Programme

May
17 – 18
2017
Darmstadt
Germany

SoSDiD 2017

Symposium on Structural Durability in Darmstadt

Complex Loading in Structural Durability

Registration

Variable amplitude loading and thermo-mechanical fatigue

Sequence effects
Modeling
Theory

Environmentally assisted fatigue

Mechanical
Corrosive

Random vibration

Measurement
Adaptronics
Assessment

Young talents session

Call for
- Presentation
- Poster
- Article

Exhibition

Leading manufacturers
Testing equipment
Testing systems
Software

Become
an exhibitor

Advisory board

M. Bacher-Höchst,
S. Beretta, M. Brune,
J. Dominguez, W. Eichlseder,
A. Fatemi, A. Forsen,
M. de Freitas, P. Heuler,
G. Marquis, J. Newman,
T. Palin-Luc, M. Sakane,
G. Savaidis, D. Vandepitte

Local committee

J. Baumgartner, H.Th. Beier,
B. Bertemes, K. Breidenbach,
K.-H. Haase, T. Melz,
M. Oechsner, K. Osterhage,
C.M. Sonsino, M. Vormwald,
A. Zeidler-Finsel

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TECHNISCHE UNIVERSITÄT DARMSTADT
IFSW
MPA IfW
SAM
Fraunhofer LBF
INSTRON
HBM

Wednesday, May 17th 2017

7:30 Conference Registration

8:30 **Opening - Research in Darmstadt**

M. Vormwald
IFSW, TU Darmstadt, Germany

Session 1, Environmentally assisted fatigue

J. Dominguez, M. Brune

8:45 Influence of pre-corrosion caused by synthetic exhaust gas condensate of automotive industry on tensile and fatigue properties of brazed AISI 304/BNi-2 joints

A. Schmiedt
IKW, TU Dortmund, Germany

9:15 Electrochemical characterization of automotuve aluminum alloys regarding their corrosion fatigue behavior

T. Engler[1], F.D. Araújo[2], G. Andersohn[1], H. Kaufmann[2], T. Melz[3], M.Oechsner[1]
1 IfW, TU Darmstadt, Germany, 2 Fraunhofer Institute for Structural Durability and System Reliability LBF, Germany, 3 SAM, TU Darmstadt, Germany

9:45 Introduction of the Exhibitors / Posters

10:00 Coffee Break

Session 1, Environmentally assisted fatigue

A. Forsen, P. Heuler

10:30 Fatigue lifetime assessment of aluminum alloys for chassis components under corrosive environment

F.D. Araújo[2], H. Kaufmann[2], T. Engler[1], G. Andersohn[1]
1 IfW, TU Darmstadt, Germany, 2 Fraunhofer Institute for Structural Durability and System Reliability LBF, Germany, 3 SAM, TU Darmstadt, Germany

11:00 Fatigue and degradation behavior of carbon fiber reinforced plastics

P. Rösch, T. Bruder, M. May, P. Wagner
BMW AG, Germany

11:30 Comparative study of multiaxial fatigue methods applied to welded joints in a container vessel

M.L. Kaminski[1], G. Bufalari[1,2], P.S. van Lieshout[1], J.H. den Besten[1]
1 Delft University of Technology, Netherlands, 2 Universita degli Studi di Genova, Italy

12:00 Influence of frequency, wave form and stress concentration factor on fatigue properties of commercial 316L type austenitic stainless steels in inert gas and in high pressure gaseous hydrogen

T. Michler
Adam Opel AG, Germany

12:30 Lunch

Wednesday, May 17th 2017

Session 1, Environmentally assisted fatigue

T. Palin-Luc, S. Beretta

13:45 Durability issues in lignite fired power stations with co-combustion of biomass

