German Association for Materials Research and Testing e.V.

VAL4
Fourth International Conference on Material and Component Performance under Variable Amplitude Loading

Programme and
List of Participants

30 March to 03 April 2020
Darmstadt, Germany
**Registration / Social Event**

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<tr>
<td>9:00 – 9:30</td>
<td>Registration</td>
<td>Foyer</td>
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<td>9:30 – 9:40</td>
<td>Welcome</td>
<td>Hall A</td>
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M. Brune, DVM, Berlin, Germany

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**Programme**

**PL-01 | Opening / Plenary Lecture**

Chair: M. Brune, DVM Berlin, Germany

**Hall A**

**Time** 9:40 – 10:20

<table>
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<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker</th>
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<tbody>
<tr>
<td>9:40</td>
<td>PL-01-01</td>
<td>Vibration Fatigue - Lifetime of Systems Subject to Shocks and Vibrations (#96)</td>
<td>M. Decker</td>
</tr>
</tbody>
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**PL-02 | Plenary Lecture**

Chair: A. Carpinteri, University of Parma, Italy

**Hall A**

**Time** 10:20 – 11:00

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<th>Time</th>
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<th>Speaker</th>
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<tr>
<td>10:20</td>
<td>PL-02-01</td>
<td>Fatigue Life Under Variable Amplitude Loading of Components Produced in Advanced Materials and Manufacturing (#100)</td>
<td>T. Palin-Luc</td>
</tr>
</tbody>
</table>
### A | Vibration Fatigue

Chair: A. Carpinteri, University of Parma, Italy

**Hall A**

**Time**  11:00 – 12:20

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<tr>
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<tr>
<td>11:00</td>
<td><strong>A-01</strong></td>
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<tr>
<td></td>
<td><strong>P. Ogrinec, J. Slavic, M. Cesnik, M. Boltežar</strong></td>
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<td>University of Ljubljana, Faculty of Mechanical Engineering, Slovenia</td>
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<td>11:20</td>
<td><strong>A-02</strong></td>
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<td><strong>I. Gadolina, A. V. Erpalov</strong></td>
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<td>IMASH RAS, Moscow, Russia</td>
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<td>11:40</td>
<td><strong>A-03</strong></td>
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<td><strong>D. Benasciutti</strong></td>
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<td>University of Ferrara, Department of Engineering, Italy</td>
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<td>12:00</td>
<td><strong>A-04</strong></td>
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<td></td>
<td><strong>M. J. Böhm</strong>, D. Benasciutti**</td>
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<tr>
<td></td>
<td>¹ Opole University of Technology, Department of Mechanics and Machine design, Faculty of Mechanical Engineering, Poland;</td>
</tr>
<tr>
<td></td>
<td>² University of Ferrara, Department of Engineering, Italy</td>
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</table>

12:20 – 13:20  Break
B | Welding and Riveting

Chair: M. Nagode, University of Ljubljana, Slovenia

Hall B

Time   11:00 – 12:20

11:00  **B-01 | Linear damage accumulation of self-pierce riveted joints** (#107)
       **L. Masendorf**, M. Wächter, S. Horstmann, M. Otroshi, A. Esderts
       G. Meschut
       1 Clausthal University of Technology, Institut für Maschinelle Anlagentechnik
       und Betriebsfestigkeit, Clausthal-Zellerfeld, Germany;
       2 Paderborn University, Laboratorium für Werkstoff- und Fügetechnik, Germany

11:20  **B-02 | Application of an Integral Treatment of Butt Joints for the**
       **Fatigue Life Assessment under Variable Amplitude Loading** (#68)
       **B. Möller**
       Fraunhofer Institute for Structural Durability and System Reliability LBF,
       Materials and Components, Darmstadt, Germany

11:40  **B-03 | Analysis of the notch effect components of weld joint** (#85)
       **V. Chmelko**, M. Harakal
       1 Slovak University of Technology, Applied Mechanics and Mechatronics,
       Bratislava, Slovakia;
       2 Knorr-Bremse AG, Munich, Germany

12:00  **B-04 | Extremely low cycle fatigue assessment model for structural**
       **steel and its application to welded joints** (#122)
       **T. Hanji**, K. Tateishi
       Nagoya University, Department of Civil and Environmental Engineering,
       Japan

12:20 – 13:20 Break
PL-03 | Plenary Lecture

Chair: A. Forsen, Scania CV AB, Södertälje, Sweden

Hall A

Time 13:20 – 14:00

13:30  PL-03-01 | New Data Sources and Data Analytics Methods for Durability Engineering (#98)
K. Dreßler
Fraunhofer Institute for Industrial Mathematics ITWM, Kaiserslautern, Germany

