Andreas Taras
14:30-14:45	325	Imperfection sensitivity of unstiffened cylindrical shells under external pressure	Esmaeil Azizi, Natalie Stranghoener
14:45-15:00	680	New design proposal for stiffened curved plates under compression	Sara Piculin, Primoz Moze
15:00-15:15	744	Optimisation and compressive testing of additively manufactured stainless steel corrugated shells	Ruizhi Zhang, Leroy Gardner, Craig Buchanan
15:15-15:30		Discussion	

Break

Plates & Shells Chair: Peter Schaumann

Schedule	ID	Title	Authors
15:45-16:00	262	Trigonometric series solutions for the geometric nonlinear analysis of the compressed thin plate	Mihai Nedelcu
16:00-16:15	264	Stability of Open-Top Cylindrical Steel Tanks with Primary Stiffening Ring under Wind Loading	Ozer Zeybek, Cem Topkaya, J. Michael Rotter
16:15-16:30	685	Assessment of the Imperfections for Plate Buckling of Unstiffened Plates	Larissa Schönfeld, Bernd Naujoks, Christoph Ludwig
16:30-16:45	705	Printing imperfections – geometric patterns to improve resistances of 3D printed steel plates	Jie Wang, Ben Chater, Jingbang Pan, Mark Evernden
16:45-17:00		Discussion	

Track 7: Day 1 (Wednesday 1 September)

High-Strength & Other Steels Chair: Francisco Meza

Schedule	ID	Title	Authors
10:00-10:15	183	The Continuous Strength Method for the design of stainless steel members under combined loading	Itsaso Arrayago, Esther Real, Leroy Gardner, Enrique Mirambell
10:15-10:30	184	Statistical data for system-based reliability analysis of stainless steel structures with hollow sections	Itsaso Arrayago, Kim Rasmussen, Esther Real
10:30-10:45	291	Material modelling of stainless steel AISI 316L in finite element simulations	Johan Kolsto Sonstabo, Kristian Ullern Faksvag, Lars Omland Jakobsen, Arild Holm Clausen
10:45-11:00	388	Application of Continuous Strength Method in Welded High-strength Steel Sections	Hui Lin, Song-Ting Qian, Ying Hu, Maher Sulaiman
11:00-11:15		Discussion	

Break

High-Strength & Other Steels Chair: Francisco Meza

Schedule	ID	Title	Authors
11:30-11:45	94	Numerical and Theoretical Modelling of the Web-Post Buckling of Stainless Steel Cellular Beams	Rabee Shamass, Federico Guarracino
11:45-12:00	462	Stability design of high strength steel beams	Trayana Tankova, Filipe Rodrigues, Luis Simoes da Silva
12:00-12:15	468	Experimental and numerical investigations on the rotation capacity of high strength steel beams	Helen Bartsch, Felix Eyben, Simon Schaffrath, Gesa Pauli, Markus Feldmann
12:15-12:30	224	Stainless steel SHS and RHS beam-column design proposal	Bretislav Zidlicky, Michal Jandera
12:30-12:45		Discussion	

Mid-day break

Track 7: Day 1 (Wednesday 1 September)

High-Strength & Other Steels Chair: Nancy Baddoo

Schedule	ID	Title	Authors
14:15-14:30	344	Static behavior of high-strength steel CHS T-joints under in-plane moment loading	Seon-Hu Kim, Cheol-Ho Lee
14:30-14:45	437	Determining the Yield Surface of a Metal Using Notched Strip Specimens: Geometry Optimization	Mariela Mendez Morales, Jurgen Becque
14:45-15:00	562	Post-fire mechanical properties of steel S900MC	Zamenu Abebe, Saani Shakil, Wei Lu, Jari Puttonen
15:00-15:15	759	Behaviour and design of duplex stainless steel CHS stub columns at elevated temperature	Asif Mohammed, Katherine A. Cashell
15:15-15:30		Discussion	

Break

High-Strength & Other Steels Chair: Nancy Baddoo

Schedule	ID	Title	Authors
15:45-16:00	23	Simplified and advanced design models for stainless steel members under concentrated transverse loading	Gabriel Barros dos Santos, Leroy Gardner
16:00-16:15	67	Favorable Steel Structures using High Strength Steels	Andre Duerr, Fengyan Gong, Jochen Bartenbach
16:15-16:30	92	Economical interest of high strength steel sections for steel structures	Loris Saufnay, Jean-Pierre Jaspart, Jean-Francois Demonceau
16:30-16:45	366	Effects of galvanization on the mechanical properties of high and ultra-high strength steel tubes	Esmaeil Pournamazian Najafabadi, Amin Heidarpour, Sudhir Raina, Mehrdad Arashpour, Xiao-Ling Zhao
16:45-17:00		Discussion	

Track 8: Day 1 (Wednesday 1 September)

Cold-Formed Structures Chair: Jurgen Becque

Schedule	ID	Title	Authors
10:00-10:15	403	Web Crippling Behavior of Sigma Purlins	Meshal Almatrafi, Marios Theofanous, Marina Bock, Samir Dirar
10:15-10:30	406	Analysis of pallet rack beam members through a nonlinear GBT formulation with sectional constraints	Jordi Bonada, Miquel Casafont, Francesc Roure, Maria Magdalena Pastor
10:30-10:45	405	Numerical Modelling and Optimisation of Cold-Formed Steel Purlins	Meshal Almatrafi, Marios Theofanous, Samir Dirar, Marina Bock
10:45-11:00	755	Distortional buckling of compressed cold-formed lipped C channels via buckling mode shapes	Bálint Vaszilievits-Sömjén
11:00-11:15		Discussion	

Break

Cold-Formed Structures Chair: Jurgen Becque

Schedule	ID	Title	Authors
11:30-11:45	736	Design of Built-up Nested Cold-formed Steel Channel Compression Members	Son Tung Vy, Mahen Mahendran
11:45-12:00	528	Numerical study on bending resistance of cold-formed steel back-to-back built-up elements	Ivan Lukacevic, Viorel Ungureanu, Angelo Valcic, Ivan Curkovic
12:00-12:15	340	Axial Compressive Strength of steel members made of equal legs cold formed angle sections	Maged Hanna (Rawan Elhalous)
12:15-12:30	494	Optimized Design of Cold-Formed Steel Elements to Serviceability and Ultimate Limit States	Seyed Mohammad Mojtabaei, Iman Hajirasouliha, Jurgen Becque
12:30-12:45		Discussion	

Mid-day break

Track 8: Day 1 (Wednesday 1 September)

Cold-Formed Structures Chair: Konstantinos Tsavdaridis

Schedule	ID	Title	Authors
14:15-14:30	735	Experimental investigation into the performance of cold formed steel walls sheathed with OSB and cement based panels	Ornella Iuorio, Smail Kechidi, Nigel Banks
14:30-14:45	260	Experiments on sheathed cold-formed steel beam-columns	Constantinos Kyprianou, Pinelopi Kyvelou, Leroy Gardner, David Nethercot
14:45-15:00	294	Contribution of OSB Sheathing to Racking Capacity of Cold-Formed Steel Frames	Smail Kechidi, Ornella Iuorio, Nigel Banks
15:00-15:15	717	Fastener behaviour in sheathed light-gauge steel stud walls under cyclic and monotonic actions	Nikolas Ringas, Yuner Huang, Jurgen Becque
15:15-15:30		Discussion	