M. Schütze, X. Montero, M. Spiegel, M. Galetz

14:15 Effects of multiaxial stresses on LCF, creep and creep fatigue

M. Sakane
Ritsumeikan University, Japan

Session 2, Variable amplitude, multiaxial and thermo-mechanical fatigue loadings

T. Palin-Luc, S. Beretta

14:45 TMF for Gas Turbine Design - a perspective from industry

P. Gravett
Siemens Energy Inc., United States of America

15:15 Assessment of welded joints under thermomechanical and variable amplitude loading

A. Bosch[1], C. Schweizer[2], M. Vormwald[1]
1 IFSW, TU Darmstadt, Germany, 2 Fraunhofer Institute for Mechanics of Materials IWM, Germany

15:45 Coffee Break

Session 2, Variable amplitude, multiaxial and thermo-mechanical fatigue loadings

M. Sakane, W. Eichlseder

16:15 An innovative approach for efficient lifetime assessment under high temperature LCF and TMF

T. Beck
WKK, TU Kaiserslautern, Germany

16:45 Fatigue testing under multiaxial loading in HCF and VHCF

M. de Freitas
Univerity of Lisbon, Portugal

17:15 **Awards for outstanding work on structural durability**

HBM / INSTRON

17:35 To Hotels

18:45 Pick-up at MARITIM to Lichtenberghaus

19:00 Conference Dinner

23:00 Transportation to MARITIM Konferenzhotel

Thursday, May 18th 2017

8:30 Welcome

T. Melz
SAM, TU Darmstadt, Germany

Session 3, Random vibration

A. Fatemi, M. de Freitas

8:45 Fatigue life assessment models under random loadings: state-of-the-art and future perspectives

D. Benasciutti, R. Tovo
Dipartimento di Ingegneria, Università di Ferrara, Italy

9:15 Vibration fatigue analysis of composite materials

P. Heyes[1], R. Hartley[1], A. Maire[2], M. Bencivenga[2], M. Bonato[2], P. Goge[2], H. Crevel[2], D. Delaux[2], D. Baird[3], R. Minnick[3], H.C. Tseng[4], W.H. Yang[4], T.C. Cheng[4]
1 HBM United Kingdom Ltd, United Kingdom, 2 Valeo S.A., France, 3 Virginia Polytechnic Institute, United States of America, 4 CoreTech System Co Ltd., Taiwan

9:45 Development of a multiaxial test environment for sinusoidal and realistic random vibration tests for highly dynamically loaded mechatronic components

J. Vrbata[1], H. Atzrodt[1], T. Kimpel[2], T. Koch[1], D. Mayer[1]
1Fraunhofer Institute for Structural Durability and System Reliability LBF, Germany
2 Robert Bosch GmbH, Germany

10:15 Coffee Break

10:45 **Young talents session**

Adam Opel AG

11:00 Title 1, Title 2

N.N., N.N.

11:15 Title 1, Title 2, Title 3

N.N., N.N., N.N.

11:30 Title 1, Title 2

N.N., N.N.

11:45 Title 1, Title 2, Title 3

N.N., N.N., N.N.

12:00 Lunch

Thursday, May 18th 2017

Session 3, Random vibration

G. Marquis, G. Savaidis

13:15 FatiResponse – Tailored vibration testing of engine components

M. Decker[1], S. Kinscherf[1], N. Bauer[2], M. Serifsoy[2]
1 IABG mbH, Germany, 2 Audi AG, Germany

13:45 Vibration fatigue analysis of components on rotating machinery under sine and swept-sine on random loading

A. Halfpenny, F. Kihm
HBM United Kingdom Ltd, United Kingdom

14:15 Multiaxial vibration testing of inertia force related components of electric vehicles

C. Debes, R. Zinke, C. el Dsoki, R. Heim
Fraunhofer Institute for Structural Durability and System Reliability LBF, Germany

14:45 **Young talents awards for best presentation**

K. Osterhage
Adam OPEL AG, Germany

14:55 **Closing Remarks**

M. Oechsner
IfW, TU Darmstadt, Germany

15:10 End