

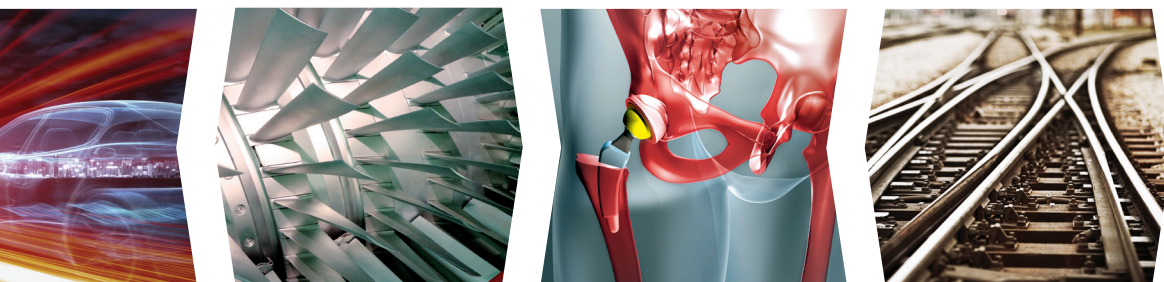


fatigue design2017

29 & 30
November
2017
Senlis, France

7th edition of the International
conference on fatigue design

PARTNER COUNTRY: ITALY



www.fatiguedesign.org

Wednesday 29 November

Room 6

8.30 - Opening statement

Jean-Christophe Augé, Executive Manager, Cetim, Senlis, France
Pascal Souquet, Scientific Advisor and **Fabien Lefebvre**, Conference Chairman, Cetim, Senlis, France

9.00-10.30 - Plenary Session - Chair: F. Lefebvre

- FD17-013 **Fatigue design with additive manufactured metals: issues to consider and perspective for future research**
A. Fatemi, R. Molaei - University of Toledo, Ohio, USA
- FD17-099 **Fatigue damage and stiffness evolution in composite laminates: a damage-based framework**
P. A. Carraro, M. Quaresimin - University of Padova - Department of Management and Engineering, Vicenza, Italy
- FD17-081 **Effect of mean shear stress on the fatigue strength of notched components under multiaxial stress state**
M. Bennebach¹, T. Palin-Luc², A. Messenger² (¹Cetim, Senlis, France - ²Arts et Métiers ParisTech, Bordeaux, France)



10.30-11.15 - Coffee/Technological showcase and Poster exhibition

11.15 - Additive manufacturing S01-1

- FD17-017 **Predicting failure in additively manufactured parts using X-ray computed tomography and simulation**
Johannes Fieries¹, Philipp Schumann², Christof Reinhart¹ (¹Volume Graphics GmbH, Heidelberg, Germany, ²Concept Laser GmbH, Lichtenfels, Germany)
- FD17-064 **Influence of defect size on the fatigue resistance of AlSi10Mg alloy elaborated by Additive Laser Manufacturing (ALM)**
J. Domfang Ngnekou^{1,2}, Y. Nadot¹, G. Henaff¹, J. Nicolai¹, T. Rouge-Carrasat², L. Ridosz²
(¹Prime institute, ISAE-ENSAE, UPR CNRS 3346, Material Engineering Department, Chasseneuil du Poitou, France -²Zodiac Aerospace, Plaisir, France)
- FD17-121 **Surface roughness of Ti-6Al-4V parts obtained by SLM and EBM: effect on the high cycle fatigue life**
B. Vayssette¹, N. Saintier¹, C. Brugger¹, M. Elmayer¹, E. Pessard² (¹I2M, Talence, France -²Lampa, Angers, France)

12.45 - Lunch

14.00 - 16.00 - Experimental and numerical design and validation methods S07-2

- FD17-044 **Through process modelling applied to the fatigue resistance of cast aluminum**
Y. Nadot¹, M. Iben Houria^{1,2}, R. Fathallah³, D. Maijer⁴
(¹P - Ensm, Futuroscope, France, ²ETS, Montreal, Canada, ³ENISO, Sousse, Tunisia, ⁴UBC, Vancouver, Canada)
- FD17-004 **Correlation of simulation, test bench and rough road testing in terms of strength and fatigue life of a leaf spring**
M. Bakir, C. Donertas, M. Siktas, B. Ozmen - Mercedes-Benz Turk A.S., Istanbul, Turkey
- FD17-059 **The dissipated heat energy as a fatigue damage index for experimental fatigue life estimations**
G. Meneghetti, M. Ricotta - University of Padova, Department of Industrial Engineering, via Venezia, 1, Padova, Italy
- FD17-114 **Fatigue phenomena on trunnions of large spherical valves**
D. Gravelaine - EDF, Le Bourget du lac, France