Break

Cold-Formed Structures Chair: Konstantinos Tsavdaridis

Schedule	ID	Title	Authors
15:45-16:00	225	Numerical models for the analysis of shear walls in light steel residential buildings	Nadia Baldassino, Riccardo Zandonini, Marco Zordan
16:00-16:15	226	Study of the shear behavior of floor diaphragms in light steel residential buildings	Nadia Baldassino, Riccardo Zandonini, Marco Zordan
16:15-16:30	323	Numerical simulation of ultra-lightweight-concrete encased cold-formed steel structures	Eid Nathalie, Joo Attila Laszlo
16:30-16:45	115	Torsional behaviour of thin-walled members with regular perforation systems	Claudio Bernuzzi, Andrea Montanino, Marco Simoncelli
16:45-17:00		Discussion	

Day 2 programme

09:05-09:15	**Welcome to Eurosteel 2021, Day 2** Ian Burgess *Conference Chair*							
	Keynote Lecture							
09:15-10:00	**761**		**Mode Interaction in Cold-Formed Steel Members: State-of-Art Report**			**Dinar Camotim, Andres D. Martins, Pedro B. Dinis, Ben Young, Man-Tai Chen, Alexandre Landesmann**		
Schedule	**Track 1**	**Track 2**	**Track 3**	**Track 4**	**Track 5**	**Track 6**	**Track 7**	**Track 8**
10:00-11:15	Bridges, masts and towers	Bolted connections	Composite structures	Fire and robustness	Seismic resistance, dynamics and vibration	Stability	High-Strength & Other Steels	Cold-Formed Structures
11:15-11:30	Break							
11:30-12:45	Innovative Structures	Connections	Composite structures	Fire and robustness	Seismic resistance, dynamics and vibration	Stability	High-Strength & Other Steels	Cold-Formed Structures
12:45-13:30	Mid-day break							
	Keynote Lecture							
13:30-14:15	**667**		**Development and challenges of support structures for offshore wind turbines**			**Peter Schaumann, Manuela Bohm**		
Schedule	**Track 1**	**Track 2**	**Track 3**	**Track 4**	**Track 5**	**Track 6**	**Track 7**	**Track 8**
14:15-15:30	Innovative Structures	Connections	Composite structures	Fire and robustness	Seismic resistance, dynamics and vibration	Welded Connections	Fatigue & Fracture	
15:30-15:45	Break							
15:45-17:00	Innovative Structures	Connections	Composite structures	Fire and robustness	Seismic resistance, dynamics and vibration		Fatigue & Fracture	
17:00	End of Day 2							

IMPORTANT: All times are in BST (GMT+1). Please be aware of the correct times in your local time-zone.

Track 1: Day 2 (Thursday 2 September)

Bridges, masts and towers Chair: Jorg Lange

Schedule	ID	Title	Authors
10:00-10:15	206	Buckling Verification of Manhole Area of Tubular Steel Wind Turbine Towers via Non-linear Finite Element Analysis	Konstantina Koulatsou, Kyriakos-Alexandros Chondrogiannis, Charis Gantes
10:15-10:30	738	Development of a transition piece for a self-erecting wind energy plant	Sebastian Korte, Daniel Pak, M. Friehe, C. Reese
10:30-10:45	739	Buckling analysis of tower shells under patch loading for self-erecting wind energy plants	Philip Nikesch, Daniel Pak, Sebastian Korte
10:45-11:00	605	Using full-scale tests results for designing of steel telecommunication towers	Jacek Szafran
11:00-11:15		Discussion	

Break

Innovative Structures Chair: Jorg Lange

Schedule	ID	Title	Authors
11:30-11:45	59	Comparative Assessment of the Seismic Behavior of Reduced-Core Length and Conventional Buckling-Restrained Bracing Systems	Milad Ehteshami Moeini, Ali Razavi, Ali Imanpour
11:45-12:00	232	3D-Printing with Steel: Additive Manufacturing of a Bridge in situ	Thilo Feucht, Jorg Lange, Maren Erven, Benedikt Waldschmitt
12:00-12:15	282	Material testing and analysis of WAAM stainless steel	Pinelopi Kyvelou, Harry Slack, Ahmer Wadee, Craig Buchanan, Leroy Gardner
12:15-12:30	491	Industry 4.0 for steel construction: an outlook	Trayana Tankova, Joaquim Norberto Pires, Luis Simoes da Silva
12:30-12:45		Discussion	

Mid-day break

Track 1: Day 2 (Thursday 2 September)

Innovative Structures Chair: Jean Pierre Muzeau

Schedule	ID	Title	Authors
14:15-14:30	757	Characterisation of the anisotropic mechanical response of wire and arc additively manufactured stainless steel	Nicolas Hadjipantelis, Leroy Gardner
14:30-14:45	702	A Simplified Approach for Seismic Performances Estimation for Steel Moment Resisting Frames	Paolo Todisco, Vincenzo Piluso, Rosario Montuori, Elide Nastri
14:45-15:00	303	Design and analysis of steel seismic resilient frames equipped with self-centering column bases with friction devices	Elena Elettore, Fabio Freddi, Massimo Latour, Gianvittorio Rizzano
15:00-15:15	728	Performance-based assessment of seismic-resilient steel moment resisting frames equipped with innovative column bases connections	Annarosa Lettieri, Elena Elettore, Fabio Freddi, Massimo Latour, Gianvittorio Rizzano
15:15-15:30		Discussion	

Break

Innovative Structures Chair: Jean Pierre Muzeau

Schedule	ID	Title	Authors
15:45-16:00	199	Bending response of three-layers sandwich panels with steel skins and aluminum foam core	Massimo Latour, Mario d'Aniello, Raffaele Landolfo, Gianvittorio Rizzano
16:00-16:15	355	Numerical Study on An Innovative Elastomeric-Steel Cushion Damper	Milad Ehteshami Moeini, Ali Razavi, Mohammad Yekrangnia, Alireza Khaloo
16:15-16:30	420	Design recommendations of steel columns of variable cross sections	Pawel Blasejewski, Sebastian Kolodziej, Jakub Marcinowski
16:30-16:45	740	Long-term Performance Study on High-rise Steel PPVC Building	Shiou Shen, Yee, Kian Hau, Kong, Liew Jat Yuen, Richard, Ziquan, Dai
16:45-17:00		Discussion	

Track 2: Day 2 (Thursday 2 September)

