Fraunhofer

IAPT

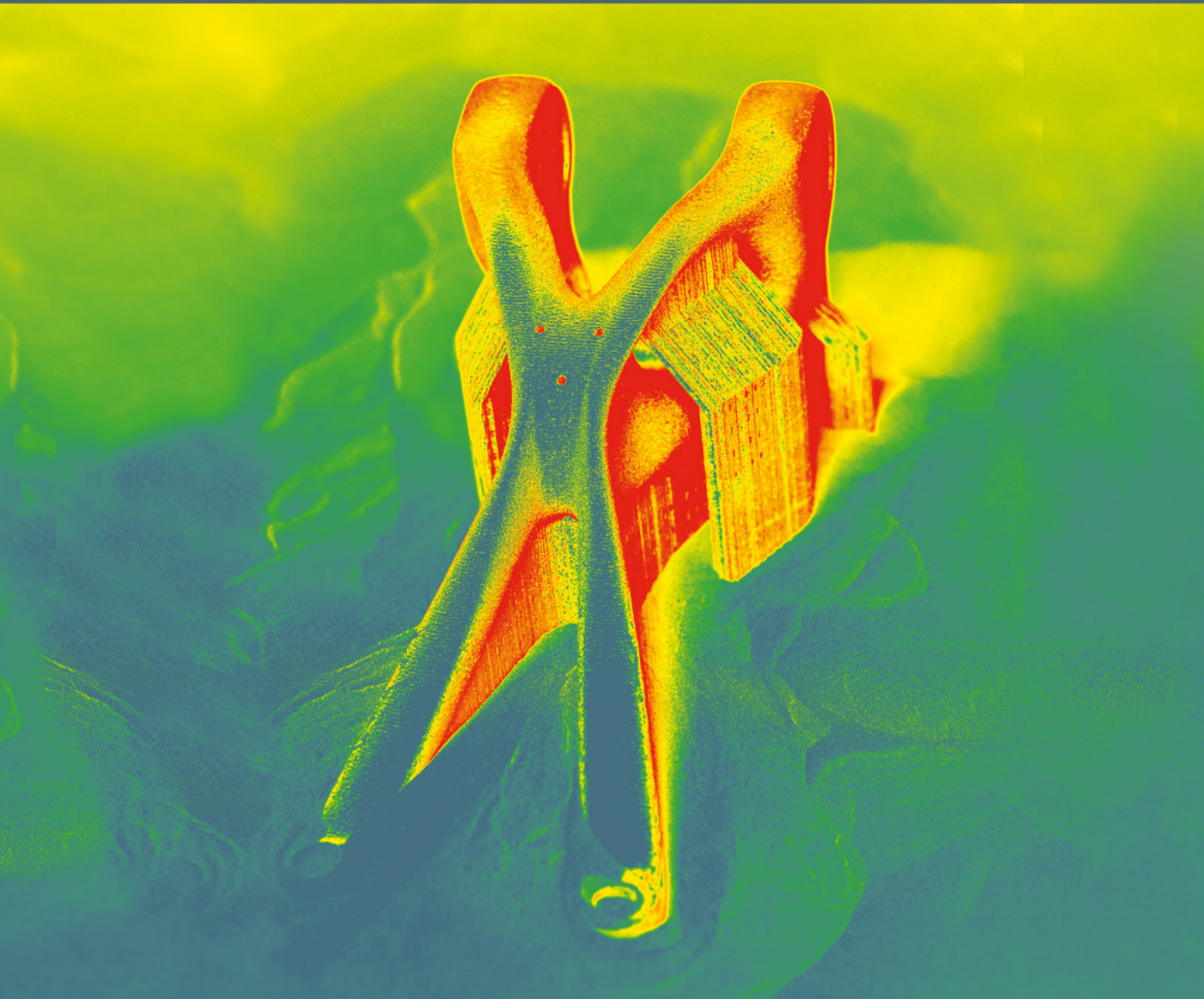FRAUNHOFER RESEARCH INSTITUTION FOR ADDITIVE MANUFACTURING TECHNOLOGIES IAPT

ADDITIVE MONITORING STUDY
BENCHMARK OF IN-PROCESS MONITORING SYSTEMS FOR L-PBF MACHINES

ADDITIVE MONITORING STUDY

PROBLEM STATEMENT

Current Situation

- What added value is offered by a process monitoring system?
- Which systems are available on the market?
- Which TRL level applies to them?
- How does the data output look like?

Solution

A study of market-relevant in-process monitoring systems

- Description and objective analysis of various systems
- Experimental system test
- Quick decision aid for understanding which system is suitable for my needs

CONTENT AND STRUCTURE OF THE STUDY

Technical Analysis

- System architecture
- Technical features and working principles
- User interface
- Technical comparison

Practical Investigation Using Test Samples

- Objective data evaluation of system output
- Analysis of samples using µCT and metalographic analysis
- Correlation between build irregularities and data output from different systems

Random pores

Partially molten powder
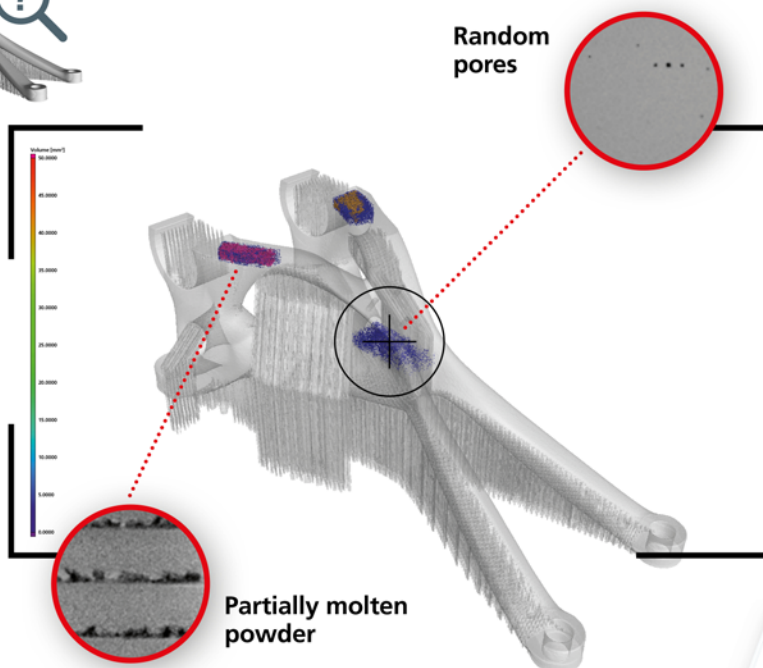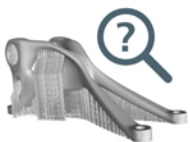
In-Process Monitoring Systems Investigated

Machine manufacturer systems:

- **GE Additive**
- **EOS**
- **Renishaw**
- **SLM Solutions**
- **Trumpf**
- **Velo 3D**
- **3D Systems**

Independent systems:

- **Sigma Labs**
- **Additive Assurance**
- **Open Additive**

Material: AlSi10Mg

SECURE THE STUDY RESULTS NOW!
Contact us: process.monitoring@iapt.fraunhofer.de