16.00-17.15 - Coffee/Technological showcase and Poster exhibition

17.15 - 18.45 - Manufacturing process effects in fatigue analysis S10-2

- FD17-110 **Effect of porosity on the fatigue strength of cast aluminium alloys: from the specimen to the structure**
V. D. Le¹, P. Osmond², F. Morel¹, D. Bellet¹, N. Saintier³ (¹Arts et Métiers ParisTech - Laboratoire Lampa, Angers, France, ²PSA Peugeot Citroën, La Garenne-Colombes, France, ³Arts et Métiers ParisTech - Laboratoire I2M, Talence, France)
- FD17-115 **Using shot peening to avoid micropitting in gears applications**
C. Peyrac¹, D. Ghribi¹, J. Samuel², F. Lefebvre¹
(¹Cetim, Senlis, France, ²Wino, Grenoble, France)
- FD17-080 **Shot peening and case process, a combination to prevent fatigue**
F. Savrot - MIC, Amilly, France

19.00-23.00 - Gala evening

8.30-10.00 - Manufacturing process effects in fatigue analysis S10-3

- FD17-016 **Local fatigue strength assessment of induction hardened components based on numerical manufacturing process simulation**
M. Leitner¹, R. Aigner¹, D. Dobberke² (¹Montanuniversität Leoben, Austria, ²BMW Group, München, Germany)
- FD17-028 **Determination of residual weld stresses with the incremental hole-drilling method in tubular steel bridge joints**
E. Van Puymbroeck, W. Nagy, H. Fang, H. De Backer - Ghent University, Belgium
- FD17-024 **Local stress gradient approach for multiaxial fatigue assessment of high strength steels in occurrence of defects**
F. Penneç¹, W. Niamchaona¹, K. Tihay², M. Duchet², B. Weber², J. L. Robert¹
(¹Université Clermont Auvergne, Institut Pascal, France, ²ArcelorMittal Maizières Research, Maizières-Les-Metz, France)

10.00-10.45 - Coffee/Technological showcase and Poster exhibition

10.45 - 12.15 - Bio-mechanical and orthopaedic implant S02-1

- FD17-116 **The role of microconstituents on the fatigue failure of bone cement**
M. Brown - Southampton University, Southampton, United Kingdom
- FD17-119 **Fatigue reliability assessment on range of femoral implants**
M. Chollet, Y. Suchier - Cetim, Saint-Étienne, France
- FD17-120 **Design of modular prostheses**
M. Chollet, Y. Suchier - Cetim, Saint-Étienne, France

12.15-13.30 - Lunch

13.30 - 15.30 - Experimental and numerical design and validation methods S07-3

- FD17-070 **Strategies for material modelling regarding fatigue design under variable amplitude loading with strain-based fatigue design approaches**, M. Hell², R. Wagne², H. Kaufmann², T. Melz^{1,2} (¹Resarch Group of System Reliability, Adaptive Systems, and Machine Acoustics, Technische Universität Darmstadt, Germany, ²Fraunhofer Institute for Structural Durability and System Reliability LBF, Darmstadt, Germany)
- FD17-091 **Modelling fatigue behavior of slewing rings in crane structures. Identification of influencing parameters on local stresses and fatigue damage calculations**, R. Duval¹, M. Bennebach¹, A. Guelbi², J. Blasiak² (¹Cetim, Senlis, France, ²Manitowoc, Dardilly, France)
- FD17-058 **Fatigue performance of overhead conductors tested under the same value of h/w parameter**, R. Badibanga Kalombo, M. Silva Pestana, T. Barbosa de Miranda, C.-R. Moreira da Silva, J. L. de Almeida Ferreira, J. A. Araújo - Universidade de Brasília, Brazil
- FD17-052 **Taking into account fatigue phenomena on the expertise and design of the lock gates**, D. Gravelaine - EDF, Le Bourget du Lac, France