Bolted connections Chair: Murude Celikag

Schedule	ID	Title	Authors
10:00-10:15	113	Threaded bar stiffening in semi-rigid beam to column joints	J.M. Reinosa, A. Loureiro, R. Gutierrez, M. Lopez
10:15-10:30	157	A simplified analytical model for a T-stub component with preloaded bolts	Chamseddine Bendjahene, Rabah Soltani, Sadek Mahdjouba
10:30-10:45	271	Fatigue life of preloaded injection bolts in a bridge strengthening scenario - sensitivity analysis of fatigue life estimators	Bruno Pedrosa, Jose Correia, Carlos Rebelo, Milan Veljkovic, Luis Simoes da Silva
10:45-11:00	364	Fracture simulation of fully and partially threaded bolts under tension	Fei Yang, Milan Veljkovic, Lu Cheng
11:00-11:15		Discussion	

Break

Connections Chair: Murude Celikag

Schedule	ID	Title	Authors
11:30-11:45	31	Applications of digital manufacturing to steel frames: The Intermeshed Steel Connection	Salam Al-Sabah, Debra Laefer, Linh Truong Hong, Minh Phuoc Huynh, Jia-Liang Le, Tony Martin, Pantelis Matis, Patrick McGetrick, Arturo Schultz, Mohammad Shemshadian
11:45-12:00	105	3D-Printing with steel of a bolted connection	Maren Erven, Jorg Lange, Thilo Feucht
12:00-12:15	237	Experimental investigations on the design and execution of shear loaded blind rivet joints in steel lightweight construction	Florian Kalkowsky, Ralf Glienke, Christoph Blunk, Maik Doerre, Knuth-Michael Henkel
12:15-12:30	239	Extension of the application limits of blind fasteners for joining high-strength steels in metal lightweight constructions	Florian Kalkowsky, Ralf Glienke, Christoph Blunk, Maik Doerre, Knuth-Michael Henkel
12:30-12:45		Discussion	

Mid-day break

Track 2: Day 2 (Thursday 2 September)

Connections Chair: Jeppe Jonsson

Schedule	ID	Title	Authors
14:15-14:30	461	Innovative 3D-joint for steel modular construction	Luis Simoes da Silva, Luis Carlos Silva, Helder David Craveiro, Rui Simoes, Trayana Tankova, Ricardo Costa
14:30-14:45	149	Experimental and Numerical Study of Compression Zone in Steel Connections	Sabra Bougoffa, Sebastien Durif, Omar Mezghanni, Abdelhamid Bouchair, Atef Daoud
14:45-15:00	543	Meshless numerical simulation of steel connections: application to the T-stub component	JuanJose Jimenez de Cisneros (Giovani Berrospi)
15:00-15:15	722	Analytical prediction of the plastic shear resistance of the panel zone in welded steel beam-to-column joints	Adrien Corman
15:15-15:30		Discussion	

Break

Connections Chair: Jeppe Jonsson

Schedule	ID	Title	Authors
15:45-16:00	108	Chord failure resistance of 3D cut welded connections with CHS columns and through I-beams	Sabatino Di Benedetto, Massimo Latour, Gianvittorio Rizzano
16:00-16:15	297	Macro-modelling of 3D tubular column-to-truss beam joints	Tien Minh Nguyen, Anthony Rodier
16:15-16:30	328	Yield load estimation of plug & play N type RHS truss connections	Jerzy Szlendak, Adrian Szpyrka
16:30-16:45	368	Experimental Evaluation of Ductility of Bracing Members	Pratik Patra, Dipti Ranjan Sahoo, Arvind Kumar Jain
16:45-17:00		Discussion	

Track 3: Day 2 (Thursday 2 September)

Composite structures Chair: Brian Uy

Schedule	ID	Title	Authors
10:00-10:15	348	The load-bearing behaviour of the steel-concrete-steel composite (SCSC) plate	Balint Palotas, Patrik Takacs, Josef Fink
10:15-10:30	513	Behaviour of Composite Plate Shear Walls with Variable Column Stiffness	Ivan Curkovic, Davor Skejic, Ivica Dzeba, Ivan Lukacevic
10:30-10:45	320	Structural performance of composite steel-rubberised concrete members under combined loading conditions	Ayse Mujdeci, D.V. Bompa, Ahmed Elghazouli
10:45-11:00	466	Concentrated Plasticity Approaches for Nonlinear Analysis of Steel-Concrete Composite Beams with Partial Interaction	Tawany Carvalho, Agor Lemes, Luis Dias, Rafael Barros, Ricardo Silveira
11:00-11:15		Discussion	

Break

Composite structures Chair: Shan-Shan Huang

Schedule	ID	Title	Authors
11:30-11:45	27	Behaviour of rectangular concrete filled tubular flange girders under combined loading	Katherine Cashell, Rana Al-Dujele
11:45-12:00	45	Experimental and numerical investigations on steel-concrete interaction of embedded corrugated web composite members	Gabor Nemeth, Nauzika Kovacs
12:00-12:15	127	Analysis of tapered composite hybrid steel inverted T-section beam models and RC flange	Abdul Qader Melhem, Hussein Elrafidi
12:15-12:30	439	Structural Study of Steel-Concrete Double Composite Girder Bridge	Kohei Ohmura, Yusuke Imagawa, Osamu Ohyama
12:30-12:45		Discussion	

Mid-day break

Track 3: Day 2 (Thursday 2 September)

Composite structures Chair: Yuner Huang

Schedule	ID	Title	Authors
14:15-14:30	479	FEM Analysis of Bridges with Encased Continuous Shear Connectors	Patricia Vanova, Vincent Kvocak, Viktoria Kozlejova, Daniel Dubecky, Ruslan Kanishchev
14:30-14:45	119	Hysteretic Behaviour of Shear Stud Connectors in Composite-Steel Moment-Resisting Frames	Hammad El Jisr, Dimitrios G. Lignos
14:45-15:00	187	Development of a new design approach for composite dowels positioned close to the concrete surface	Yannick Broschart
15:00-15:15	263	The Structural Performance of Blind Bolt Shear Connectors under Static Loading	Olivia Mirza, Seyedeh Maryam Hosseini, Mohammad Shafiqul Mamun, Kiran Kuikel, Fidelis Mashiri
15:15-15:30		Discussion	

Break

Composite structures Chair: Yuner Huang

Schedule	ID	Title	Authors
15:45-16:00	3	Steel FRC slab in compression in composite steel-concrete frame joints	Petr Cervenka, J. Dolejs
16:00-16:15	281	Modified strut and tie model of headed stud shear connectors in open trough profiled sheeting for predicting the post cracking load bearing resistance	Valentino Vigneri, Christoph Odenbreit, Dennis Lam, Francois Hanus
16:15-16:30	299	Concrete fatigue of composite constructions with composite dowel bars	Georgios Christou, Josef Hegger, Martin Classen
16:30-16:45	354	Crack propagation and residual load-bearing behavior of composite dowels – effects on the global behavior of composite girders under cyclic loading	Kevin Wolters, Georgios Christou, Markus Feldmann
16:45-17:00		Discussion	

Track 4: Day 2 (Thursday 2 September)

