

HE Special Symposium with a round table and panel discussions, ECF22

	Title – Oral presentations	Authors	Type	ECF22 Paper Submission No. – Session.paper number in the session ▶ - Full paper submitted
1.	Analysis of stress corrosion cracking in X80 pipeline steel: An approach from the Theory of Critical Distances	Pablo González Gutiérrez (1*) , Sergio Cicero González (1), José Alberto Álvarez Laso (1) and Borja Arroyo Martínez (1) <i>(1) aLADICIM (Laboratorio de la División de Ciencia e Ingeniería de los Materiales), Universidad de Cantabria. ETS Ingenieros de Caminos, Spain</i>	SS - HE Regular	1 – S1.4 ▶
2.	Hydrogen embrittlement of steel pipelines during transients	Dr. Zahreddine Hafsi (1*) , Manoranjan Mishra (2) and Sami Elaoud (1) <i>(1) National Engineering School of Sfax, Laboratory of Applied Fluid Mechanics, Process and Environment Engineering, Tunisia</i> <i>(2) Indian Institute of Technology Ropar, Department of Chemical Engineering, India</i>	SS - HE Regular	45 – S1.3 ▶
3.	Investigations into the hydrogen embrittlement susceptibility of T24 boiler tubing in the context of stress corrosion cracking issues of T24 welds	Dr. Evy De Bruycker (1*) , Staf Huysmans (2) and Frédéric Vanderlinden (1) <i>(1) ENGIE Laborelec, Belgium</i> <i>(2) SH MatWeld Consult, Belgium</i>	SS - HE Regular	55 – S6.9 ▶
4.	Hydrogen diffusion along grain boundaries: Atomistic simulations and mechanistic model	Xiao Zhou (1), Prof. William Curtin (2*) and Jun Song, Associate Professor (1*) <i>(1) McGill University, Department of Mining and Materials Engineering, Canada</i> <i>(2) Laboratory for Multiscale Mechanics Modeling, École polytechnique fédérale de Lausanne – EPFL, Switzerland</i>	SS - HE Invited	57 – S2.1

5.	<i>A new concept for prevention of hydrogen-induced mechanical degradation: viewpoints of metastability and high entropy</i>	Motomichi Koyama, Assistance Prof. (1*) , Takeshi Eguchi (1), Kenshiro Ichii (1), Cemal Cem Tasan (2) and Kaneaki Tsuzaki (3) <i>(1) Kyushu University, Department of Mechanical Engineering, Faculty of Engineering, Japan</i> <i>(2) Massachusetts Institute of Technology, Department of Materials Science and Engineering, USA</i> <i>(3) Kyushu University, HYDROGENIUS, Japan</i>	SS - HE Invited	77 – S4.2 ▶
6.	<i>Recent studies of hydrogen embrittlement in structural materials</i>	Prof. Dan Eliezer (1*) and Ravit Silverstein (2) <i>(1) Ben-Gurion University of the Negev, Department of Materials Engineering, Israel</i> <i>(2) University of California, Materials Department, USA</i>	SS - HE Invited	170 – S1.1 ▶
7.	Toward a non-destructive diagnostic analysis of exercises pipelines: models and experiences	Gabriella Bolzon, Associate Prof. (1*) and Marco Talassi (1) <i>(1) Politecnico di Milano, Department of Civil and Environmental Engineering, Italy</i>	SS - HE Regular	188 – S1.7 ▶
8.	Effect of hydrogen on the motion of dislocations during nanoindentation	Prof. Jianying He (1*) , Kai Zhao (1) and Zhiliang Zhang (1) <i>(1) Norwegian University of Science and Technology - NTNU, Department of Structural Engineering, Faculty of Engineering, Norway</i>	SS - HE Regular	191 – S5.3
9.	Hydrogen effects on the formation of nickel based superalloys cutting and wear products.	Prof. Alexander Balitskii (1*) and Kolesnikov V. (1) <i>(1) Karpenko Physicomechanical Institute, Ukrainian National Academy of Science, Ukraine</i>	SS - HE Regular	202 – S1.8