C | Load Spectra (1)

Chair: D. Benasciutti, University of Ferrara, Italy

Hall A

Time 14:00 – 15:20

14:00  C-01 | Assessment of non-stationary random vibration loading (#27)
A. Trapp, P. Wolfsteiner
University of Applied Sciences, Department of Mechanical, Automotive and Aeronautical Engineering, Munich, Germany

14:20  C-02 | A review on the methods for modelling loading spectra and their scatter (#34)
M. Nagode, J. Klemenc
University of Ljubljana, Faculty of Mechanical Engineering, Slovenia

14:40  C-03 | Impact of the kurtosis parameter of the load on the fatigue life of a structure (#66)
A. J. Niesony, M. Böhm, R. Owsiński
Opole University of Technology, Department of Mechanics and Machine Design, Poland

15:00  C-04 | Extrapolation of load spectra using Kernel Density Estimators (#108)
V. Schröder¹, C. Müller², A. Esderts¹
¹ Clausthal University of Technology, Institute for Plant Engineering and Fatigue Analysis, Clausthal-Zellerfeld, Germany; ² AUDI AG, Ingolstadt, Germany

15:20 – 15:50 Break
D | Commercial Vehicles & Transport

Chair:  A. Forsen, Scania CV AB, Södertälje, Sweden

Hall B

Time  
14:00 – 15:20

14:00  D-01 | The influence of stiffness and road profile on stress proportionality of axle trailers (#84)  
V. Chmelko, M. Margetin  
Slovak University of Technology, Applied Mechanics and Mechatronics, Bratislava, Slovakia

14:20  D-02 | Load assumption for structural components of agricultural machines (#106)  
S. Stellmach, L. Braun, M. Wächter, A. Esderts, S. Diekhaus  
1 TU Clausthal, Institut für Maschinelle Anlagentechnik und Betriebsfestigkeit, Clausthal-Zellerfeld, Germany;  
2 Claas Selbstfahrende Erntemaschinen GmbH, Harsewinkel, Germany

14:40  D-03 | Review of practical experiences from development of buses: service stresses, laboratory fatigue tests and fatigue life calculations (#71)  
M. Kepka, M. Kepka junior  
University of West Bohemia, Regional Technological Institute - Research center of Faculty of Mechanical Engineering, Pilsen, Czech Republic

15:00  D-04 | Load Spectra for the Design of Railway Car-Bodies (#77)  
R. Rennert  
IMA Materialforschung und Anwendungstechnik GmbH, Dresden, Germany

15:20 – 15:50 Break
**E | Load Spectra (2)**

Chair: M. Kepka, University of West Bohemia, Pilsen, Czech Republic

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<td>16:50</td>
<td>**E-04</td>
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**Ernst-Gassner-Award**

**Hall A**

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<th>Time</th>
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<tr>
<td>17:10</td>
<td><strong>Laudatio</strong>&lt;br&gt;C. Morris Sonsino, R. Heim, T. Melz&lt;br&gt;Fraunhofer LBF, Darmstadt, Germany</td>
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F | Fatigue Assessment

Chair: R. Rennert, IMA Materialforschung und Anwendungstechnik GmbH, Dresden, Germany

Hall B

Time  15:50 – 17:10

15:50  F-01 | Definition of simplified fatigue tests using numerical fatigue simulation methods (#14)
       R. Schrank
       IAMT Engineering GmbH & Co. KG, Simulation, Ludwigsfelde, Germany

16:10  F-02 | Fatigue assessment of cast iron components under variable amplitude loading considering overloads (#31)
       J. Hesseler, C. Bleicher, J. Baumgartner, K. Schnabel, T. Melz
       Fraunhofer LBF, Department of Materials and Components, Darmstadt, Germany

16:30  F-03 | Response of the structural materials to fatigue loads at bending block load with an mean value (#32)
       R. Pawliczek
       Opole University of Technology, Department of Mechanics and Machine Design, Poland

16:50  F-04 | Simulation studies on the influence of cyclic stress-strain curve parameters on the degree of fatigue failure of material under block load conditions with the mean value (#33)
       T. Lagoda, R. Pawliczek
       Opole University of Technology, Department of Mechanics and Machine Design, Poland
Welcome  8:30 – 8:40  Hall A, Hall B
M. Decker, AUDI AG, Ingolstadt, Germany