Fire and robustness Chair: Ali Nadjai

Schedule	ID	Title	Authors
10:00-10:15	36	FE Model Validation and Advanced Analyses for Steel Structures with Steel Claddings at Elevated Temperatures	Zhongcheng Ma, Jarmo Havula
10:15-10:30	37	Structural Fire Analyses of One-storey Industrial Steel-framed Buildings with Steel Claddings	Zhongcheng Ma, Jarmo Havula
10:30-10:45	147	Experimental and numerical study of the behavior of HSLA and DP cold-formed high-strength steels at elevated temperature	Yu Xia, Xia Yan, Thomas Gernay, Hannah Blum
10:45-11:00	169	DSM Design of Cold-Formed Steel Columns Failing in Flexural-Torsional Modes at Elevated Temperatures	Antonio Bicelli, Alexandre Landesmann, Dinar Camotim, Pedro Dinis
11:00-11:15		Discussion	

Break

Fire and robustness Chair: Ali Nadjai

Schedule	ID	Title	Authors
11:30-11:45	8	Selecting Suitable Bolt Parameters to Achieve Ductility at Elevated Temperatures	Mohamed Shaheen, Andrew Foster, Lee. Cunningham, Sheida Afshan
11:45-12:00	248	Experimental analysis of the behavior of steel beams with and without fire resistance properties subjected to the ISO-Fire curve	Alexandre Jordao, Andres Scabbia, Valdir Pignatta e Silva
12:00-12:15	261	The General Method for the fire design of I-section web-tapered beams	Elio Maia, Paulo Vila Real, Nuno Lopes, Carlos Couto
12:15-12:30	391	Investigation of residual stresses on the fire resistance of unrestrained cellular beams	Sabrina Benyettou Oribi, Belkacem Lamri, Abdelhek Kada, Luis Mesquita
12:30-12:45		Discussion	

Mid-day break

Track 4: Day 2 (Thursday 2 September)

Fire and robustness Chair: Jean-Francois Demonceau

Schedule	ID	Title	Authors
14:15-14:30	63	Numerical investigation of instabilities of steel members restrained by sandwich panels at elevated temperature	Anita Lendvai, Attila Laszlo Joo
14:30-14:45	64	Numerical analysis of the torsional and flexural-torsional buckling behaviour of compressed steel members at elevated temperature	Luca Possidente, Nicola Tondini, Jean-Marc Battini
14:45-15:00	353	Collapse Mechanism of a Space Structure Under Fire Conditions	Shariq Naqvi, Feng Fu
15:00-15:15	463	Experimental and Numerical Investigations on Steel Columns Subjected to Travelling Fires in large Compartments	Ali Nadjai, Naveed Alam, James McGilligan, Marion Charlier, Olivier Vassart
15:15-15:30		Discussion	

Break

Fire and robustness Chair: Jean-Francois Demonceau

Schedule	ID	Title	Authors
15:45-16:00	68	A Retrofit Methods to Mitigate Progressive Collapse in Steel Structures	Luca Ciman, Fabio Freddi, Nicola Tondini
16:00-16:15	374	Dissipative joints under impact loadings	Marina d'Antimo, Massimo Latour, Jean-Francois Demonceau
16:15-16:30	635	Attempts to improve on the V-hull structural design for air-blast loading applications	Genevieve Langdon, Andrew Curry, Vinay Shekhar, Aashir Siddiqui, Christopher Murray, Chris von Klemperer
16:30-16:45	473	Comparing Fire Behavior of Restrained Cold-Formed Steel Columns with Stiffened and Unstiffened Sections	Luis Laim, Helder D. Craveiro, Rui Simoes
16:45-17:00		Discussion	

Track 5: Day 2 (Thursday 2 September)

Seismic resistance, dynamics and vibration Chair: Dan Dubina

Schedule	ID	Title	Authors
10:00-10:15	723	Optimized strategies for MID-RISE Seismic-Resilient Self-centring Steel Moment Resisting Frames	Ludovica Pieroni, Elena Elettore, Fabio Freddi, Massimo Latour
10:15-10:30	71	The effect of rotational component of earthquake excitation on the response of steel structures	Nikos Pnevmatikos, Foteini Konstandakopoulou, Georgios Papavasileiou, George Papagiannopoulos, Pantelis Broukos
10:30-10:45	166	Modelling issues and pushover response of single-storey older steel buildings	Gaetano Cantisani, Gaetano Della Corte
10:45-11:00	175	Seismic torsional effects on multi-storey steel buildings	Bogdan Catalin Stefanescu
11:00-11:15		Discussion	

Break

Seismic resistance, dynamics and vibration Chair: Dan Dubina

Schedule	ID	Title	Authors
11:30-11:45	516	A Damage-Controlled Behavior Factor (EC8) for Seismic Design of Steel Irregular Space MRFs	Konstantinos Skalomenos, Angelos Tzimas, Dimitri Beskos
11:45-12:00	9	Seismic behaviour of composite steel-concrete shear walls with central openings	Viorel Todea, Daniel Dan, Valeriu Stoian, Sorin-Codrut Florut, Dan-Adrian Popescu
12:00-12:15	407	Comparison Between Two Types of Seismic Tests of Racking Systems	Oriol Bove, Miquel Ferrer, Francesc Lopez Almansa
12:15-12:30	514	Cyclic Behavior of Tubular Steel Columns with High Yield-to-Tensile Strength Ratio under Asymmetric Loading Protocols	Konstantinos Skalomenos, Shingo Hamauzu
12:30-12:45		Discussion	

Mid-day break

Track 5: Day 2 (Thursday 2 September)

Seismic resistance, dynamics and vibration Chair: Nicola Tondini

Schedule	ID	Title	Authors
14:15-14:30	12	Resistance of partially protected steel beams in fire	Janne Hautala, Iida Kangashaka, Mikko Malaska, Sami Pajunen
14:30-14:45	62	Experimental Validation of Detachable Links for Eccentrically Braced Frames	Mehmet Bakir Bozkurt, Cem Topkaya
14:45-15:00	675	Experimental Study on Steel Slit and Shear Panel for Seismic Resistance (Energy Dissipation Fuses)	Ferit Gashi, Franco Bontempi, Francesco Petrini
15:00-15:15		Discussion	

Break

Seismic resistance, dynamics and vibration Chair: Stephen Hicks

Schedule	ID	Title	Authors
15:45-16:00	93	Human Induced Vibration of Long Rectangular Steel and Composite Floors	Zsuzsa Borbala Pap, Laszlo P. Kollar
16:00-16:15	447	Influence of the Ballasted Track on the Dynamic Behaviour of Steel Railway Bridges	Andreas Stollwitzer, Josef Fink, Tahira Malik
16:15-16:30	708	Experimental behaviour of Wire-and-Arc Additively Manufactured stainless steel rods	Vittoria Laghi, Michele Palermo, Stefano Silvestri, Giada Gasparini, Tomaso Trombetti
16:30-16:45	332	Steel Structure Prediction Model for Fixed Roof Oil Tanks	Uros Denic, Milan Spremic
16:45-17:00		Discussion	

Track 6: Day 2 (Thursday 2 September)

