Brandenburgische
Technische Universität
Cottbus - Senftenberg

Füge- und Schweißtechnik

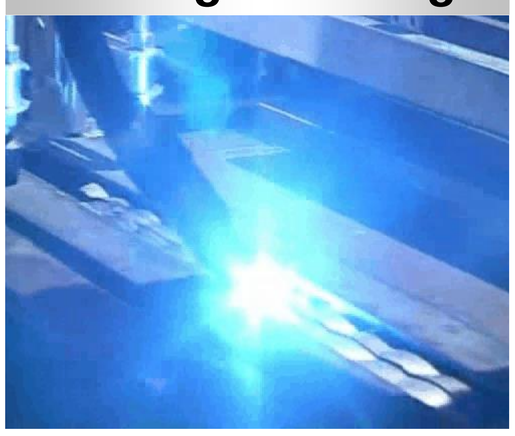
Panta Rhei
Interdisziplinäres
Forschungszentrum
für Leichtbauwerkstoffe

Lehrstuhl Füge- und Schweißtechnik

Prof. Dr.-Ing. habil. Vesselin Michailov

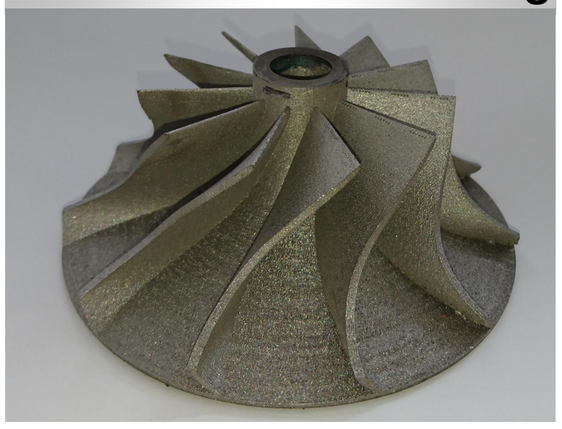
RESEARCH

Joining / Welding



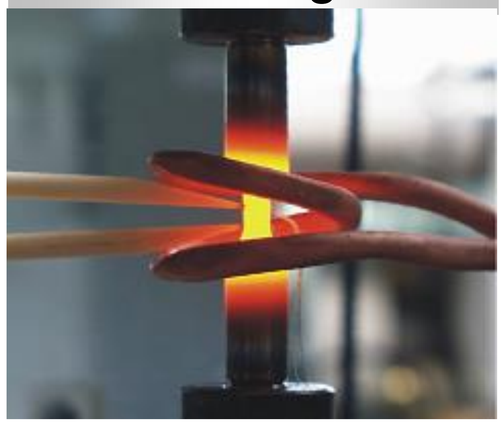
- Laser Beam Welding/Cutting
- Shielded Arc Welding
- Submerged Arc and Plasma Welding
- Friction Stir Welding
- Brazing and Soldering
- Adhesive Bonding

Additive Manufacturing



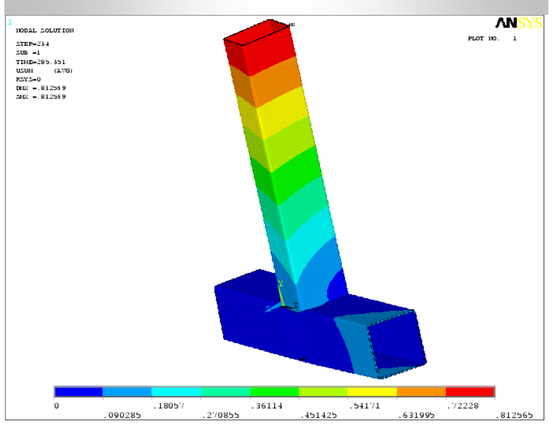
- Selective Laser Beam Melting
- Laser Powder Deposition Welding
- Laser Wire Deposition Welding
- Arc Wire Deposition Welding

Testing



- Material properties as function of temperature and strain rate
- Physical simulation of joining processes
- Assessment of joints under static, cyclic and dynamic loads

Simulation



- Joining and ALM processes
- Microstructure transformations
- Distortions/Residual stresses
- Strength assessment of joints

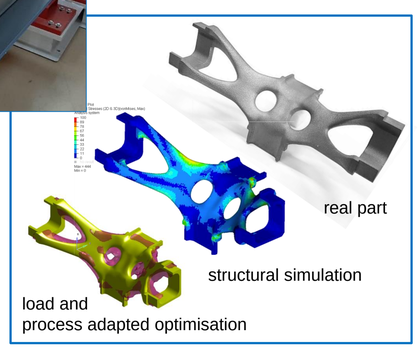
Expertise

- Selection, design and implementation of joining and ALM processes
- Development of filler materials (powder, wire)
- Design of components suitable for joining and ALM
- Reliable and quality-compliant dimensioning under load conditions
- Testing of materials, joints and load adapted components and structures
- Numerical structural and process simulation - prediction of distortion and residual stresses for structures
- Physical simulation – transient and thermal-induced microstructure changes along the process chain

Our offer for cooperation

- Implementation of photonic technologies in production lines
- Determination of material properties as a function of temperature, microstructure and strain rate
- Testing under static, dynamic and cyclic loads
- Simulation of the manufacturing processes and their influence on components and structures
- Design and strength calculation
- Consulting and development support
- Prototyping

Design and manufacturing concept for Modular lightweight equipment container system



Lightweight design for ALM-Components

Multi-material design – conductive ceramics $LaCrO_3$ - Cu

CONTACT

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