PL-04 | Plenary Lecture
Chair: G. Härkegård, Norwegian University of Science and Technology, Trondheim, Norway
Hall A
Time  8:40 – 9:20

8:40  PL-04 | Fatigue of Engineered Metallic Materials under Constant- and Variable-Amplitude Loading (#12)
J. Newman
Mississippi State University, Aerospace, United States of America

G | Fracture Mechanics
Chair: G. Härkegård, Norwegian University of Science and Technology, Trondheim, Norway
Hall A
Time  9:20 – 10:20

9:20  G-01 | The U-Concept: A simple add-on to the Local Strain Approach for the fracture fatigue life calculation of structures under constant and variable amplitude loading (#42)
M. Fiedler¹, M. Vormwald²
¹Technische Universität Dresden, Germany
²TU Darmstadt, Material Mechanics Group, Germany

9:40  G-02 | Concepts for crack propagation under variable mechanical and thermal loadings based on the effective cyclic J-Integral (#48)
A. Bosch¹, M. Vormwald²
¹MTU Aero Engines AG, Munich, Germany
²Technische Universität Darmstadt, Materials Mechanics Group, Germany

10:00  G-04 | Fatigue crack growth in the structural elements of the RRJ-95 aircraft under bench testing and service conditions (#52)
A. A. Shanyavskiy, A. Soldatenkov, A. Toushentsov
Aviation Register for Russian Federation, Moscow region, Russia

10:40 – 11:00  Break
H | Welding

Chair: M. Vormwald, Technical University Darmstadt, Germany

Hall B

Time 9:20 – 10:40

9:20  **H-01 | Fatigue assessment of welded gear components under variable amplitude loading and multiaxial loading conditions (#10)**

J. Baumgartner, R. Waterkotte, J. Hesseler

1 Fraunhofer Institute for Structural Durability and System Reliability LBF, Darmstadt, Germany;
2 Schaeffler Technologies AG & Co. KG, Herzogenaurach, Germany

9:40  **H-02 | Fatigue Simulation of Welds Using the 'Total Life' Method (#72)**

A. Halfpenny, S. Vervoort, P. Roberts

HBM United Kingdom Ltd., nCode Products, Catcliffe, United Kingdom

10:00 **H-03 | Damage Assessment In A Welded Tubular Joint Under Random Loading (#86)**

C. Ronchei, S. Vantadori, A. Carpinteri, F. Giordani, G. Giordani, I. Iturrioz, R. Issopo Rodrigues, D. Scorza, A. Zanichelli

1 University of Parma, Department of Engineering & Architecture, Italy;
2 AGCO Corporation, São Luís, Brazil;
3 Federal University of Rio Grande do Sul - Mechanical Post-Graduate Program, Porto Alegre, Brazil

10:20 **H-04 | Vergleich verschiedener Bewertungsmethoden von Schweißnähten anhand der Anwendung bei automotiven Fahrwerkskomponenten (#117)**

H. Dannbauer, K. Hofwimmer, W. Hübsch

Magna Powertrain, Engineering Center Steyr GmbH & CoKG, St. Valentin, Austria

10:40 – 11:00  Break
I | Integrity Concepts

Chair: A. A. Shanyavskiy, Aviation Register for Russian Federation, Moscow region, Russia

Hall A

Time 11:00 – 12:20

11:00  I-01 | Structural health monitoring for damage detection and fatigue life estimation: a frequency-domain approach (#87)
        D. E. Teixeira Marques¹, D. Vandepitte², V. Tita¹
        ¹ University of Sao Paulo, Department of Aeronautical Engineering, Sao Carlos, Brazil;
        ² Katholieke Universiteit Leuven, Department of Mechanical Engineering, Belgium

11:20  I-02 | Estimation of Road Roughness Based on Vehicle Measurements (#90)
        M. Burger, M. Speckert, K. Dreßler
        Fraunhofer ITWM, Kaiserslautern, Germany

11:40  I-03 | A metro rail axle multi-tiered integrity concept (#113)
        R. Heim¹, K. Liedgens²
        ¹ Fraunhofer LBF, R&D Division Structural Durability, Darmstadt, Germany;
        ² Hamburger Hochbahn AG, Hamburg, Germany

12:00  I-04 | Fatigue Life Estimation under Variable Amplitude Loading including a Consideration of Size Effects (#104)
        M. Hell, R. Wagener, T. Melz
        Fraunhofer-Institute for Structural Durability and System Reliability LBF,
        Component Related Materialbehaviour, Darmstadt, Germany