10.	Trapping states of hydrogen and hydrogen embrittlement of high strength steels	Prof. Kenichi Takai (1*) and Hiroshi Suzuki (1) (1) <i>Sophia University, Department of Engineering and Applied Science, Faculty of Science and Technology, Japan</i>	SS - HE Invited	204 – S3.1
11.	Molecular dynamics study of the influence of nonhydrostatic stress on the diffusion behavior of hydrogen in bcc-Fe	Ryosuke Matsumoto, Associate Prof. (1*), Shunki Nagase (1) and Shinya Taketomi (2) (1) <i>Kyoto University, Department of Mechanical Engineering and Science, Japan</i> (3) <i>Saga University, Department of Mechanical Engineering, Japan</i>	SS - HE Regular	208 – S2.3
12.	Strain rate sensitivity of microstructural damage evolution in a dual-phase steel pre-charged with hydrogen	Tsubasa Kumamoto (1*), Motomichi Koyama (1) and Kaneaki Tsuzaki (2) (1) <i>Kyushu University, Department of Mechanical Engineering, Japan</i> (2) <i>Kyushu University, HYDROGENIUS, Japan</i>	SS - HE Regular	212 – S3.5 ▶
13.	Localized plasticity and associated cracking in stable and metastable high-entropy alloys pre-charged with hydrogen	Kenshiro Ichii (1*), Motomichi Koyama (1), Cemal Cem Tasan (2) and Kaneaki Tsuzaki (3) (1) <i>Kyushu University, Department of Mechanical Engineering, Japan</i> (2) <i>Massachusetts Institute of Technology, Department of Materials Science and Engineering, USA</i> (3) <i>Kyushu University, HYDROGENIUS, Japan</i>	SS - HE Regular	213 – S6.4 ▶

14.	Hydrogen embrittlement in pipelines transporting sour hydrocarbons	Dr. G. Gabetta (1*), F. Pagliari (1*) and N. Rezgui (2) (1) <i>Eni SpA, Italy</i> (2) <i>Eni Intern.Res. Ltd, Kazakhstan</i>	SS - HE Regular	218 – S1.5 ▶
15.	Hydrogen embrittlement in advanced high strength steels and ultra high strength steels: a new investigation approach	Antonello Cherubini (1), Linda Bacchi (2), Serena Corsinovi (2), Michele Maria Tedesco (3), Marco Beghini (1) and Prof. Renzo Valentini (1*) (1) <i>Università di Pisa, Department of Chemistry and Industrial Chemistry, Italy</i> (2) <i>Letomec Srl, Italy</i> (3) <i>Fiat Chrysler Automobiles, CRF Research Center, Italy</i>	SS - HE Regular	219 – S5.8 ▶
16.	The crucial defects induced in austenitic stainless steel upon hydrogen embrittlement by positron annihilation spectroscopy	Masanori Fujinami (1*), Akari Komatsu (1) and Luca Chiari (1) (1) <i>Chiba University, Japan</i>	SS - HE Regular	224 – S5.4
17.	Multi-scale analyses of the different interactions between defects and hydrogen: on the contribution of the elastic fields	Prof. Xavier Feugas (1,2*), Guillaume Hachet (1), Jiaqi Li (1), Arnaud Metsue (1) and Abdelali Oudriss (1) (1) <i>Université de La Rochelle, France,</i> (2) <i>Research Vice President, Director of LaSIE UMR CNRS 7356, LABORATOIRE DES SCIENCES DE L'INGENIEUR POUR L'ENVIRONNEMENT, France</i>	SS - HE Invited	231 – S6.2