Stability Chair: Bert Snijder

Schedule	ID	Title	Authors
10:00-10:15	95	Structural member stability behaviour of steel channels	Anna-Lena Bours, Rebekka Winkler, Markus Knobloch
10:15-10:30	52	Equivalent bow imperfections for design by second order inelastic analysis	Fiona Walport, Leroy Gardner, David Nethercot
10:30-10:45	235	Buckling resistance of back-to-back connected angle sections	Andre Beyer, Alain Bureau, Jean-Pierre Jaspart
10:45-11:00	255	Lateral torsional buckling of an I-shaped hoisting spreader beam	Bert Snijder, Dirk Ploegmakers, Rianne Dekker, Johan Maljaars
11:00-11:15		Discussion	

Break

Stability Chair: Richard Stroetmann

Schedule	ID	Title	Authors
11:30-11:45	386	Imperfections of LTB tests with directionally true loading using the extended Southwell-method	Jonas Nonn
11:45-12:00	704	Lateral-Torsional Buckling of beams with warping restraints at Supports	Maxime Lebastard, Mael Couchaux, Alain Bureau, Mohammed Hjiaj
12:00-12:15	236	Reliability assessment of a newly developed Generalized Slenderness-based Resistance Method for hollow section members	Andre Beyer, Andreas Taras, Leroy Gardner, Xin Meng
12:15-12:30	337	New development of design rules for girder with non-rectangular slender web	Vahid Pourostad, Ulrike Kuhlmann
12:30-12:45		Discussion	

Mid-day break

Track 6: Day 2 (Thursday 2 September)

Welded Connections Chair: Markus Knobloch

Schedule	ID	Title	Authors
14:15-14:30	243	Influence of the energy input on the strength and hardness of welded joints	Richard Stroetmann, Thoralf Kaestner
14:30-14:45	290	Effects of warping torsion on the buckling behaviour of slender box sections	Harald Unterweger, Christoph Derler
14:45-15:00	298	Bolted angle members in compression - new design model including joint stiffness	Harald Unterweger, Markus Kettler, Paul Zauchner
15:00-15:15	498	Shear Strengthening of Slender Steel Beams Using Cold-formed Stiffeners and Adhesives	Hermano de Sousa Cardoso, Joao Pedro Martins, Luis Simoes da Silva
15:15-15:30		Discussion	

Break

Track 7: Day 2 (Thursday 2 September)

High-Strength & Other Steels Chair: Katherine Cashell

Schedule	ID	Title	Authors
10:00-10:15	35	Compression tests on large angle columns in high strength steel	Marios-Zois Bezas
10:15-10:30	77	Development of flexural buckling rules for the new AISC stainless steel design specification	Francisco Meza, Nancy Baddoo, Leroy Gardner
10:30-10:45	233	An experimental assessment of rolled carbon and stainless steel angles under compression	Alan Sirqueira, Pedro Vellasco, Luciano Lima, Andres Silva, Monique Rodrigues
10:45-11:00	550	Experimental study of composite cellular beam system using demountable shear connectors	Therese Sheehan, Jie Yang, Dennis Lam, Xianghe Dai, Kan Zhou
11:00-11:15		Discussion	

Break

High-Strength & Other Steels Chair: Katherine Cashell

Schedule	ID	Title	Authors
11:30-11:45	687	Evaluation of material properties of 3D printed carbon steel	Iulia Tarus, Haohui Xin, Milan Veljkovic
11:45-12:00	754	Lateral Cyclic Simulation of Fabricated High -Strength Steel Beam-Columns	Fatemeh Javidan, Deacon Flint
12:00-12:15	335	Mechanical Properties of Steel-Concrete Composite Girder Subjected to Thermal History due to Fire	Yusuke Takahashi, Yusuke Imagawa, Osamu Ohyama
12:15-12:30	603	Evaluation of the durability of weathgering steel	Jean-Michel Morel, Jean Creus, Laurent Gaillet, Vincent Chatel, Jean-Yves Astic
12:30-12:45		Discussion	

Mid-day break

Track 7: Day 2 (Thursday 2 September)

Fatigue & Fracture Chair: Gabriele Zanon

Schedule	ID	Title	Authors
14:15-14:30	372	Influence of rivet clamping stress on fatigue crack growth behaviour	Thomas Riedel, Lars Sieber, Holger Flederer
14:30-14:45	555	Reevaluation and extension of fatigue test data for welded attachments and butt joints	Karl Drebenstedt, Ulrike Kuhlmann
14:45-15:00	706	Fatigue life prediction of butt welds tapered in thickness	Stefanie Roescher, Markus Knobloch
15:00-15:15	672	Fatigue life extension of welded steel structures by High Frequency Mechanical Impact and Tungsten Inert Gas remelting	Hassan al-Karawi, Mohammad Al-Emrani
15:15-15:30		Discussion	

Break

Fatigue & Fracture Chair: Pedro Vellasco

Schedule	ID	Title	Authors
15:45-16:00	122	Large-scale fatigue tests on thick-walled circular hollow sections	Andre Duerr, Jakob Roth
16:00-16:15	231	Improvement of fatigue strength in heavy steel constructions through arc brazing	Andreas Gericke, Karl Drebenstedt, Knuth-Michael Henkel, Ulrike Kuhlmann, Ralf Glienke, Filip Wegener
16:15-16:30	139	High-cycle fatigue behaviour of S235-S460 structural steel elements cut using laser processes	Gabriele Zanon, Oreste S. Bursi, Paolo Bison, Alberto Valli
16:30-16:45	283	Fatigue design in penstocks - comparison of the nominal stress and structural stress method for common details	Alexander Ecker
16:45-17:00		Discussion	

Track 8: Day 2 (Thursday 2 September)

Cold-Formed Structures Chair: Jurgen Becque

Schedule	ID	Title	Authors
10:00-10:15	678	Pushing the Boundaries of Accuracy: Development and Calibration of an Imperfection Measuring Rig	Francisco Meza, Jurgen Becque
10:15-10:30	202	Investigations of initial imperfections of scaffold structures	Charlotte Mercier, Abdelouahab Khelil, Firas AL Mahmoud, Jean-Luc Blin-Lacroix, Alain Pamies
10:30-10:45	270	Experimental study on residual stresses of dual phase high-strength cold-formed steel angles	Yu Xia, Zhanjie Li, Benjamin Schafer, Hannah Blum
10:45-11:00	560	Investigations on the influence of cold-forming and associated residual stresses on the fatigue strength of thin-walled details	Thorben Geers
11:00-11:15		Discussion	

Break

Cold-Formed Structures Chair: Jurgen Becque

Schedule	ID	Title	Authors
11:30-11:45	352	Behaviour and Design of Cold-Formed Steel Bolted Portal Frame Connections	Seyed Mohammad Mojtabaei, Jurgen Becque, Iman Hajirasouliha
11:45-12:00	304	Steel frames analyzed by use of advanced displacement mode-based beam and joint elements	Anders Bau Hansen, Jeppe Jonsson
12:00-12:15	347	Comparative study between stressed skin effect of trapezoidal sheet and sandwich panel roof cladding on pitched roof portal frames with semi-rigid joints	Zsolt Nagy, Andrea Kelemen
12:15-12:30	538	Application of the Saint-Venant theory to thin-walled sections warping	Dominique Vie
12:30-12:45		Discussion	

