



DVM

German Association for
Materials Research and Testing e.V.

LCF10 Tenth International Conference on Low Cycle Fatigue

Programme



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23 to 25 June 2026
Dresden

Conference Website
lcf10.de

■ Tuesday, 23 June 2026

16:00 -17:00 Committee Meeting

17:00 -18:00 Registration and Get-together

The evening is then free to meet up with international friends and colleagues

■ Wednesday, 24 June 2026

9:30 - 10:00 Registration

10:00 Welcome Addresses Plenary Session

Keynote Lecture

10:20 Physics-informed neural network framework for fatigue crack growth prediction in LPBF alloys: Integrating process parameters, material strength, and fracture mechanics (#28)

A. INCE

Concordia University, Mechanical, Industrial & Aerospace Engineering, Montreal, CA

10:40 – 10:45 Short Break for Change of Rooms

- 10:50 Low-Cycle Fatigue Behavior of Laser Powder Bed Fused Nickel-based Superalloy Inconel 718 at Room and High Temperature (#15)
N. SONNTAG, B. PIESKER, L. A. ÁVILA CALDERÓN, G. MOHR, B. REHMER, L. AGUDO JÁCOME, K. HILGENBERG, A. EVANS, B. SKROTZK, Bundesanstalt für Materialforschung und -prüfung (BAM), Berlin, DE
- 11:15 Suitability of As-Built Electron Beam Melted Inconel 718 for Thermomechanical Fatigue Applications
D. HEYERHOFF¹, T. BABINSKÝ², S. ANTUSCH¹, I. ŠULÁK³, S. GUTH¹ (#23)
¹ Karlsruhe Institute of Technology, Institute for Applied Materials, Karlsruhe, DE
² Paul Scherrer Institut, Villigen, CH
³ Institute of Physics of Materials, Low Cycle Fatigue, Brno, CZ
- 11:40 High temperature LCF performance of nickel-based superalloy strengthened with TiB₂ nanoparticles
I. ŠULÁK¹, L. PELIKÁN², T. VRAŽINA^{1, 3}, L. POCZKLÁN¹, M. BARTOŠÁK² (#41)
¹ Czech Academy of Sciences, Institute of Physics of Materials, Brno, CZ
² Czech Technical University in Prague, Faculty of Mechanical Engineering, Prague, CZ
³ Brno University of Technology, Faculty of Mechanical Engineering, Brno, CZ
- 12:05 Small Fatigue Crack Growth Mechanisms under Thermo-Mechanical Fatigue in a Polycrystalline Superalloy: Role of Crack Closure (#3)
Y. YAMAZAKI¹, M. ARAI, Chiba University, Chiba, JP
- 12:30 – 13:15 Break

- 10:50 A novel loading, unloading, reloading testing approach for characterizing cyclic crack growth (#11)
A. HAUSMANN¹, B. GEHRMANN², M. HAFEZ HAGHIGHAT², S. NEUMEIER¹, H. W. HÖPPEL¹
¹ Friedrich-Alexander-Universität, Department of Materials Science / Institute for General Materials Properties, Erlangen, DE
² VDM Metals International GmbH, Altena, DE
- 11:15 Multi-DIC based characterization of the fatigue behavior of additively manufactured architected materials (#46)
L. STAMPA^{1, 2}, D. KANCHARLA^{1, 2}, M. ZIMMERMANN^{1, 2}
¹ Technische Universität Dresden, Dresden, DE
² Fraunhofer Institute for Material and Beam Technology IWS, Dresden, DE
- 11:40 Anisotropy and Local Property Evolution of WAAM 316L and 17-4PH During Low-Cycle Fatigue (#19)
M. A. HOFFMANN¹, M. FASSHAUER², T. HASSEL², T. BECK¹, B. BLINN¹
¹ RPTU University, Institute of Materials Science and Engineering, Kaiserslautern, DE
² Leibniz University Hannover, Institut für Werkstoffkunde (Materials Science), Hannover, DE
- 12:05 Cyclic deformation behaviour of cryogenically treated Vanadis 4E in low cycle fatigue and cyclic indentation tests (#12)
F. TADROSS¹, R. WALTHER², J. HEIDRICH², S. WINTER², T. BECK¹, B. BLINN¹
¹ RPTU Kaiserslautern-Landau, Materials Science and Engineering, Kaiserslautern, DE
² Fraunhofer, Institute for Machine Tools and Forming Technology, Chemnitz, DE