15.30-16.00 - Coffee

10.30-11.15 - Coffee/Technological showcase and Poster exhibition**11.15-12.45 - Experimental and numerical design and validation methods**

S07-1

- FD17-015 **A layer approach to model fatigue strength of surface-hardened components**
D. Dobberke¹, M. Leitner², J. Wiebesiek¹, J. Fröschl¹ (¹BMW Group, München, Germany - ²Montanuniversität Leoben, Austria)
- FD17-019 **Influence of the damping on the estimated fatigue life**
F. Kihm - HBM Prenscia, Roissy en France, France
- FD17-046 **New standard related to mechanical environment strength proof. Implementation and first feedback**
J. Y. Disson - Metravib, Lyon, France

12.45 - Lunch**14.00-16.00 - Damage tolerance and fatigue life**

S06-1

- FD17-008 **Some aspects of novel kineto-static theory of fatigue**
A. Oudovikine - Stedax Inc., Toronto ON, Canada
- FD17-010 **Parametric calculations of fatigue life of critical part of trolleybus rear axle**
M. Kepka, M. Kepka Jr.
Regional Technological Institute, research center of Faculty of Mechanical Engineering, University of West Bohemia in Pilsen, Pilsen, Czech Republic
- FD17-054 **Fatigue crack growth in welds based on a V-notch model for the short crack propagation at the toe**
N. Recho^{1,2}, T. Lassen³ (¹Ermess, EPF - Graduate School of Engineering, Sceaux, France, ²Institut Pascal, Blaise Pascal University, Clermont-Ferrand, France, ³University of Agder, Grimstad, Norway)
- FD17-062 **A study on lifetime of a railway axle subjected to grinding**
X. Lorang¹, Y. Cheynet², P. Feraud², Y. Nadot³
(¹SNCF, I&R, Paris, France, ²SNCF, AEF, Vitry Sur Seine, France, ³Institut Pprime CNRS Ensma, Futuroscope, France)

16.00-17.15 - Coffee/Technological showcase and Poster exhibition**17.15-18.45 - Damage tolerance and fatigue life**

S06-2

- FD17-094 **Effect of the residual clad layer on the fatigue damage mechanisms at room temperature of thin brazed aluminium alloy used in automotive heat exchangers**, J. Paturaud^{1,3}, D. Fabregue¹, A. Danielou², A. G. Noumet-Villemane³, J. Y. Buffière¹
(¹Insa Lyon, Villeurbanne, France, ²Constellium Technology Center, Voreppe, France, ³Valeo, La Verrière, France)
- FD17-105 **Stochastic analysis of fatigue damage based on linear fracture mechanics**
Z. Kala - Brno University of Technology, Faculty of Civil Engineering, Brno, Czech Republic
- FD17-112 **Fatigue crack growth in welded joint, analytical and 3D XFEM approaches**
I. Huther, M. Marzin, J. Lesslingue - Cetim, Senlis, France

19.00-23.00 - Gala evening**8.30-10.00 - Composites and elastomers**

S04-1

- FD17-122 **New method for fatigue strength reliability approach of elastomer membrane**
P. Bruno¹, P. Bonne², J. Noel¹, C. CHIV¹, A. Houssais¹ (¹Parker Hannifin Manufacturing, Colombes, France, ²Cetim, Senlis, France)
- FD17-106 **Fatigue crack growth behaviour of SBR and HNBR materials**
A. S. Beranger¹, P. Heuillet¹, A. Favier² (¹LRCCP, Vitry-sur-Seine, France, ²Metravib Acoem, Limonest, France)
- FD17-097 **Fatigue life of thermally aged and unaged HNBR blends**
K. Narynbek Ulu^{1,2}, B. Huneau¹, E. Verron¹, P. Heuillet², A. S. Beranger²
(¹Institut de Recherche en Génie Civil et Mécanique (GeM), UMR CNRS 6183, École Centrale de Nantes, Nantes, France, ²LRCCP, Vitry-sur-Seine, France)