Mid-day break

Day 3 programme

09:05-09:15	**Welcome to Eurosteel 2021, Day 3** Ian Burgess *Conference Chair*							
	Keynote Lecture							
09:15-10:00	**666**		**Update on the revision of Eurocode 3 - Evolution by improvement and harmonisation**			**Ulrike Kuhlmann, Christina Schmidt-Rasche, Fabian Jorg, Jennifer Spiegler, Mathias Euler**		
Schedule	**Track 1**	**Track 2**	**Track 3**	**Track 4**	**Track 5**	**Track 6**	**Track 7**	**Track 8**
10:00-11:15	Steel Buildings	Connections	Composite structures	Fire and robustness	Steel construction in practice	Stability	Fatigue & Fracture	Eurocodes & Codification
11:15-11:30	Break							
11:30-12:45	Steel Buildings	Connections	Composite structures	Fire and robustness	Sustainability, retrofitting and refurbishment	Stability	Welded Connections	Eurocodes & Codification
12:45-13:30	Mid-day break							
	Discussion Forum							
13:30-14:30	**Sustainable Steel? Panel discussion:** What are the challenges and opportunities for steel structures in a zero carbon world? Dr Danielle Densley Tingley (University of Sheffield) will chair a discussion on this important question with Luis Simoes da Silva (Professor of Steel Construction, University of Coimbra), Walter Swann (ArcelorMittal Global R&D) and Will Arnold (Head of Climate Action at The Institution of Structural Engineers, UK). Please contribute to the discussion and submit questions using the Chat facility.							
Schedule	**Track 1**	**Track 2**	**Track 3**	**Track 4**	**Track 5**	**Track 6**	**Track 7**	**Track 8**
14:35-15:50	Steel Buildings	Connections			Sustainability, retrofitting and refurbishment	Bolted connections	Welded Connections	Eurocodes & Codification
15:55-16:20	Closing session and announcement of next Eurosteel conference							

IMPORTANT: All times are in BST (GMT+1). Please be aware of the correct times in your local time-zone.

Track 1: Day 3 (Friday 3 September)

Steel Buildings Chair: Ricardo Pimentel

Schedule	ID	Title	Authors
10:00-10:15	106	Pseudo-dynamic testing of a full-scale two-storey steel building with RBS connections	Sabatino Di Benedetto, Antonella Bianca Francavilla, Massimo Latour, Giovanni Ferrante Cavallaro, Vincenzo Piluso, Gianvittorio Rizzano
10:15-10:30	195	Pseudo-dynamic testing of a full-scale two-storey steel building with FREEDAM connections	Sabatino Di Benedetto, Antonella Bianca Francavilla, Massimo Latour, Giovanni Ferrante Cavallaro, Vincenzo Piluso, Gianvittorio Rizzano
10:30-10:45	412	Investigation on Failure Mechanisms of Symmetric and Asymmetric Cellular Steel Beams	Murude Celikag, Mohammad M Sehwail
10:45-11:00	564	The Examination of Structural System of Hales Turgus in Vilnius, Constructed with Iron-and-Steel, in 1906	Yesim Kamile Aktuglu
11:00-11:15		Discussion	

Break

Steel Buildings Chair: Ian Burgess

Schedule	ID	Title	Authors
11:30-11:45	584	Rotational Stability of Plastic Hinges	Michael Davies, Michael J Roberts
11:45-12:15	777	Are big sheds safe?	Michael Davies, Michael J Roberts
12:15-12:30		Discussion	

Mid-day break

Track 1: Day 3 (Friday 3 September)

Steel Buildings Chair: Iman Hajirasouliha

Schedule	ID	Title	Authors
14:35-14:50	321	Weight optimization of stainless steel built-up structural elements	Alfonsas Daniunas (Raminta Venslavaviciute)
14:50-15:05	341	On the use of systems for tests on stainless steel members and frames aimed at interoperability	Rolando Chacon, Carol Puig, Esther Real
15:05-15:20	548	A review of applied methods of optimization in steel structures	Alireza Kazem
15:20-15:35	711	Structural performance evaluation of square hollow section column under compressive axial force with bending moment having different width-thickness ratio	Takuro Hayashi
15:35-15:50		Discussion	

Break

Track 2: Day 3 (Friday 3 September)

Connections Chair: Abdelhamid Bouchair

Schedule	ID	Title	Authors
10:00-10:15	493	Laser Cut passing-through Open-to-CHS Beam-to-Column Connections	Rajarshi Das, Alper Kanyilmaz, Herve Degee
10:15-10:30	131	The Effect of Degree of Composite Action on Reduced Web Section (RWS) Connections	Fahad Almutairi, Konstantinos Tsavdaridis
10:30-10:45	396	The Behaviour of Shear Anchors with Different Grout Properties	Milan Spremic, Nina Gluhovic, Isidora Jakovljevic, Zlatko Markovic
10:45-11:00	585	Numerical modelling of CFST column to I beam end plate joints	Said Hicham Boukhalkhal, A. N. T. Ihaddoudene, L. F. Costa-Neves, W. Madi, Pedro Vellasco, Luciano Lima
11:00-11:15		Discussion	

Break

Connections Chair: Abdelhamid Bouchair

Schedule	ID	Title	Authors
11:30-11:45	174	Behaviour of ferritic stainless steel bolted T-stubs under tension-Part 1: Experimental investigations	Orhan Yapici, Marios Theofanous, Samir Dirar, Huanxin Yuan
11:45-12:00	176	Behaviour of ferritic stainless steel bolted T-stubs under tension-Part 2: Numerical investigations	Orhan Yapici, Marios Theofanous, Samir Dirar, Huanxin Yuan
12:00-12:15	179	Advanced Design of Steel to Timber Bolted Joints	Kristyna Vopatova, Kamila Cabova, Bretislav Zidlicky, Marta Kurikova, Jaromir Kabelac, Frantisek Wald
12:15-12:30	221	Flexural Strength of I-Beams with Holes in the Tension Flange	Ryne Carlson, James Swanson, Gian Rassati, Thomas Burns
12:30-12:45		Discussion	

Mid-day break

Track 2: Day 3 (Friday 3 September)

Connections Chair: Pedro Vellasco

Schedule	ID	Title	Authors
14:35-14:50	545	Resistance prediction of laminated, fillet-welded and full penetration-welded bolted T-stub connections	Juan Jose Jimenez de Cisneros, Jorge Antonio Alencastre Miranda, Gustavo Alberto Neira Alatrista
14:50-15:05	152	Behaviour of Smart Steel Column-Beam Connection Under Blast Loading	Sardasht Sardar Weli, Laszlo Gergely Vigh
15:05-15:20	222	A Study on the Shear Lag Effects in Longitudinally Welded Connections Subject to Eccentricity	Kenneth Orloff, Gian Rassati, James Swanson, Thomas Burns
15:20-15:35	410	Numerical analysis of the influence of curling on the strength of connections with one bolt	Primoz Moze, Matej Toporis
15:35-15:50		Discussion	