12:20 – 13:20 Break
### J | Multiaxial Loading (1)

Chair: J. Papuga, Czech Technical University in Prague, Czech Republic

**Hall B**

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<td>12:20 – 13:20</td>
<td>Break</td>
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PL-05 | Plenary Lecture
Chair: A. Rupp, Hochschule Kempten, Germany

Hall A, Hall B

Time 13:20 – 14:00

13:30 PL-05-01 | Covering the Effect of Loading Modes and Their Sequence in Numerical Simulation of Variable Amplitude Durability (#101)
J. Papuga
Czech Technical University, Prague, Czech Republic

K | Influences on Fatigue
Chair: A. Rupp, Hochschule Kempten, Germany

Hall A

Time 14:00 – 15:20

14:00 K-01 | Design with magnesium alloy AZ31 under variable thermomechanical conditions (#18)
D. Šeruga, M. Nagode, J. Klemenc
University of Ljubljana, Faculty of Mechanical Engineering, Slovenia

14:20 K-02 | Cut edge influence on the fatigue behavior of sheet metals under constant and variable amplitude loading (#54)
M. Thum, P. Haefele
Hochschule Esslingen, Faculty of Automotive Engineering / Laboratory of Materials and Joining Technology, Germany

14:40 K-03 | Evaluation of Spectrum Loaded Components by the Damage Equivalent Method of Required Fatigue Strength (RFS) through the Example of Passenger Car Wheels (#114)
C. Morris Sonsino¹, M. Breitenberger¹, S. Schröder²
¹ Fraunhofer LBF, Darmstadt, Germany;
² Borbet GmbH, Hallenberg, Germany

15:00 K-04 | Modelling load history effects on steel fatigue properties using self-heating measurements (#129)
J. Louge¹,², S. Moyné¹, S. Calloch¹, C. Doudard¹, B. Weber², B. Levieil¹
¹ Ensta Bretagne, UMR CNRS 6027, IRDL, F-29200, Brest, France;
² ArcelorMittal Centre Auto, Voie Romaine, Maizières-lès-Metz, France
L | Probabilistic and Energy Based Methods

Chair: T. Lagoda, Opole University of Technology, Poland

Hall B

Time  14:00 – 15:20

14:00  L-01 | Energy based model for fatigue damage accumulation in materials under random loading (#40)
       T. Lagoda, M. Kurek
       Opole University of Technology, Poland

14:20  L-02 | A strain energy density approach to fatigue crack growth under spectrum block loading (#123)
       E. Amsterdam
       NLR, Gas Turbine & Structural Integrity, Marknesse, Netherlands

14:40  L-03 | PhyBaLₘₖ – short time procedure for the determination of the fatigue lifetime of metallic materials (#11)
       B. Blinn, T. Beck, B. Jost, M. Klein, D. Eifler
       TU Kaiserslautern, Institute of Materials Science and Engineering, Germany

15:00  L-04 | Probabilistic Fatigue and Reliability Simulation (#73)
       A. Halfpenny, M. Bonato, S. Vervoort, A. Chabod
       HBM United Kingdom Ltd., nCode Products, Catcliffe, United Kingdom
Technical Visit / Sightseeing

DS-S | Donges Steeltech / Sightseeing

Time 16:00 – 18:00

Social Event

DVM-Honorary Membership

Time 18:40 – 19:00

18:40  Laudation
J. Newman

Evening forum for technical and scientific discussion

Time 19:00 – 22:00
Welcome 8:30 – 8:40  
R. Heim, Fraunhofer LBF, Darmstadt, Germany

PL-06 | Plenary Lecture
Hall A
Time  8:40 – 9:20

8:40  PL-06-01 | Fatigue Performance of Additive Manufactured Metals under Variable Amplitude Loading (#95)
A. Fatemi
The University of Memphis, United States of America

M | New Materials
Chair: D. Socie, United States of America
Hall A
Time  9:20 – 10:40

9:20  M-01 | Influence of Variable Amplitude Loading on Cyclic Material Behavior of AM Structures (#74)
M. Scurria, R. Wagener, T. Melz
Fraunhofer Institute for Structural Durability and System Reliability LBF, Group Component-Related Material Behavior, Darmstadt, Germany

9:40  M-02 | Fatigue strength values for components manufactured in the Wire Arc Additive Manufacturing process (#105)
1 Clausthal University of Technology, Institut für Maschinelle Anlagentechnik und Betriebsfestigkeit, Clausthal-Zellerfeld, Germany; 2 Clausthal University of Technology, Institut für Schweißtechnik und Trennende Fertigungsverfahren, Clausthal-Zellerfeld, Germany; 3 Clausthal University of Technology, Institut für Technische Mechanik, Clausthal-Zellerfeld, Germany