12:30 – 13:15 Break

- 13:15 A study of small crack propagation behavior in a single crystal Ni based superalloy under TMF conditions
M. ARAI¹, Y. YAMAZAKI² (#8)
¹ Chiba University, Graduate school of Science and Engineering, Chiba, JP
² Chiba University, School of Engineering, Chiba, JP
- 13:40 Planar-biaxial thermo-mechanical fatigue behaviour of the nickel-base superalloy IN718 (#10)
H. BIERMANN¹, M. BÖCKER¹, S. HENKEL¹, H. RAMESH BABU², M. RADDATZ², U. GAMPE²
¹ TU Bergakademie Freiberg, Institute of Materials Engineering, Freiberg, DE
² TU Dresden, Institute of Power Engineering, Dresden, DE
- 14:05 Delamination of Ceramic Top Coat in Thermal Barrier Coatings Subjected to Thermo-Mechanical Fatigue Loading (#14)
M. OKAZAKI¹, S. YAMAGISHI²
¹ Niigata Institute of Technology, Kashiwazaki, JP
² Nagano Technical College, Nagano, JP
- 14:30 High Temperature Multiaxial Creep-Fatigue Life for YH61 Nickel-base Single Crystal Superalloy (#6)
M. SAKANE, Ritsumeikan University, Research Organization of Science and Technology, Kusatsu, JP
- 14:55 – 15:15 Break

- 13:15 Heterostructure specific toughening mechanisms in metallic laminates under cyclic loading (#16)
H.W. HÖPPEL, S. VOLLATH, P. M. POHL, D. MATSCHKAL, L. KÖLPIN, M. MAI, Friedrich-Alexander-Universität Erlangen-Nürnberg, FAU, Dept. Materials Science & Engng., Institute I, Erlangen, DE
- 13:40 *Electron beam powder bed fusion of Ti-Nb-Ta biomedical alloy – Microstructure evolution and low cycle fatigue behavior (#52)*
R. MÜLLER¹, C. LAUHOFF¹, M. STENZEL², M. WEINMANN², T. NIENDORF¹
¹ University of Kassel, Institute of Materials Engineering, Kassel, DE
² TANIÖBIS GmbH, Goslar, DE
- 14:05 Influence of Hydrogen on the LCF Behavior of Quenched and Tempered AISI 4140 Steel (#22)
E. GALL, S. GUTH, Karlsruhe Institute of Technology, Institute for Applied Materials – Materials Science and Engineering, Karlsruhe, DE
- 14:30 Modeling low cycle fatigue life of alloy 718 in a hydrogen environment (#59)
F. EBLING^{1, 2}, H. OESTERLIN¹, A. PUNDT², T. MICHLER¹
¹ Fraunhofer Institute for Mechanics of Materials IWM, Freiburg, DE
² Karlsruhe Institute of Technology, Institute for Applied Materials - Materials Science and Engineering (IAM-WK), Karlsruhe, DE
- 14:55 – 15:15 Break

- 15:15 Low cycle fatigue behavior of a 3D-printed high-entropy alloy (#4)
D. BAJAJ¹, A. FENG², S. QU², D. LI³, D. CHEN¹
¹ Toronto Metropolitan University, Department of Mechanical, Industrial and Mechatronics Engineering, Toronto, CA
² Tongji University, School of Materials Science and Engineering, Shanghai, CN
³ University of Alberta, Department of Chemical and Materials Engineering, Edmonton, CA
- 15:40 Influence of increased layer thickness on microstructure and low-cycle-fatigue behaviour of AlSi10Mg processed by laser-based powder bed fusion (#48)
J. ZEISBERG¹, A. ENGELHARDT¹, T. WEGENER², T. NIENDORF¹
¹ University of Kassel, Institute of Materials Engineering, Kassel, DE
² Technical University of Darmstadt, Center for Structural Materials, Darmstadt, DE
- 16:05 Cyclic transient material behavior of EN AW-1050A H24 aluminum under consideration of strain localization effects (#56)
T. KORSCHINSKY, B. MÖLLER, M. KIEL,
Fraunhofer Institute for Structural Durability and System Reliability LBF, Darmstadt, DE
- 16:30 Creep-Fatigue Fracture Mechanisms in Aluminum Alloy 2618: Effect of Tensile Holding Period on Fatigue Lifetime (#51)
M. ITO, IHI Corporation, Corporate Research and Development Division, Technology Platform Center, Materials & Structural Engineering Dept., Yokohama, JP
- 16:55 – 17:00 Short Break

Probabilistic approaches and surface / defect effects Parallel Session 2

15:15 Evaluation of Statistical Models and Methods for Estimating S-N curves (#32)
B. SCHALLER, L. BRUDER, M. WAGNER
MTU Aero Engines AG, Munich, DE

15:40 A surface roughness dependent EN-fatigue model for PBF-LB/M 316L in the LCF regime (#34)
J. KÖCKRITZ, A.A. MUTHANNA, R. SZLOSAREK, M. KRÖGER
TU Bergakademie Freiberg, Institute for Machine Elements, Design and Manufacturing, Freiberg, DE