Break

Track 3: Day 3 (Friday 3 September)

Composite structures Chair: Graham Couchman

Schedule	ID	Title	Authors
10:00-10:15	361	Numerical evaluation of tubular perfobond shear connectors	Keila Souza, Andre Silva, Pedro Vellasco ,Jose Henriques, Monique Rodrigues
10:15-10:30	7	Performance of a unified rheological model in modelling high-temperature stationary creep tests of Grade S275JR steel	Neno Toric, Ian Burgess
10:30-10:45	363	A comparison between cyclic and monotonic behavior of composite diaphragm interfaces under high shear force	Hooman Rezaeian
10:45-11:00	689	Experimental study of flexural behaviour of high strength steel (HSS) - Engineered Cementitious Composite (ECC) Composite beam with profiled steel sheeting	Cong-Luyen Nguyen, C.K. Lee
11:00-11:15		Discussion	

Break

Composite structures Chair: Graham Couchman

Schedule	ID	Title	Authors
11:30-11:45	132	Testing a Prefabricated Ultra-Shallow Composite Flooring System with Lightweight Concrete and Shear Studs	Inas Ahmed, Konstantinos Tsavdaridis
11:45-12:00	481	Numerical Study of Composite Steel Cellular Beam System Using Demountable Shear Connectors	Xianghe Dai, Dennis Lam, Therese Sheehan, Jie Yang, Kan Zhou
12:00-12:15	750	Behavior of downstand simply supported steel-concrete composite beam applying friction based demountable shear connection	Jovan Fodor, Markus Schaefer
12:15-12:30	763	Numerical Analysis of the Stress-Strain Behaviour in Statically Determinate Composite Steel-Concrete Beam after 100 Years Creep Phenomena Process Using Volterra Integral Equations	Konstantin Kazakov, Chavdar Stoyanov, Doncho Partov, Lazar Georgiev, Vesselin Kantchev
12:30-12:45		Discussion	

Mid-day break

Track 4: Day 3 (Friday 3 September)

Fire and robustness Chair: Neno Toric

Schedule	ID	Title	Authors
10:00-10:15	567	Numerical simulation and design of stainless steel columns under elevated temperatures	Andres Dias Martins, Dinar Camotim, Rodrigo Goncalves, Pedro Borges Dinis
10:15-10:30	568	Numerical simulation of damage patterns in the plastic hinge area of SFRM protected steel beams and its effect on their fire resistance	Kalliopi Zografopoulou, Euripidis Mistakidis
10:30-10:45	205	Experimental and numerical analysis of a braced steel frame subjected to fire following earthquake	Patrick Covi, Nicola Tondini, Manfred Korzen, Georgios Tsionis
10:45-11:00	589	The Role of Tendons for Fire Safety Design of Pre-tensioned Steel Structures	Yong Du, Guo-Qiang Li
11:00-11:15		Discussion	

Break

Fire and robustness Chair: Neno Toric

Schedule	ID	Title	Authors
11:30-11:45	217	Hot-dip galvanizing: an alternative fire insulation for steel structures?	Gisele Bihina, Bin Zhao
11:45-12:00	436	Study on Mechanical Properties and Resistance Coefficient of Carbon Steel during Fire	Tomonori Murakawa, Yusuke Takahashi, Yusuke Imagawa, Osamu Ohyama
12:00-12:15	507	Postâ€fire ductility of reinforcing steel	Andreas Lapuebla-Ferri, David Pons, Manuel Romero
12:15-12:30	656	An Experimental Study of the Effects of Crack and Detachment on Insulation Properties of Intumescent Coating	Lingling Wang
12:30-12:45		Discussion	

Mid-day break

Track 5: Day 3 (Friday 3 September)

Steel construction in practice Chair: Gianfranco de Matteis

Schedule	ID	Title	Authors
10:00-10:15	82	Recent developments of stainless steels in structural applications	Andrew Backhouse, Nancy Baddoo
10:15-10:30	178	Challenges in the Design and Manufacture of a steel Beam Launcher for Precast Beams Assembly.	Manuel Biedma Garcia, Patricia Garcia Rodriguez, Jesus Tomas Munoz Cruz, Fernando Florez Llanos, Mariano Martin Canueto
10:30-10:45	390	The influence of driving imperfections on the water pressure resistance of HZ-M/AZ walls	Maciej Chrzanowski ,Perla EL Boueiz, Rui Matos, Heiko Zillgen, Boris Even
10:45-11:00	578	Design and Construction of the Lille Langebro, Copenhagen	Simon Fryer, Thomas Eckhart, Peter Nugent
11:00-11:15		Discussion	

Break

Sustainability, retrofitting and refurbishment Chair: Buick Davison

Schedule	ID	Title	Authors
11:30-11:45	432	Steel-based retrofitting techniques for existing masonry walls: a numerical investigation	Mattia Zizi, Alessandro Vari, Piero Colajanni, Gianfranco de Matteis
11:45-12:00	378	Optimized welding processes for the repair and strengthening of structures made of old rimmed steels	Lars Sieber, Holger Flederer
12:00-12:15	273	Strain measurements on rails of crane runway girders to predict accurate wheel loads	Paul Zauchner, Markus Kettler, Harald Unterweger
12:15-12:30	319	APK: a network to improve the interest in steel construction	Jean-Pierre Muzeau, Loic Da Silva
12:30-12:45		Discussion	

Mid-day break

Track 5: Day 3 (Friday 3 September)

Sustainability, retrofitting and refurbishment Chair: Danielle Densley Tingley

Schedule	ID	Title	Authors
14:35-14:50	330	Sustainable Housing Provision: A Case for the Vertical Extension of Steel Framed Buildings	Charles Gillott, Danielle Densley Tingley, Buick Davison
14:50-15:05	230	Holistic Life-Cycle Analysis of Bridge Steel Solutions	Tim Zinke, Oliver Hechler, Dennis Rademacher
15:05-15:20	259	Reusability of existing structural steel	Ana Girao Coelho, Ricardo Pimentel, Michael Sansom
15:20-15:35		Discussion	

Break

Track 6: Day 3 (Friday 3 September)

Stability Chair: Jean Pierre Jaspart

Schedule	ID	Title	Authors
10:00-10:15	180	Patch load resistance of longitudinally stiffened plate girders: A parametric study	Sasa Kovacevic, Aleksandar Ceranic, Nenad Markovic, Milica Bendic
10:15-10:30	193	Experimental investigations of the flexural-torsional buckling resistance: Steel rolled I-section beam-columns under moment gradient	Marian A. Gizejowski, Aleksander Kozlowski, Zbigniew Stachura
10:30-10:45	200	Development of a procedure for analysis and design access scaffold	Charlotte Mercier, Abdelouahab Khelil, Firas Al-Mahmoud, Jean-Luc Blin-Lacroix, Alain Pamies
10:45-11:00	250	Interaction of geometric and material non-linearities in stainless steel frames	Isabel Gonzalez-de-Leon, Itsaso Arrayago, Esther Real
11:00-11:15		Discussion	