10:00  M-03 | Energy based method for fatigue damage prediction of rubber fibre composites and the influence of different modelling techniques on the method results (#25)
S. Oman, J. Klemenc, M. Nagode
University of Ljubljana, Faculty of Mechanical Engineering, Chair for Machine Elements and Structure Evaluation, Slovenia
10:20  **M-04 | Behaviour of a grain refined low carbon bainitic TRIP steel under cyclic loading (#13)**  
*I. Burda¹, R. Koller¹, C. Affolter¹, A. Arabi-Hashemi², K. Zweiacker², L. Oberli³, H. Roelofs⁴*  
¹ Empa Dübendorf, Mechanical Systems Engineering, Dübendorf Zürich, Switzerland;  
² Empa Dübendorf, Advanced Materials Processing, Dübendorf Zürich, Switzerland;  
³ Steeltec AG, Qualität und Entwicklung, Emmenbrücke, Switzerland;  
⁴ Swiss Steel AG, R&D, Emmenbrücke, Switzerland

10:40 – 11:00 Break

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**N | Multiaxial Loading (2)**

Chair: A. J. Nieslony, Opole University of Technology, Poland

**Hall B**

**Time** 9:20 – 10:40

9:20  **N-01 | Multiaxial block programs: A new method for the efficient testing of the durability of elastomeric bearings (#57)**  
*T. A. Thüringer*  
TU Dresden, Institut für Automobiltechnik, Germany

9:40  **N-02 | New modelling method with the focus on high dynamic loads, hydraulic damping and multi-axial excitation for use in load data determination using multi-body simulation (#63)**  
*S. Ernst*, K. Büttner, G. Prokop  
Technical University Dresden, Chair of Automobile Engineering, Germany

10:00  **N-03 | Development and validation of models for durability estimation for LSI exhaust manifolds under high temperature loads with consideration of weld seams (#75)**  
*M. Wendt¹, W. Rehm²*  
¹ Daimler AG, Hamburg, Germany;  
² Daimler AG, Ulm, Germany

10:20  **N-04 | Life dependent material parameters applied to lifetime calculation under multiaxial variable-amplitude loading (#83)**  
*A. Karolczuk², J. Papuga¹, K. Kluger²*  
¹ FME, Czech Technical University in Prague, Dept. of Mechanics, Biomechanics and Mechatronics, Prague, Czech Republic;  
² Opole University of Technology, Department of Mechanics and Machine Design, Poland

10:40 – 11:00 Break
O | Fracture Mechanics and Defects

Chair: M. Luke, Fraunhofer IWM, Freiburg, Germany

Hall A

Time 11:00 – 12:20

11:00  O-01 | Evaluation of influences through materials processing on the fatigue life of quenched and tempered SAE 4140H (#46)
R. Acosta¹,⁴, T. Hielscher²,⁵, M. Magin³,⁵, P. Starke¹,⁵
¹ University of Applied Sciences, Materials Science & Materials Testing, Kaiserslautern, Germany; ² University of Applied Sciences, Manufacturing Technology, Germany; ³ University of Applied Sciences, Technical Mechanics, Machine Dynamics & Simulation, Kaiserslautern, Germany; ⁴ Saarland University, NDT & Quality Assurance, Saarbrücken, Germany; ⁵ University of Applied Sciences, Institute of Quality Management, Modeling, Machining and Materials (QM3), Kaiserslautern, Germany

11:20  O-02 | About the cyclic material behavior of aluminum wrought alloys under variable amplitude loading conditions and its consideration during the numerical fatigue approach (#65)
A. Maciolek, J. Bernhard, T. Melz
Fraunhofer Institute for Structural Durability and System Reliability, Darmstadt, Germany

11:40  O-03 | Fatigue performance and modeling of a cast aluminum alloy under variable amplitude loading (#128)
A. Nourian-Avval, A. Fatemi
University of Memphis, Mechanical Engineering, United States of America

12:00  O-04 | Probabilistic Simulation of the fatigue strength of case hardened components under special consideration of residual stresses (#144)
J. A. Meis¹, V. Iss², A. Rajaee¹, C. Broeckmann²
¹ Flender GmbH, Bocholt, Germany; ² RWTH Aachen, Germany