18.	Environmentally-assisted fatigue crack growth mechanisms in ARMCO iron under high pressure of gaseous hydrogen	Tomoki Shinko (1), Damien Halm (1), Guillaume Benoit (1) and Prof. Gilbert Hénaff (1*) (1) <i>Pprime Institute, ISAE-ENSMA, France</i>	SS - HE Regular	232 – S4.3
19.	Numerical simulation of hydrogen embrittlement in iron	Shinya Taketomi, Associate Prof. (1*) and Ryosuke Matsumoto (2) (1) <i>Saga University, Department of Mechanical Engineering, Japan</i> (2) <i>Kyoto University, Department of Mechanical Engineering and Science, Japan</i>	SS - HE Regular	237 – S2.4
20.	Hydrogen-microvoid interaction: bridging the gap between hydrogen embrittlement and ductile failure	Haiyang Yu (1), Jim Stian Olsen (2), Jianying He (2) and Prof. Zhiliang Zhang (2*) (1) <i>University of Oxford, Department of Materials, UK</i> (2) <i>Norwegian University of Science and Technology - NTNU, Department of Structural Engineering, Faculty of Engineering, Norway</i>	SS - HE Invited	239 – S2.2
21.	Crack initiation of a 7XXX aluminium alloy in humidity analysed via Slow Strain Rate Testing	Elisabeth Schwarzenböck (1*), Levke Wiehler (2), Theo Hack (1) and Christian Engel (1) (1) <i>Airbus, Germany</i> (2) <i>Universität der Bundeswehr München, Germany</i>	SS - HE Regular	240 – S5.5
22.	Assessment of hydrogen embrittlement via in-situ imaging techniques in high Zn Al-Zn-Mg alloys	Prof. Hiroyuki Toda (1*), Hang Su (1), Kazuyuki Shimizu (1), Hiro Fujihara (1), Kyosuke Hirayama (1), Akihisa Takeuchi (2) and Kentaro Uesugi (2) (1) <i>Kyushu University, Department of Mechanical Engineering, Japan</i> (2) <i>Japan Synchrotron Radiation Research Institute, Japan</i>	SS - HE Invited	246 – S5.1

23.	Adaptation of hydrogen transport models at the polycrystal scale and application to the U-bend test	Yann Charles, Assistant Professor (1*) , Monique Gaspérini (1), Kevin Ardon (1), S. Ayadi (1), Sofiane Benannoune (1) and Jonathan Mougnot (1) <i>(1) Université Paris 13, Laboratoire des Sciences des Procédés et des Matériaux, LSPM, CNRS, France</i>	SS - HE Regular	266 – S2.5 ▶
24.	Influence of hydrogen for crack formation during mechanical clinching	Daisuke Sasaki (1*) , Yuki Tampa (1) and Toru Kato (2) <i>(1) National Institute of Technology, Kurume College, Japan</i> <i>(2) National Institute of Technology, Ishikawa College, Japan</i>	SS - HE Regular	294 – S3.6 ▶
25.	Effect of vanadium-alloying on hydrogen embrittlement of austenitic high-nitrogen steels	Galina G. Maier (1*) , Elena G. Astafurova (1), Valentina A. Moskvina (1), Evgeny V. Melnikov (1), Sergey V. Astafurov (1), Alexander G. Burlachenko (1) and Nina K. Galchenko (1*) <i>(1) Institute of Strength Physics and Materials Science, Siberian Branch of Russian Academy of Sciences, Russia</i>	SS - HE Regular	306 – S6.8 ▶
26.	Plasticity-induced intergranular and “quasi-cleavage” fracture of lath martensitic steels in hydrogen	Dr. Mohsen Dadfarnia (1,2*) , Akihide Nagao (1,2,3), Brian P. Somerday (1,4), Petros Sofronis (1,2) and Robert O. Ritchie (1,5) <i>(1) International Institute for Carbon Neutral Energy Research (WPI-I2CNER), Kyushu University, Japan</i> <i>(2) Department of Mechanical Science and Engineering, University of Illinois at Urbana-Champaign, USA</i> <i>(3) Material Surface & Interface Science Research Department, Steel Research Laboratory, JFE Steel Corporation, Japan</i> <i>(4) Southwest Research Institute, USA</i> <i>(5) Materials Sciences Division, Lawrence Berkeley National Laboratory, and Department of Materials Science and Engineering, University of California, USA</i>	SS - HE Invited	311 – S6.1

