

Programme

The VHCF7 time schedule including session arrangements and abstracts of the contributions will be published soon on the conference website www.vhcf7.de

Exhibition

An accompanying exhibition of material testing systems and services as well as technical literature is planned. For details contact DVM via www.vhcf7.de

Conference Venue

The name of Dresden is synonymous with art and culture. Dresden is the capital of Saxony and is located along the Elbe River. The 800 year old Baroque city offers cultural and art treasures of European rank, world-famous art collections, but also a lively theatre and music scene. Architectural jewels blend into a charming natural landscape.

Accommodation

Dresden-Radebeul offers a good range of hotel accommodation. Special arrangements for participants please see www.vhcf7.de

Insurance

The conference organiser cannot be made responsible for any personal accident or loss or damage of private property of participants and accompanying persons. Participants have to arrange for their own insurance cover if considered necessary.

Proceedings

Proceedings will be available at the conference.

Language

The conference language is English.

Travelling Information

Dresden is located just in the middle of the European Union and is reachable by motorways from Munich, Frankfurt, Hamburg or Berlin. Direct flights to Dresden are currently offered by over 20 airports all over the world or with only one stop from the international airports of Frankfurt and Munich.

Registration

Registration and booking exclusively online through the registration access on the conference website www.vhcf7.de. A confirmation of the registration will be sent to the participant by e-mail / pdf.

Social Events, Technical Visits

Please see www.vhcf7.de

All information and details to be found on the VHCF7 conference website www.vhcf7.de



Supporting Associations



Deutsche Gesellschaft für Materialkunde e.V.



Wissenschaftlicher Arbeitskreis e.V. der Universitätsprofessoren der Werkstofftechnik



Federation of European Materials Societies



Gruppo Italiano Frattura



Société Française de Métallurgie et de Matériaux



The Minerals, Metals & Materials Society, US



The Society of Materials Science, Japan



European Structural Integrity Society



International Congress on Fracture

Organization



German Association for Materials Research and Testing e.V.

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German Association for Materials Research and Testing e.V.

VHCF7 Seventh International Conference on Very High Cycle Fatigue

2nd Circular



Semperoper Dresden ©DVM

3 to 5 July 2017
Dresden, Germany

Aims and Scope

The Seventh International Conference on Very High Cycle Fatigue (VHCF7) is scheduled to be held from 3 to 5 July 2017 in Dresden, Germany.

With an increasing scarcity of resources, strategies to realize the most efficient design and engineering of components and hence an optimum utilization of cyclic strength of engineering materials become more and more important. Nowadays a growing number of components have to withstand a very/extremely high number of loading cycles. Thus, there is a global interest in, and need for, an improved understanding of the fatigue behavior and related damage mechanisms of structural materials in the very high cycle fatigue regime in order to develop reliable fatigue life prediction methods for number of cycles far beyond 10^6 . VHCF7 will continue the tradition to serve as a lively and fertile platform bringing together the international VHCF community and all those interested to present, discuss and learn about the latest findings from fundamental and applied research and to get to know the impact on practical applications.

The conference will comprise invited keynote lectures by outstanding international scientists, contributed oral presentations and posters. The conference language is English and printed proceedings as well as a digital version will be published. .

Prof. Dr.-Ing. Martina Zimmermann

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Scientific Topics

Fundamentals, physics and mechanisms

- Mechanisms of crack initiation
- Nonpropagating cracks, growth of short and long cracks
- Mechanisms of damage accumulation
- Influence of microstructure and defects

Parameters

- Influence of environment
- Influence of temperature
- Notch and gradient effects
- Effect of mean and residual stresses
- Effect of variable amplitude loading
- Effect of surface treatment
- Effect of test frequency

Experimental methods

- Fatigue testing machines
- Instrumentation and experimental methods
- Prognosis and health monitoring
- Advanced microstructural analysis techniques

Applications to components and structures

- Statistical and probabilistic modeling
- Development of life estimation models
- Assessment and modeling of fatigue damage and damage accumulation
- Actual structures and their components
- Case studies in industrial applications

Materials databases and its application

- Databases and application systems
- Analysis of material databases
- Effective big data analysis for VHCF

Numerical Modelling

- Methods from atomistic to continuum mechanics
- Measurement and assessment of modelling parameters
- Application and verification of simulation models

Plenary Lectures

PRISMS: An Integrated Predictive Multi-Scale Capability for Predicting Very High Cycle Fatigue Behavior of Metals

J. ALLISON, University of Michigan, Materials Science and Engineering - Ann Arbor, United States

Fatigue Testing of Carbon Fiber Reinforced Polymer Composites at Ultrasonic Frequencies and Damage Monitoring under VHCF Loading

F. BALLE¹, D. BACKE², D. WEIBEL¹

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Effects of Surface Defects/Notches on Very-High-Cycle Fatigue Behavior of a Structural Steel

Y. HONG, Q. JIANG, C. SUN, LNM, Institute of Mechanics, Chinese Academy of Sciences - Beijing, China

From Defects to Microstructure Neighborhoods:

A Review of Ultrasonic Fatigue Studies at the University of Michigan

W. JONES¹, J. ALLISON¹, T. POLLOCK², C. TORBET², S. DALY³

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³University of California Santa Barbara, Mechanical Engineering - Santa Barbara, United States

Fatigue Behavior of Two-phase Titanium Alloys in VHCF Regime

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VHCF7 Executive Chairs

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- *H.-J. Christ*

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