10.00-10.45 - Coffee/Technological showcase and Poster exhibition**10.45-12.15 - Vibration fatigue**

S13-1

- FD17-060 **Experimental procedure and analytical model for the investigation of the random fatigue elastic behavior of a light alloy by means of vibrational parameters monitoring**
C. Delprete¹, R. Serra², R. Sesana¹ (¹Politecnico, Torino, Italy, ²INSA Centre-Val de Loire, Blois, France)
- FD17-077 **Innovative numerical fatigue methodology for piping systems: qualifying acoustic induced vibration in the Oil&Gas industry**
A. Coulon, R. Salanon, L. Ancian - Vibratex, Écully, France
- FD17-088 **Study of fatigue on a hydraulic installation subjected to the vibrations of a safety valve**
H. Rognon, T. Jung - Cetim, Senlis, France

12.15-13.30 - Lunch**13.30-15.30 - Composites and elastomers**

S04-2

- FD17-093 **Toward composite wind turbine blade fatigue life assessment using ply scale damage model**
D. Caous^{1,2}, C. Bois¹, J. C. Wahp¹, T. Palin-Luc³, J. Valette^{1,2}
(¹Tensyl, Périgny, France, ²Université de Bordeaux, I2M, CNRS, Gradignan, France, ³Arts et Métiers ParisTech, Talence, France)
- FD17-023 **Experimental monitoring of the self-heating properties of thermoplastic composite materials**
L. Muller¹, J. M. Roche¹, A. Hurmane¹, C. Peyrac², L. Gornet³ (¹Onera, Châtillon, France, ²Cetim, Senlis, France, ³Centrale, Nantes, France)
- FD17-040 **Rapid determination of the fatigue limit by the simulation of self-heating test by the collaborative model based on the fractional derivative approach**, A. Krasnobrizha, L. Gornet, P. Rozycki, P. Cosson - Laboratoire Institut de recherche en Génie Civil et Mécanique (GeM), Nantes, France
- FD17-117 **Simulate the progressive damage fatigue for laminated composites**, M. Hack¹, D. Carrella-Payan², Magneville³, Naito⁴ (¹Siemens PLM Software, Kaiserslautern, Germany, ²Siemens PLM Software, Leuven, Belgium, ³Siemens PLM Software, Toulouse, France, ⁴Honda R&D Co Ltd, Tochigi, Japan)

15.30-16.00 - Coffee

10.30-11.15 - Coffee/Technological showcase and Poster exhibition**11.15 - Manufacturing process effects in fatigue analysis****S10-1**

FD17-076 **Fatigue analysis of diaphragm spring in double dry clutch including manufacturing process**
K. Krishnasamy, O. Simon, F. Masse - Valeo Transmissions, Amiens, France

FD17-085 **The influence of machined topography on the HCF behaviour of the Al7050 alloy**
F. Abourg¹, E. Pessard¹, F. Morel¹, G. Germain¹, E. Chove¹ (¹LAMPA-Arts et Métiers ParisTech, Angers, France, ²Europe Technologies, Carquefou, France)

FD17-109 **Influence of cutting and superfinishing processes on the fatigue resistance of a 15-5PH**, V. Chomienne^{1,2}, M. Dumas¹, V. Zmely¹, F. Dumont¹, J. Courbon², C. Verdu², F. Valiorgue¹, F. Lefebvre³, P. Gilles⁴, N. Himbert⁵, J. Rech¹ (¹Univ Lyon - ENISE - LTDS UMR CNRS 5513, Saint-Étienne, France, ²Univ Lyon - Insa - MATEIS UMR CNRS 5510, Lyon, France, ³Cetim, Senlis, France, ⁴Areva NP, Paris La Défense, France, ⁵Airbus Helicopters, Marignane, France)

12.45 - Lunch**14.00-16.00 - Thermal and thermo-mechanical fatigue****S12-1**

FD17-022 **A new fatigue model including thermal ageing for low copper aluminum-silicon alloys**
M. Beranger¹, J. M. Fiard¹, K. Ammar^{2,3}, G. Cailletaud^{2,3}
(¹Renault SAS, Direction de la Mécanique, Guyancourt, France, ²Mines ParisTech, Centre des matériaux, Evry, France, ³CNRS UMR 7633, Evry, France)