27.	Atomistic modelling of light-element cosegregation at structural defects in iron	Dr. Eunan J. McEniry (1*), Tilmann Hickel (1) and Joerg Neugebauer (1) (1) <i>Max-Planck-Institut fuer Eisenforschung GmbH, Germany</i>	SS - HE Regular	323 – S2.6
28.	The influence of hydrogen desorption on micromechanical properties and tribological behavior of iron and carbon steels	Vasyl Pokhmurskii (1), Myroslav Khoma (1), Vasyl Vynar (1), Chrystyna Vasylyv (1*), Nadiia Ratska (1*), T. Voronyak (1) and I. Stasyshyn (1) (1) <i>National Academy of Sciences of Ukraine, Karpenko Physico-Mechanical Institute, Ukraine</i>	SS - HE Regular	329 – S5.9 ▶
29.	Features of the hydrogen-assisted cracking mechanism in the low-carbon steel at ex- and in-situ hydrogen charging	Evgeniy Merson (1*), Pavel Myagkikh (1), Vitaliy Poluyanov (1), Dmitriy Merson (1) and Alexei Vinogradov (2) (1) <i>Togliatti State University, Institute of Advanced Technologies, Russia</i> (2) <i>Norwegian University of Science and Technology – NTNU, Department of Mechanical and Industrial Engineering, Norway</i>	SS - HE Regular	333 – S6.5 ▶
30.	Proposal and verification of novel fatigue crack propagation simulation method by finite element method	Temma Sano (1*), Daisuke Sasaki (2), Motomichi Koyama (3), Shigeru Hamada (3*) and Hiroshi Noguchi (3*) (1) <i>Kyushu University, Graduate School of Engineering, Kyushu University, Japan</i> (2) <i>National Institute of Technology, Kurume College, Japan</i> (3) <i>Kyushu University, Faculty of Engineering, Japan</i>	SS - HE Regular	337 – S3.4 ▶

31.	A hydrogen embrittlement model based on hydrogen-microvoid interactions	Haiyang Yu (1*) , Jim Stian Olsen (2), Jianying He (2), Edmund Tarleton (1), Alan Cocks (1) and Zhiliang Zhang (2) <i>(1) University of Oxford, Department of Materials, UK</i> <i>(2) Norwegian University of Science and Technology - NTNU, Department of Structural Engineering, Faculty of Engineering, Norway</i>	SS - HE Regular	338 – S6.7
32.	Modelling of hydrogen embrittlement with a discrete dislocation plasticity coupled cohesive zone approach	Haiyang Yu (1), Edmund Tarleton (1) and Prof. Alan Cocks (1*) <i>(1) University of Oxford, Department of Materials, UK</i>	SS - HE Regular	339 – S6.6
33.	Intrinsic ductility as a precursor to ductile fracture	Predrag Andric (1*) and William Curtin (1) <i>(1) Laboratory for Multiscale Mechanics Modeling, École polytechnique fédérale de Lausanne – EPFL, Switzerland</i>	SS - HE Regular	340 – S5.6
34.	Electrochemical fracture analysis of in-service natural gas pipeline steels	Prof. Hryhoriy Nykyforchyn (1*) , Oleksandr Tsyrlunyk (1) and Olha Zvirko (1) <i>(1) Karpenko Physicomechanical Institute, Ukrainian National Academy of Science, Lviv, Ukraine</i>	SS - HE Regular	359 – S1.6 ▶
35.	EBSD characterization of hydrogen induced cracks in TRIP-assisted steel	A. Laureys (1), L. Claeys (1), M. Pinson (1) , T. Depover (1) and K. Verbeken (1) <i>(1) Ghent University, Department of Materials, Textiles and Chemical Engineering, Belgium</i>	SS - HE Poster	393 – S3.7 ▶

36.	Vacuum vs argon technology for hydrogen measurement	A. M. Polyanskiy (1), Prof. Vladimir A. Polyanskiy (2,3*), K. P. Frolova (2,3) and Yu. A. Yakovlev (2,3) (1) <i>RDC Electron & Beam Technology, Ltd., Russia</i> (2) <i>Peter the Great St. Petersburg Polytechnic University, Russia</i> (3) <i>Institute of Problems of Mechanical Engineering RAS, Russia</i>	SS - HE Regular	422 – S1.2 ▶
37.	<i>Understanding the interaction between a steel microstructure and hydrogen: the key to develop more hydrogen resistant materials?</i>	Tom Depover (1) and Prof. Kim Verbeken (1*) (1) <i>Ghent University, Department of Materials, Textiles and Chemical Engineering, Belgium</i>	SS - HE Invited	425 – S4.1 ▶
38.	Tracking hydrogen embrittlement using short fatigue crack behavior of metals	Vishal Singh (1), Rajwinder Singh (1), Amanjot Singh (2), and Dhiraj K. Mahajan, Assistance Prof. (1*) (1) <i>Indian Institute of Technology Ropar (IIT Ropar), India</i> (1) <i>Ropar Mechanics of Materials Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Ropar, India</i>	SS - HE Regular	429 – S4.4
39.	High energy X-Ray diffraction measurements of strain and dislocation density near steel fatigue cracks grown in hydrogen	Matthew Connolly (1*), Peter Bradley (1), Damian Lauria (1), Andrew Slifka (1), and Elizabeth Drexler (1) (1) <i>National Institute of Standards and Technology - NIST, USA</i>	SS - HE Regular	439 – S5.7