Break

Stability Chair: Jean Pierre Jaspart

Schedule	ID	Title	Authors
11:30-11:45	276	Parametric study of stainless steel slender I-section beams	Marek Sorf, Michal Jandera
11:45-12:00	296	Imperfection sensitivity study of hot-rolled and laser-welded stainless steel angle columns	Aljosa Filipovic, Jelena Dobric, Zlatko Markovic, Nancy Baddoo
12:00-12:15	302	Stability study of Cantilever-beams - Numerical Analysis and analytical calculation (LTB)	Matthias Kraus, Nicolae-Andrei Crisan, Bjorn Wittor
12:15-12:30	316	Simplified design method for stiffened cellular beams against web-post buckling	Antoine Glorieux, Louis-Guy Cajot, Francois Hanus
12:30-12:45		Discussion	

Mid-day break

Track 6: Day 3 (Friday 3 September)

Bolted connections Chair: Jeppe Jonsson

Schedule	ID	Title	Authors
14:35-14:50	48	The Elastic Buckling Coefficient of a Rectangular Longitudinally Profiled (LP) Steel plate with All Edges Simply Supported	Dongdong Xu, Yuanqing Wang, Huiyong Ban, Xiaoling Liu
14:50-15:05	98	Lateral-torsional buckling of a stiffened beam with semirigid joints	Martin Vild, Miroslav Bajer, Jan Barnat, Lubomir Sabatka, Frantisek Wald
15:05-15:20	155	Investigation of the buckling behavior of ring-stiffened cylindrical shells under axial pressure	Zheng Li
15:20-15:35	164	Numerical Approach for Plastic Cross-Sectional Analyses of Steel Members	Stalin Ibanez, Matthias Kraus
15:35-15:50		Discussion	

Break

Track 7: Day 3 (Friday 3 September)

Fatigue & Fracture Chair: Markus Knobloch

Schedule	ID	Title	Authors
10:00-10:15	314	Numerical investigation on the fatigue life of non-cracked metallic plates repaired with bonded CFRP	Anis Mohabeddine, Jose Correia ,Jose Miguel Castro, Pedro Montenegro e Almeida, Abelio Pinho de Jesus, Rui Calasada
10:15-10:30	379	Detection of short cracks in riveted connections using Lock-In-Thermography	Lars Sieber, Ralf Urbanek, Jurgen Baer
10:30-10:45	345	Effect of weld residual stress in the fatigue strength	Asma Manai
10:45-11:00	607	Numerical evaluation of RBS connections incorporating jumbo sections	Teodora Bogdan, D.V. Bompa, Ahmed Elghazouli, E. Nunez, M. Eatherthon, Roberto Leon
11:00-11:15		Discussion	

Break

Welded Connections Chair: Frantisek Wald

Schedule	ID	Title	Authors
11:30-11:45	29	Laser tube technology - A new automation procedure in end-preparation of CHS-to-CHS intersections welded by partial joint penetration (PJP): design, constructional and experimental remarks	Augusto Mastropasqua, Massimo Majowiecki, Claudio Duarte
11:45-12:00	79	Stiffness of equal width welded I-beam-to-RHS-column connections	Carlos Lopez-Colina, Miguel A. Serrano, Miguel Lozano, Fernando L. Gayarre, Jesus M. Suarez
12:00-12:15	111	Peculiarities of resistance definition for welded offset T-joint between RHS members	Svitlana Kalmykova, Frantisek Wald
12:15-12:30	404	Ultimate Strength of K-joints in Lattice Structures Composed of Circular Hollow Sections (CHS)	Djordje Djuricic, Zlatko Markovic, Milena Jankovic, Dusko Lucic
12:30-12:45		Discussion	

Mid-day break

Track 7: Day 3 (Friday 3 September)

Welded Connections Chair: Carlos Lopez-Colina

Schedule	ID	Title	Authors
14:35-14:50	254	Strain Design Limit for Hollow Section Joints	Matias Kozich, Petr Jehlika, Marta Kurikova, Frantisek Wald, Xiao-Ding Bu, Jeffrey Packer, Jaromir Kabelac
14:50-15:05	244	Diffusible hydrogen concentration in draw arc stud weldments	Oliver Bratz
15:05-15:20	551	Load-carrying capacity of a welded HSS joint in a slimfloor truss	Pooya Saremi, Wei Lu, Jari Puttonen, Dan Pada, Jyrki Kesti
15:20-15:35	338	Numerical assessment of stainless steel tubular T-joints subjected to brace and chord axial forces	Mateus Nogueira, Luciano Lima, Pedro Vellasco, Ben Young
15:35-15:50		Discussion	

Break

Track 8: Day 3 (Friday 3 September)

Eurocodes & Codification Chair: Paulo Vila Real

Schedule	ID	Title	Authors
10:00-10:15	16	Critical comparison of assessment codes for steel moment resisting frames	Fernando Gutierrez-Urzua, Fabio Freddi, Luigi Di Sarno
10:15-10:30	33	New Eurocode 4 design rules for shallow floor construction and other flooring types using precast concrete elements	Stephen Hicks, Matthias Braun, Zlatko Markovic, James Way
10:30-10:45	508	Comparative Study of Steel Design Provisions Using the AISC-360, CSA S16, EC3, JSCE and AIJ-2017	Misael Cordova
10:45-11:00	684	Assessment of the Interaction Conditions of I-shaped Cross-Sections	Christian Ludwig
11:00-11:15		Discussion	

Break

Eurocodes & Codification Chair: Paulo Vila Real

Schedule	ID	Title	Authors
11:30-11:45	369	Experimental study of various stiffened openings	Sebastien Durif, Taher Al-Dafaea, Abdelhamid Bouchair
11:45-12:00	370	Numerical and analytical study of intermediate web-post buckling	Sebastien Durif, Abdelhamid Bouchair, Nuno Lopes
12:00-12:15	530	Machine and Deep Learning based methods for the prediction of the buckling resistance of SHS and RHS	Andrea Toffolon, Michael Kraus, Andreas Taras
12:15-12:30	691	Behaviour and design of fixed-ended steel equal-leg angle section columns	Behnam Behzadi-Sofiani, Leroy Gardner, Ahmer Wadee, Pedro Dinis, Dinar Camotim
12:30-12:45		Discussion	

Mid-day break

Track 8: Day 3 (Friday 3 September)

Eurocodes & Codification Chair: Ulrike Kuhlmann

Schedule	ID	Title	Authors
14:35-14:50	272	A proposal for the local stresses in retrofitted crane runway girders due to eccentric wheel loading	Markus Kettler, Harald Unterweger, Christoph Derler
14:50-15:05	520	Recalibration of the damage equivalence factors for fatigue assessment of road bridges	Gianluca Bianchi, Alain Nussbaumer ,Jose Oliveira Pedro
15:05-15:20	203	Intelligent Steel Structures - Measurement-Based Model Updating Concepts for Innovative Design Strategies	Idna Wudtke, Sharmistha Chowdhury, Matthias Kraus
15:20-15:35		Discussion	

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