FD17-087 **Fatigue life prediction of Al319-T7 subjected to thermo-mechanical loading conditions**
H. T. Kang¹, R. Nayaki¹, J. Chen², Y. L. Lee², X. Wu¹
(¹The University of Michigan-Dearborn, Dearborn, MI, USA, ²FCA US LLC., Auburn Hills, MI, USA)

FD17-095 **Experimental characterization of a CuAg alloy for thermo-mechanical applications: non-linear plasticity models and low-cycle fatigue curves**
L. Moro¹, J. Srnc Novak¹, D. Benasciutti², F. De Bona¹
(¹Università degli Studi di Udine, Italy, ²Università degli Studi di Ferrara, Italy)

FD17-107 **Elasto-plastic approximation procedure for notched bodies subjected to thermal transient loadings**
A. Bosch¹, M. Vormwald¹, J. Rudolph²
(¹Technical University of Darmstadt, Darmstadt, Germany, ²Areva GmbH, Erlangen, Germany)

16.00-17.15 - Coffee/Technological showcase and Poster exhibition**17.15-18.45 - Reliability-based approaches and probabilistic methods****S11-1**

FD17-007 **Sintered steel endurance limit applied to main bearing caps: an innovative probabilistic approach**
J. M. Fiard, D. Miazga - Renault SAS, Guyancourt, France

FD17-011 **Uncertainly propagation within fatigue of offshore flexible pipe risers design**
D. H. Mac², P. Sicsic¹
(¹Technip - Innovation and Technology Center, Rueil Malmaison, France, ²Technip - FlexiFrance, Le-Trait, France)

FD17-056 **Probabilistic assessment of wind-induced fatigue of structures**
M. Pia Repetto, M. Damele - University of Genova, Genova, Italy

19.00-23.00 - Gala evening**8.30-10.00 - Complex loading****S03-1**

FD17-048 **Fatigue damage of materials and structures assessed by Wöhler and Gassner frameworks: recent insights about load spectra for the automotive**, M. Facchinetti - PSA Groupe, Belchamp, France

FD17-038 **Full-model multiaxial fatigue life calculations with different criteria**
A. Carpinteri¹, G. Fortese¹, D. Pellinghelli², M. Riboli², A. Spagnoli¹, S. Vantadori¹
(¹University of Parma, Italy, ²Limitorque Fluid Power System, Flowsolve S.r.l., Piacenza, Italy)

10.00-10.45 - Coffee/Technological showcase and Poster exhibition**10.45-12.15 - Manufacturing process effects in fatigue analysis****S10-4**

FD17-045 **Corrosion fatigue life prediction for low carbon steel under compressive residual stress field**
V. Okorokov¹, M. Morgantini¹, Y. Gorash¹, T. Comlekci¹, D. MacKenzie¹, R. Van Rijswijk² (¹University of Strathclyde, Glasgow, UK, ²Weir Minerals, Venlo, The Netherlands)

FD17-049 **Coverage and peening angle effects in shot peening on HCF performance of Ti-6Al-4V**
J. Fuhr¹, M. Wollmann², L. Wagner², M. Basha² (¹Curtiss-Wright Surface Technologies, Wickede, Germany, ²TU Clausthal, Germany)

FD17-063 **High cycle fatigue strength assessment methodology considering punching effects**, H. Dehmani¹, C. Bruggier², T. Palin-Luc², C. Mareau³, S. Koechlin¹
(¹Leroy Somer, Angoulême, France, ²Arts et Métiers ParisTech, Bordeaux, France, ³Arts et Métiers ParisTech, Angers, France)

12.15-13.30 - Lunch**13.30-15.30 - Fatigue under severe environmental conditions (corrosion, low temperature...)****S09-1**

FD17-012 **PWR effect on crack initiation under equi-biaxial loading first tests with a particular fatigue device**, H. Dhahri^{1,2}, C. Gourdin¹, S. Courtin¹, J. C. Le Roux⁴, H. Maitouam⁵ (¹CEA, DEN, DM2S, SEMT, LISN, Gif-sur-Yvette, France, ²Imsia, Ensta ParisTech, CNRS, CEA, EDF, University of Paris-Saclay, Palaiseau, France, ³Areva NP SAS, Paris La Défense, France, ⁴EDF, R&D, Moret sur Loing, France)