40.	Dislocation and twinning behaviors in high manganese steels in respect to hydrogen and material chemistry	Xiaofei Guo (1*), Stefan Zaefferer (2), Wolfgang Bleck (1) and Fady Archie (2) (1) <i>Steel Institute, RWTH Aachen University, Germany</i> (2) <i>Max-Planck-Institut für Eisenforschung GmbH, Germany</i>	SS - HE Regular	444 – S3.3
41.	Hydrogen enhanced fatigue crack growth rates in a ferritic Fe-3wt%Si alloy	Antonio Alvaro (1*), Di Wan (2), Vigdis Olden (1) and Afrooz Barnoush (2) (1) <i>SINTEF Industry, Department of Materials Integrity and Welding, Norway</i> (2) <i>Norwegian University of Science and Technology - NTNU, Department of Mechanical and Industrial Engineering, Faculty of Engineering, Norway</i>	SS - HE Regular	453 – S3.2 ▶
42.	Study on stress coupled hydrogen diffusion and fracture of high strength steels using finite element analysis (FEA) based on incremental step load (ISL) testing methodology	Tuhin Das (1*), E. Legrand (1), S. V. Brahimmi (2), J. Song (1) and S. Yue Xiaofei (1) (1) <i>McGill University, Department of Mining and Materials Engineering, Canada</i> (2) <i>IBECA Technologies Corp, Canada</i>	SS - HE Regular	454 – S4.5
43.	<i>Understanding the hydrogen embrittlement by novel critical experiments</i>	Bjørn Rune Rogne (1), Yun Deng (1), Tarlan Hajilou (1), Di Wan (1), Xu Lu (1), Dong Wang (1) and Prof. Afrooz Barnoush (1*), (1) <i>Norwegian University of Science and Technology - NTNU, Department of Mechanical and Industrial Engineering, Faculty of Engineering, Norway</i>	SS - HE Invited	465 – S5.2

44.	Assessment of the contribution of internal pressure to the Structural damage in a hydrogen-charged Type 316L austenitic stainless steel during slow strain rate tensile test	Jean-Gabriel Sezgin (1*), Osamu Takakuwa (2), Hisao Matsunaga (2,3,4) and Junichiro Yamabe (5) (1) <i>National Institute of Advanced Industrial Science and Technology (AIST), Hydrogen Materials Laboratory (HydroMate), Kyushu University, Japan</i> (2) <i>Kyushu University, Department of Mechanical Engineering, Japan</i> (3) <i>Research Center for Hydrogen Industrial Use and Storage (HYDROGENIUS), Kyushu University, Japan</i> (4) <i>International Institute for Carbon-Neutral Energy Research (I2CNER), Kyushu University, Japan</i> (5) <i>Fukuoka University, Departement of Mechanical Engineering, Japan</i>	SS - HE Regular	483 – S4.6 ▶
45.	Stable and unstable growth of crack tip precipitates	Wureguli Reheman (1), Per Ståhle (2*), Ram N. Singh (3), and Martin Fisk (4) (1) <i>Blekinge Institute of Technology, Mechanical Engineering Dept., Sweden</i> (2) <i>Lund University, Solid Mechanics, LTH, Sweden</i> (3) <i>Bhabha Atomic Research Centre, India</i> (4) <i>Malmo University, Materials science and applied mathematics, Sweden</i>	SS - HE Regular	532 – S4.7 ▶
48.	The synergistic interplay of the localized plasticity (HELP) and decohesion (HEDE) mechanisms of hydrogen embrittlement in steels: effects on macromechanical properties	Milos Djukic, Associate Professor (1*), Gordana Bakic (1), Bratislav Rajcic (1), Vera Sijacki Zeravcic (1), Aleksandar Sedmak (1), Radivoje Mitrovic (1) and Zarko Miskovic (1) (1) <i>University of Belgrade, Faculty of Mechanical Engineering, Serbia</i>	SS - HE Regular	541 – S6.3