12:20 – 13:20 Break
P | Overloads

Chair: M. L. Facchinetti, PSA Groupe, Voujeaucourt, France

Hall B

Time 11:00 – 12:20

11:00  P-01 | The effect of overloads on fatigue crack propagation measured by DIC, BEMI and synchrotron (#55)
M. Marx, M. Thielen, C. Motz
Saarland University, Materials Science and Engineering, Saarbruecken, Germany

11:20  P-02 | Determining the influence of overloads on the cyclic material behaviour of nodular cast iron (#17)
C. Bleicher, J. Hesseler, R. Wagener, H. Kaufmann, T. Melz
Fraunhofer LBF, Darmstadt, Germany

11:40  P-03 | Lifetime extension due to initial quasi-static overloads (#43)
R. Szlosarek, A. Rudolph, J. Köckritz, M. Kröger
TU Freiberg, Institute for Machine Elements, Engineering Design and Manufacturing, Germany

12:00  P-04 | The influence of rigid obstacles on fatigue life-time of critical part of axle trailers (#112)
J. Steinhübl¹, M. Šulko²
¹ KNOTT spol. s r.o., Development & Design, Modra, Slovakia;
² Slovak University of Technology, Faculty of Mechanical Engineering, Bratislava 1, Slovakia

12:20 – 13:20 Break
PL-07 | Plenary Lecture
Chair: R. Waterkotte, Schaeffler Technologies AG & Co. KG, Herzogenaurach, Germany
Hall A
Time 13:20 – 14:00

13:20  PL-07-01 | Managing Durability Requirements within Engineering & Industrialisation in an Increasingly Digital Environment (#99)
S. Chereau
BMW Group, München, Germany

Q | Digitization
Chair: R. Waterkotte, Schaeffler Technologies AG & Co. KG, Herzogenaurach, Germany
Hall A
Time 14:00 – 15:00

14:00  Q-01 | About a material model and properties as basis for a digital twin for the fatigue approach (#67)
R. Wagener 1, H. Kaufmann 2, T. Melz 2
1 Fraunhofer Institute for Structural Durability and System Reliability LBF, Component-Related Material Behavior, Darmstadt, Germany; 2 Fraunhofer Institute for Structural Durability and System Reliability LBF, Darmstadt, Germany

14:20  Q-02 | Digital twin as solution for time latency in connected HIL test benches (#78)
R. Bartolozzi 1, E.-M. Stelter 1, D. Nickel 2, C. Schyr 2, C. Sültrop 3, R. Möller 1
1 Fraunhofer Institute for Structural Durability and System Reliability LBF, Assemblies and Systems / Numeric System Analysis, Darmstadt, Germany; 2 AVL Deutschland GmbH, Advanced Solution Lab, Karlsruhe, Germany; 3 Fraunhofer Institute for Integrated Systems and Device Technology IISB, Vehicle Electronics / Drive Inverters & Mechatronics, Erlangen Germany

14:40  Q-03 | Early detection of damage in aircraft structures using Machine Learning and FEM-based methods (#82)
A. Cugniere, O. Tusch, C. Stönner, I. Wieser, S. Belkner, A. Mösenbacher
IABG mbH, TAM3 Methodenentwicklung und Betriebsfestigkeit, Ottobrunn, Germany
R | Special Loading Conditions

Chair: V. Chmelko, Slovak University of Technology in Bratislava, Slovakia

Hall B

Time 14:00 – 15:00

14:00  R-01 | Comprehensive description and evaluation of a multi-physical testing process to simulate real conditions that affect the reliability and aging of high energy traction batteries for electric vehicles (#79) 
A. Karthikeyan, R. Zinke, A. Schönemann, R. Heim
Fraunhofer-Institut für Betriebsfestigkeit und Systemzuverlässigkeit LBF, Systemzuverlässigkeit Future Mobility, Darmstadt, Germany

14:20  R-02 | Relevance of strong motion portion of a synthesized time-history for strength and functional validation in earthquake simulation (#103) 
F. Bösl
IABG mbH, Ottobrunn, Germany

14:40  R-03 | Ringing conditions, durability life and sound quality of church bells (#139) 
A. Rupp, M. Plitzner
University of Applied Sciences Kempten, Germany

JA-CR | DVM-Junior Award / Closing Remarks

Hall A

Time 15:00 – 15:30

Meeting of the Scientific Committee
Meeting of the Editors of the Special Issues

Hall B

Time 15:30 – 18:00
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<tr>
<th>Time</th>
<th>Sunday 29.03.2020</th>
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