FD17-047 **The effect of mean stress on corrosion fatigue life**, M. Morgantini¹, D. MacKenzie¹, T. Comlekci¹, R. Van Rijswijk²
(¹University of Strathclyde, Glasgow, UK, ²WEIR Mineral, Venlo, The Netherlands)

FD17-073 **Fatigue crack growth analysis in Al/Ti layered material in ambient and cryogenic conditions**, D. Boronski, R. Soltysiak, M. Kotyk, P. Mackowiak
UTP University of Science and Technology, Bydgoszcz, Poland

FD17-090 **Effect of mechanical (monotonic and cyclic) stress on the corrosion resistance of chromium-plated steel rods**, M. Dhondt¹, V. Shubina², R. Homette¹, S. Arbab Chirani², S. Calloch¹ (¹Ensta Bretagne, FRE CNRS 3744, IRDL, Brest, France, ²ENI Brest, FRE CNRS 3744, IRDL, Brest, France)

15.30-16.00 - Coffee

10.30-11.15 - Coffee/Technological showcase and Poster exhibition**11.15 - Fatigue of assemblies**

S08-1

FD17-043 **A numerical method for determining the fatigue strength of welded joints with a significant improvement in accuracy**
G. Lener, Robert Lang - University of Innsbruck, Innsbruck, Austria

FD17-061 **Fatigue strength and weight optimization of threaded connections in tie-rods for aircraft structures**
M. Winklberger¹, P. Heftberger², M. Schagerl¹
(¹Institute of Constructional Lightweight Design, Johannes Kepler University, Linz, Austria, ²RO-RA Aviation Systems, Schoerfling, Austria)

FD17-065 **Experimental study of weld fatigue strength reduction for a stainless steel piping component**
D. Hannes¹, T. Svensson², M. Dahlberg¹, A. Anderson³
(¹Inspecta Technology AB, Stockholm, Sweden, ²TS Ingenjörstatistik, Borås, Sweden, ³SP Technical Research Institute of Sweden, Borås, Sweden)

12.45 - Lunch**14.00 - 16.00 - Fatigue of assemblies**

S08-2

FD17-079 **The Peak Stress Method to assess the fatigue strength of welded joints using linear elastic finite element analyses**
G. Meneghetti, A. Campagnolo - University of Padova - Department of Mechanical Engineering, Padova, Italy

FD17-072 **Several 1D/2D seam weld finite element idealizations challenged in fatigue within a French industrial collaborative workgroup**
P. Klein¹, M. Bennebach², E. Kirchner³
(¹Kuhn, Saverne, France, ²Cetim, Senlis, France, ³Manitowoc, Dardilly, France)

FD17-102 **Fatigue assessment of EMPT-welded joints**
J. Baumgartner¹, K. Schnabel¹, F. Huberth² (¹Fraunhofer Institute for structural durability and system reliability, Darmstadt, Germany, ²Fraunhofer Institute for Mechanics of Materials IWM, Freiburg, Germany)

FD17-083 **Recent experience from fatigue cracks occurred on french bridges: consequences for other details**
J. Berthelley
Cerema, Paris, France

16.00-17.15 - Coffee/Technological showcase and Poster exhibition**17.15-18.45 - Contact fatigue**

S05-1

FD17-009 **A contribution to study the tooth flank fracture (TFF) in cylindrical gears**
D. Ghribi¹, M. Octrue¹, P. Sainsot²
(¹Cetim, Senlis, France, ²LaMCoS, Insa Lyon-Université de Lyon, Villeurbanne, France)

FD17-051 **Fretting-fatigue life under variable loadings conditions**
G. Rousseau¹, Y. Guilhem¹, C. Montebello², S. Pommier¹
(¹LMT, Cachan, France, ²Safran Aircraft Engine, Villaroche, France)

FD17-108 **Prediction of fretting fatigue endurance: a combined crack nucleation crack arrest approach**
S. Fouvry¹, S. Garcin¹, B. Berthel¹, C. Gandiolle²
(¹École Centrale de Lyon, Univ. of Lyon, Ecully, France, ²Centrale Supelec, Univ. Paris Saclay, France)