46.	Mechanisms of Hydrogen Embrittlement: Insights from Atomistic Studies	<p>ECF22 Plenary Lecture by Prof. William Curtin (1*), co-chair of the HE Special Symposium</p> <p><i>(1) Laboratory for Multiscale Mechanics Modeling, École polytechnique fédérale de Lausanne – EPFL, Switzerland</i></p>	ECF22 Plenary Lecture	Plenary 6 , Thursday 30, Ivo Andric ballroom, 9.00 -10.30
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	Title – Poster presentations	Authors	Type	ECF22 Paper Submission No. – ▶ - Full paper submitted
P1	Effect of hydrogen charging current density on hydrogen concentration and hydrogen-induced defects in the low-carbon steel	<p>Evgeniy Merson (1), Vitaliy Poluyanov (1), Pavel Myagkikh (1), Dmitriy Merson (1) and Alexei Vinogradov (2)</p> <p><i>(1) Togliatti State University, Institute of Advanced Technologies, Russia</i> <i>(2) Norwegian University of Science and Technology – NTNU, Department of Mechanical and Industrial Engineering, Norway</i></p>	SS - HE Poster	335 – Poster session ▶

SS – HE - Special Symposium with a round table and panel discussions Announcement:

"Recent Advances on Hydrogen Embrittlement Understanding and Future Research Framework",

Organized by:

Milos Djukic, Associate Prof. ¹, Prof. William Curtin ² and Prof. Zhiliang Zhang ³

¹ Department of Engineering Materials and Welding, University of Belgrade, Faculty of Mechanical Engineering, Serbia

² Laboratory for Multiscale Mechanics Modeling, École polytechnique fédérale de Lausanne – EPFL, Switzerland

³ Department of Structural Engineering, Faculty of Engineering – NTNU, Norway

within the framework of the 22nd European Conference on Fracture - ECF22 to be held in Belgrade, Serbia, 26-31 August 2018

(see <http://www.ecf22.rs/>).

HE Special Symposium, Thursday 30 - Session 7, Parallel 7 (afternoon), 14.30 - 19.00
Round table and panel discussions

Room	Nikola Tesla B
Chair	Milos Djukic, William Curtin and Zhiliang Zhang
Track	HE Special Symposium, Session 7 – Round table and panel discussions
14.30 – 14.40	Introduction – Opening of the HE Special Symposium Round table with panel discussions
Topic - Session 7.1	Hydrogen-materials interactions: New insights
Chair	Kim Verbeken, Dan Eliezer, Kenichi Takai, Gilbert Hénaff, Milos Djukic, Afroz Barnoush and Antonio Alvaro
7.1 14.40 – 15.25	Session 7.1 – Round table and panel discussions
Topic - Session 7.2	Multiscale modelling of hydrogen embrittlement
Chair	William Curtin, Zhiliang Zhang, Alan Cocks, Jun Song, Xavier Feaugas, Eunan J. Mceniry and Mohsen Dadfarnia
7.2 15.25 – 16.10	Session 7.2 – Round table and panel discussions
16.10 – 16.25	<i>Break</i>
Topic - Session 7.3	The coexistence of different hydrogen embrittlement mechanisms and their simultaneous effects
Chair	Milos Djukic, Mohsen Dadfarnia, May L. Martin, Zhiliang Zhang, Kim Verbeken, Afroz Barnoush and Motomichi Koyama
7.3 16.25 – 17.10	Session 7.3 – Round table and panel discussions
Topic - Session 7.4	Hydrogen mapping and novel critical experiments
Chair	Hiroyuki Toda, Afroz Barnoush, Zhiliang Zhang, Motomichi Koyama, May L. Martin and Masanori Fujinami
7.4 17.10 – 17.55	Session 7.4 – Round table and panel discussions
17.55 – 18.10	<i>Break</i>
Topic - Session 7.5	Hydrogen embrittlement research in Japan: Current perspective and future trend
Chair	Kaneaki Tsuzaki, Kenichi Takai, Hiroyuki Toda, Masanori Fujinami, Ryosuke Matsumoto, Shinya Taketomi and Motomichi Koyama
7.5 18.10 – 18.55	Session 7.5 – Round table and panel discussions
18.55 – 19.00	Closing of the HE Special Symposium , Round table and panel discussions