16:05 LCF behaviour of fine-grained SLM 316L steel with plentiful twin boundaries (#44)
J. MAN¹, J. BRUŽA^{1, 2}, J. JAMBOR¹, A. CHLUPOVÁ¹, M. LALEH³, A. E. HUGHES⁴, I. ŠULÁK¹, J. POLÁK¹
¹ Czech Academy of Sciences, Institute of Physics of Materials, Brno, CZ
² Brno University of Technology, Institute of Materials Sciences and Engineering, Brno, CZ
³ University of Wollongong, Wollongong, AU
⁴ Deakin University, Deakin, AU

16:30 Low-cycle fatigue in roll-formed aerospace components – process-integrated simulation and experimental characterisation (#30)
B. SPAK, P. HANTSCHKE, M. KÄSTNER
Dresden University of Technology, Chair of Computational and Experimental Solid Mechanics, Dresden, DE

16:55 – 17:00 Short Break

17:00 Award DVM-Honorary Membership Plenary Session

17:10 - 17:35 Keynote Lecture

19:00 – 21:00 Conference Dinner

■ Thursday, 25 June 2026

9:00 Welcome Address 2nd Day

Notch effects

Plenary Session

- 9:10 Weakest Link Approach for the Estimation of Notch Support Factors (#42)
J. VON LAUTZ, W. NÖHRING, J. ALBIEZ
MTU Aero Engines AG, Structural Mechanics: Material and Lifting Methods, Muenchen, DE
- 9:35 Advanced 3D elasto-plastic modeling for stress-strain analysis of notched components under general multiaxial cyclic loadings (#27)
A. INCE
Concordia University, Mechanical, Industrial & Aerospace Engineering, Montreal, CA
- 10:00 LCF Crack Initiation Model for Foreign Object Damages (#43)
J. ALBIEZ¹, B. LANGE^{1, 2}, F. RIENÄCKER¹, J. VON LAUTZ¹
¹ MTU Aero Engines AG, Structural Mechanics: Material and Lifting Methods, München, DE
² Karlsruher Institut für Technologie (KIT), Institut für Technische Mechanik, Karlsruhe, DE
- 10:25 – 10:45 Break
- Data driven approaches for LCF and TMF lifetime assessment
- 10:45 Machine Learning Approaches to Thermomechanical Fatigue: Challenges, Insights, and Industrial Applications (#29)
F. SZMYTKA¹, B. TELMEN¹, A. FORRÉ²
¹ ENSTA, Institut Polytechnique de Paris, Palaiseau, FR
² Stellantis, Poissy, FR
- 11:10 A comparative study of machine learning-based models for lifetime prediction under multiaxial and thermo-mechanical fatigue loading (#40)
M. BARTOŠÁK, J. HALAMKA
Czech Technical University in Prague, Faculty of Mechanical Engineering, Prague, CZ

- 11:35 Neural-Network-Based Low Cycle Fatigue Life Estimation of Aluminum Alloys - Effect of Input Variables (#47)
T. HAYASHIBE¹, K. SASAKI², K. OHGUCHI³, K. FUKUCHI³, S. HONDA², Y. TSUBOTA⁴, W. NAGAI⁴, K. OHSATO⁴, N. SHINYA⁴
¹ Hokkaido University, Graduate School of Engineering, Sapporo, JP
² Hokkaido University, Faculty of Engineering, Sapporo, JP
³ Akita University, Department of Materials Science and Engineering, Akita, JP
⁴ ISUZU Motors Limited, Tokyo, JP

- 12:00 Development of a probabilistic lifetime concept for the assessment of casting defects in gas turbine blades (#39)
J. RADNERS¹, S. ECKMANN¹, M. SCHLESINGER¹, C. SCHWEIZER¹, C. AMANN², K. KADAU²
¹ Fraunhofer IWM, Materials Assessment and Lifetime Concepts, Freiburg, DE
² Siemens Energy, Muelheim an der Ruhr, DE

12:25 – 13:10 Break

Deformation and crack modeling Plenary Session

- 13:10 Modeling of variable stress or strain amplitude loading using hardening models (#5)
R. SZLOSAREK¹, M. SINGH¹, S. HENKEL², M. KRÖGER¹, H. BIERMANN²
¹ TU Freiberg, Institute for Machine Element, Design and Manufacturing, Freiberg, DE
² TU Freiberg, Institute for Materials Engineering, Freiberg, DE
- 13:35 Low-Cycle Fatigue Assessment of Welded Joints Considering Elastic–Plastic Crack Growth Using the IBESS Approach (#57)
M. KLING¹, A. ZAENSCH¹, M. MADIA², K. ROTHER¹, U. ZERBST²
¹ Munich University of Applied Sciences, Institut for Material and Building Research, Munich, DE
² Bundesanstalt für Materialforschung und -prüfung (BAM), Division 9.4, Berlin, DE

- 14:00 Connection between the material parameters of low-cycle fatigue and fatigue crack growth on high-strength steels and their welded joints (#50)
J. Lukács, J. Kovács
¹ University of Miskolc, Institute of Materials Science and Technology, Miskolc, Hungary

14:25 - DVM-Junior Award and Farewel

14:45

■ Organizer



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