19.00-23.00 - Gala evening

Room 11

8.30-10.00 - Fatigue of assemblies

S08-3

FD17-029 **A comparative study of various joining techniques fatigue behaviour focusing on stiffness degradation**
P. Rösch, T. Bruder - BMW Group, Munich, Germany

FD17-032 **Structural life extension of offshore met tower by ultrasonic peening**
L. Lopez Martinez¹, C. Polimón² (¹LETS Global, Rotterdam, The Netherlands, ²Drace Infraestructuras S.A., Madrid, Spain)

FD17-034 **Fatigue damage behaviour of structural adhesives under stress concentration conditions**
V. C. Beber^{1,2}, B. Schneider¹, M. Brede¹, B. Mayer^{1,2} (¹Fraunhofer IFAM, Bremen, Germany, ²Universität Bremen, Bremen, Germany)

10.00-10.45 - Coffee/Technological showcase and Poster exhibition**10.45-12.15 - Fatigue of assemblies**

S08-4

FD17-001 **Fatigue properties of cut and welded high strength steels - quality aspects in design and production**
Z. Barsoum¹, T. Stenberg^{2,1}, E. Lindgren³
(¹KTH Royal Institute of Technology, Stockholm, Sweden, ²Scania CV, Södertälje, Sweden, ³HIAB Cargotec, Hudiksvall, Sweden)

FD17-002 **Fatigue strength of a pinion-motor shaft connection: computational and experimental assessment**
S. Koechlin - Leroy Somer, Angoulême, France

FD17-018 **Fatigue behaviour of aluminium tube crimp connections applying the electromagnetic pulse technology**
K. Lipp¹, R. Schaefer², D. Horwattsch³ (¹Fraunhofer Institute for Structural Durability and System Reliability LBF, Darmstadt, Germany, ²PSTproducts GmbH, Alzenau, Germany, ³AIT Austrian Institute of Technology, Wien, Austria)

12.15-13.30 - Lunch**13.30-15.30 - Fatigue of assemblies**

S08-5

FD17-082 **Fatigue assessment of welded joints in API 579-1/ASME FFS-1 2016 - existing methods and new developments**
D. Osage¹, P. Dong² (¹The Equity Engineering Group, Inc., Shaker Heights, USA, ²Michigan Engineering - University of Michigan, Ann Arbor, USA)

FD17-005 **Enhanced fatigue structural stress analysis of a heavy vehicle seam welded steel chassis frame: FEA model preparation, weld model description, fatigue stress calculation and correlation with 10 years operating experience**
J. Abry, C. Mittelhaeuser, D. Turlier, S. Wolf - LOHR Industrie, Hangenbieten, France

FD17-104 **Weld fatigue: from characterisation to design rules**, Z. Tahir, R. Aso, T. Yates, A. Muse - Gestamp Chassis, Newton Aycliffe, United Kingdom

FD17-066 **Numerical and experimental fatigue life prediction of welded connection in full scale steel bridges**
J. Kwad^{1,2}, P. Kripakaran¹ (¹University of Exeter, Devon, United Kingdom, ²University of Anbar, Ramadi, Iraq)

15.30-16.00 - Coffee

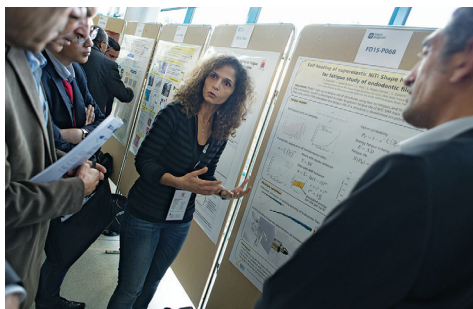
16.00-17.30 - Plenary Session

- FD17-014 **Modelling and simulation of weld residual stresses and ultrasonic impact treatment of welded joints**
J. Zheng, A. Ince - Purdue University, West Lafayette, Indiana, USA
- FD17-071 **Some issues in building loads specifications for in service non-stiff components submitted to vibration fatigue**
G. Le Corre (Genet) - Volvo Group, Saint Priest, France
- FD17-037 **Experimental tests and multiaxial fatigue strength assessment of fillet-welded valve actuator in steel according to the peak stress method**, M. Bergonzoni¹, A. Campagnolo¹, D. Pellinghelli², M. Riboli², A. Spagnoli³, G. Meneghetti¹
(¹University of Padua, Italy, ²Limitorque Fluid Power System, Flowserve S.r.l., Piacenza, Italy, ³University of Parma, Italy)