HE Special Symposium - Timetable, Room: Nikola Tesla B

Monday, 27th - Session 1, Parallel 1 (morning) 11.00 - 13.30 h Hydrogen embrittlement, industrial case studies <i>Paper Submission No.</i>		Tuesday, 28th - Session 3, Parallel 3 (morning) 11.00 - 13.30 h Hydrogen-materials interactions, part I (steels) <i>Paper Submission No.</i>		Wednesday, 29th - Session 5, Parallel 5 (morning) 11.00 - 13.30 h Hydrogen mapping and novel critical experiments, Hydrogen-materials interactions, part II <i>Paper Submission No.</i>		Thursday, 30th - Session 6, Parallel 6 (morning) 11.00 - 13.30 h Hydrogen embrittlement mechanism: Experiments and models <i>Paper Submission No.</i>	
1.1	170 Invited talk	3.1	204 Invited talk	5.1	246 Invited talk	6.1	311 Invited talk
1.2	422	3.2	452	5.2	465 Invited talk	6.2	231 Invited talk
1.3	45	3.3	444	5.3	191	6.3	541
1.4	1	3.4	337	5.4	224	6.4	213
1.5	218	3.5	212	5.5	240	6.5	333
1.6	359	3.6	294	5.6	340	6.6	339
1.7	188	3.7	393	294	439	6.7	338
1.8	202			5.8	219	6.8	306
				5.9	329	6.9	55
Monday, 27th - Session 2, Parallel 2 (afternoon) 16.15 - 18.00 h Hydrogen embrittlement modelling <i>Paper Submission No.</i>		Tuesday, 28th - Session 4, Parallel 4 (afternoon) 16.15 - 18.10 h Materials mechanical response <i>Paper Submission No.</i>		-		Thursday, 30th - Session 7, Parallel 7 (afternoon) 14.30 - 19.00 h Round table and panel discussions	
2.1	57 Invited talk	4.1	425 Invited talk				Session 7.1
2.2	239 Invited talk	4.2	77 Invited talk				Session 7.2
2.3	208	4.3	232				Session 7.3
2.4	237	4.4	429				Session 7.4
2.5	266	4.5	454				Session 7.5
2.6	323	4.6	483				
		4.7	532				

Programme - Final

The Special Symposium - "Recent Advances on Hydrogen Embrittlement Understanding and Future Research Framework" (HE Special Symposium) with a round table and panel discussions

(Thursday 30, Room: Nikola Tesla B, afternoon, 14.30 - 19.00),

within the framework of the 22nd European Conference on Fracture - **ECF22**

Hotel Metropol Palace, Room: Nikola Tesla B, 27. to 30. August, 2018, Belgrade, Serbia

HE Special Symposium - Timetable, Room: Nikola Tesla B

Monday, 27th - Session 1, Parallel 1 (morning) 11.00 - 13.30 h Hydrogen embrittlement, industrial case studies	Tuesday, 28th - Session 3, Parallel 3 (morning) 11.00 - 13.30 h Hydrogen-materials interactions, part I (steels)	Wednesday, 29th - Session 5, Parallel 5 (morning) 11.00 - 13.30 h Hydrogen mapping and novel critical experiments, Hydrogen-materials interactions, part II	Thursday, 30th - Session 6, Parallel 6 (morning) 11.00 - 13.30 h Hydrogen embrittlement mechanism: Experiments and models
Monday, 27th - Session 2, Parallel 2 (afternoon) 16.15 - 18.00 h Hydrogen embrittlement modelling	Tuesday, 28th - Session 4, Parallel 4 (afternoon) 16.15 - 18.10 h Materials mechanical response	-	Thursday, 30th - Session 7, Parallel 7 (afternoon) 14.30 - 19.00 h Round table and panel discussions

Belgrade, Serbia, 13.08.2018.



Milos Djukic, William Curtin and Zhiliang Zhang

Organizers of the ECF22 HE Special Symposium - "Recent Advances on Hydrogen Embrittlement Understanding and Future Research Framework" with a round table and panel discussions, Room: Nikola Tesla B, 27. to 30. August, 2018, Belgrade, Serbia