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■ Organization



German Association for
Materials Research and Testing e.V.

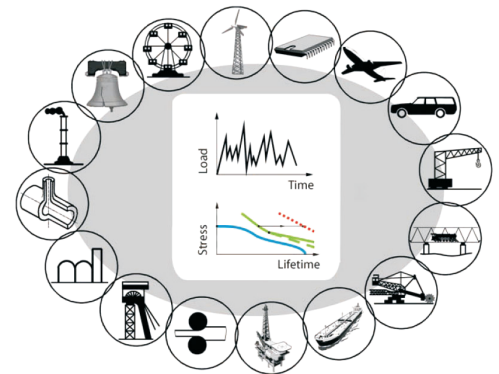
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German Association for
Materials Research and Testing e.V.

VAL5 Fifth International Conference on Material and Component Performance under Variable Amplitude Loading

First Announcement



11 to 13 June 2024
Dresden, Germany

Conference Website (*soon online*)
www.val5.de

Scope

Components, assemblies and even entire systems are characterised by cyclic-oscillating, time-varying and often random load sequences that can lead to material fatigue and other damage mechanisms. The associated failures, downtimes or maintenance requirements are causes of high costs and damage consequences. Therefore, understanding the dependency of fatigue damage and random cyclic loading is a necessary prerequisite for the operationally durable dimensioning of components and structures.

However, such a component design in accordance with the principles of fatigue strength is not only motivated by the effort to avoid damage and repairs. Today's increasingly important issues of lightweight construction, material and energy efficiency and, thus, improved sustainability require exact knowledge of the operational loads and the corresponding fatigue behaviour. Sustainability in a modern sense means the most efficient possible use of available resources and this goal can only be achieved for many components and structures if the load sequences occurring in operation are known and taken into account for the optimisation of materials, design and production. Variable load amplitudes as a characteristic feature of typical operational load sequences thus become a very important design parameter for sustainable, optimised components and structures.

Therefore, the goal of this conference, organized by the German Association for Materials Research and Testing (DVM), is to provide a platform to the international community for exchanging ideas and information about recent developments, new scientific approaches and industrial applications regarding variable amplitude fatigue of materials, components and structures. Started in 2002, the 2024 conference will be the fifth in a row and will continue to provide excellent opportunities for researchers and industrial representatives to discuss recent achievements and results of research studies, new approaches and state-of-the-art processes in different industries.

A. Esderts, S. Werdin, C. Bleicher
Chairmen of VAL5 International Conference

VAL History

- 2002 in Tours, FR, (SF2M, ASTM),
- 2009 in Darmstadt, DE, (DVM, ASTM)
- 2015 in Prague, CZ, (Czech Techn. Univ.)
- 2020 proceedings (DVM)

Topics

- Load assumptions and standardized load sequences
- Modeling of VA fatigue with regard to crack nucleation / initiation and propagation
- Design and analysis methods and tools
- Reliability concepts
- Materials and manufacturing technologies
- Testing and measurement methods (load control, damage detection, time reduction, active systems etc.)
- Effects on lifetime (environment, special events, spectrum shape, multiaxiality)
- Interaction of numerical assessments and experimental verification
- Industrial applications - case studies

Language

The conference language is English and will be required for abstracts, papers, posters and oral contributions.