17.45 - End of the Conference

Poster Session

- FD17-025 **Multiaxial fatigue life assessment of welded connections in railway steel bridge using critical plane approach**
K. R. Praveen¹, S. S. Mishra¹, P. Babu², A. Spagnoli³, A. Carpinteri³
(¹National Institute of Technology, Patna, India, ²Deutsche Bahn Engineering and Consulting, Bengaluru, India, ³University of Parma, Italy)
- FD17-033 **Fatigue lifetime estimation of bearing pin of console manipulator loaded with multiaxial random loading**, M. Margetin, M. Sulko
Institute of applied mechanics and mechatronics, Slovak university of technology - Faculty of mechanical engineering, Bratislava, Slovakia
- FD17-021 **Fatigue lifetime modeling of oxide/oxide composites**, O. Sally^{1,3}, C. Julien², F. Laurin², R. Desmorat², F. Dupe¹
(¹Safran Ceramics, Le Haillan, France, ²Onera, Chatillon, France, ³LMT Cachan, France)
- FD17-027 **Fibres failure evolution in long-fibre composite laminates subjected to fatigue loading**
F. Pagano^{1,2}, M. Kaminski¹, A. Thionnet² (¹Onera, Châtillon, France, ²École Nationale Supérieure des Mines de Paris, France)
- FD17-039 **Optimum design of fatigue-resistant carbon/epoxy composite laminates**
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(¹Insa Lyon, Mates CNRS UMR5510, Villeurbanne, France, ²Valeo Thermal System THS, La Verrière, France, ³Constellium C-TEC, Voreppe, France)
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Social event

Gala evening at Royaumont Abbey: organ concert and dinner at the monks' refectory

The Royaumont Abbey, founded in 1228 by the future King Louis, is a Gothic architectural jewel built around a magnificent Cistercian cloister. A park, romantic ruins and three remarkable gardens complete the setting, which is conducive to contemplation and the sharing of ideas, as well as celebration, whether festive or more understated.



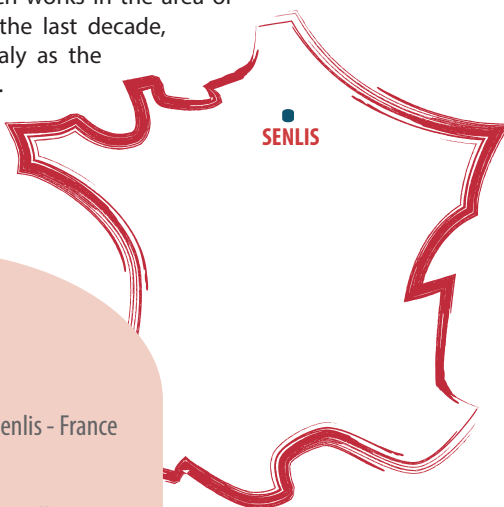
The 7th Fatigue Design conference held in 2017 aims to present the most innovative approaches and scientific progress in design methodologies, tools, and equipment's life extension, focusing on industrial applications.

For this edition, a special focus is made on the relation between additive manufacturing and fatigue.

To facilitate exchanges among participants, in addition to the two days of lectures, there will be:

- a poster exhibition,
- a technological showcase by service providers and technology suppliers.

For the second time, the organizing committee has decided to dedicate the conference to the scientific community from a specific country. After USA in 2015, in respect to their advanced research works in the area of fatigue and fracture mechanics in the last decade, it has been decided to consider Italy as the "partner country" for this conference.



Location

Cetim - 52 avenue Félix-Louat 60300 Senlis - France

Access

25 km drive from the Paris - Charles-de-Gaulle airport, direct access through the A1 highway, exit 8

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