Dear Sir or Madam,

With the help of modern measurement and inspection processes, supported by optimized analysis and evaluation techniques, Materials Test Engineering provides the data base for construction and production as well as for virtual development of reliable high performance products for different industries.

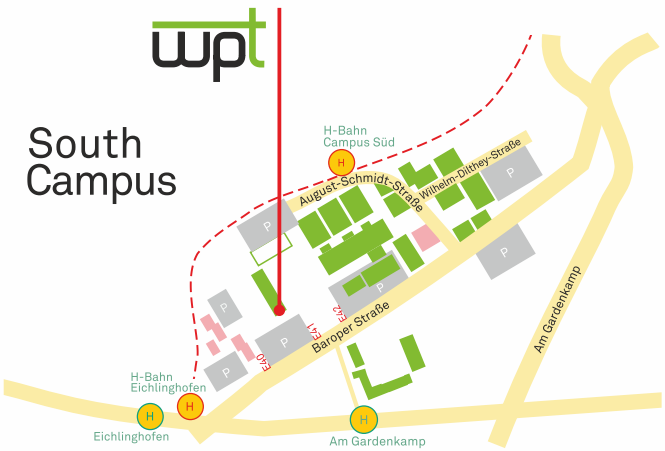
Materials Test Engineering is used as decision guidance for material selection, quality control, component monitoring and damage analysis. This is facilitated by determining the chemical composition, analyzing microstructural properties with light, electron beams and X-rays, determining material properties and characteristic values by means of destructive and non-destructive testing methods as well as developing methods for material modeling and calculation. Apart from suitable qualification of materials and optimization of industrial production processes, activities concerning predictive maintenance and structural health monitoring – for continuous monitoring of structural integrity of highly loaded component systems – as well as approaches for precise calculation of remaining fatigue life are gaining importance.

All these diverse and far reaching topics, in which various scientific and economic issues are dealt with, are part of the research conducted within the specialist area Materials Test Engineering at TU Dortmund University.

With best regards,

Yours

Prof. Dr. Frank Walther



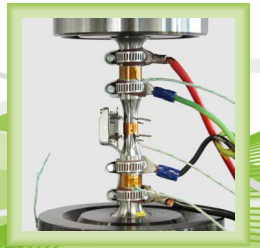
TU Dortmund University
Dept. of Materials Test Engineering (WPT)
Baroper Str. 303
D-44227 Dortmund, Germany
Phone +49 231 / 755-8028
Fax +49 231 / 755-8029
mail@wpt-info.de
www.wpt-info.de

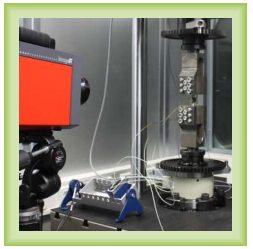
technische universität dortmund

Materials Test Engineering

wpt

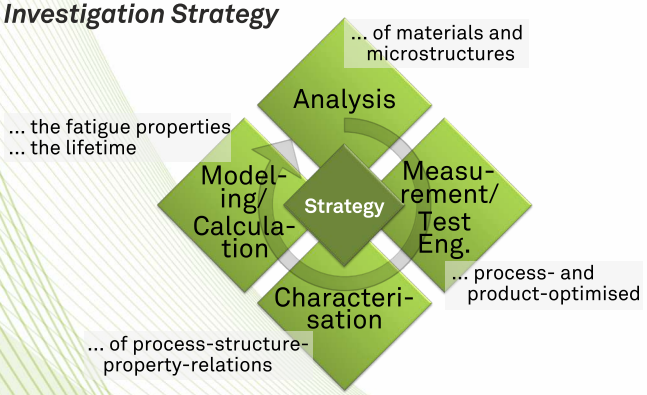
www.wpt-info.de



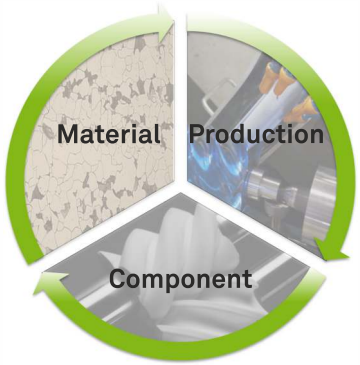


Faculty of Mechanical Engineering

Investigation Strategy



Value Chain



Lecture Schedule

Bachelor of Mechanical Engineering

- Angewandte Werkstofftechnik
- Messtechnik
- Zerstörende Werkstoff- und Bauteilprüfung
- Werkstoffprüfung für Ingenieure/innen
- Schwingfestigkeit

Master of Mechanical Engineering

- Werkstoffe der Verkehrs- und Medizintechnik
- Mikroskopie und Mikroanalytik

Master of Manufacturing Technology (MMT)

- Fatigue Behaviour
- Measurement Engineering

Research

Key Qualifications

wpt

Materials / Components Testing	Fatigue	Corrosion / Corrosion Prevention
Metallography	Low- and High-Cycle-Fatigue (LCF / HCF)	Electrochemical Corrosion Tests
Microscopy	Very-High-Cycle-Fatigue (VHCF)	Immersion Tests
DT and NDT	Thermo-Mechanical Fatigue (TMF)	Salt Spray Tests
Deformation-Induced Phase Transformations	Corrosion Fatigue	
Calculation of Damage Propagation and (Remaining-) Fatigue Life		
Structure-Property-Relations of Construction Materials		
Influence of Manufacturing and Service Loading on Product Properties		

Industry

Services

- Metallography / preparation
- Light and scanning electron microscopy
- Quantitative microstructure investigation
- Computed tomography
- X-ray diffraction
- Infrared spectroscopy
- Electrochemical corrosion test
- Salt spray test
- Micro and macro hardness test
- Tensile test, high-speed tensile test
- Fatigue test (LCF to VHCF)
- Ultrasonic fatigue test
- Fatigue rapid test
- Measurement systems for process / product evaluation
- Consulting regarding materials selection and application
- Damage analysis and assessment

Teaching

Impressions from the Lectures