

We Innovate Materials

Sample Preparation

Lichtoptical Microscopy - Structure Characterization

Hardness Testing

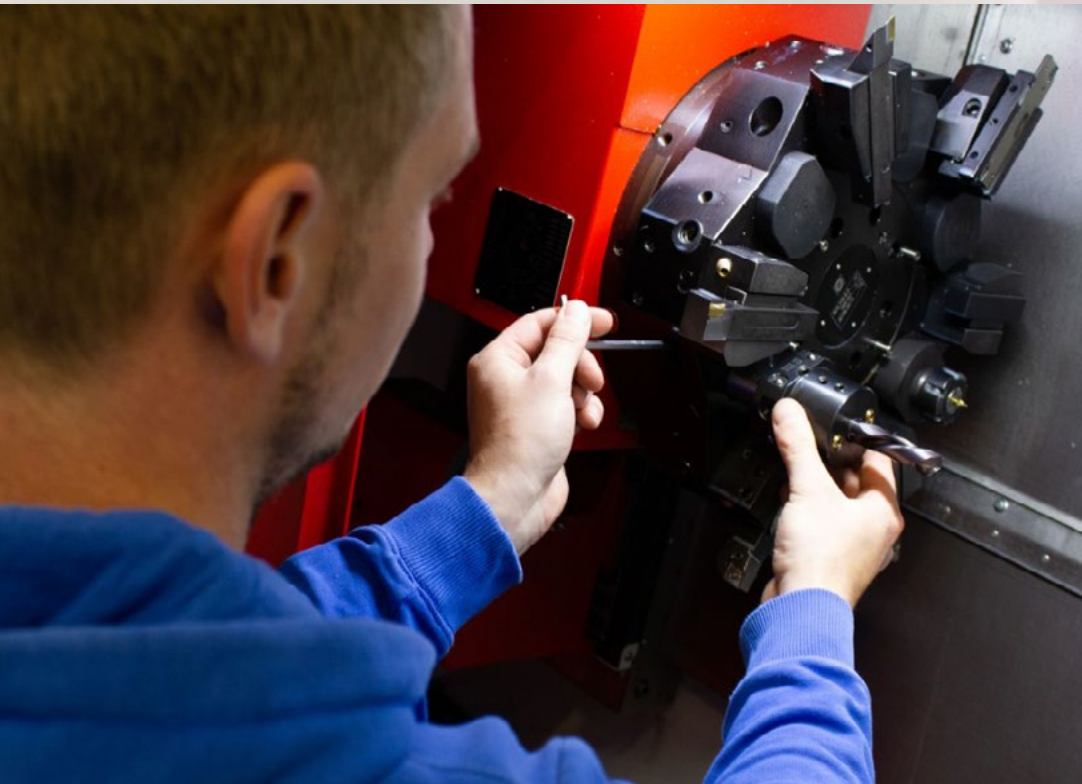
Surface Structures and Topography

Preparation, Metallography & Lightoptical Microscopy



COMPETENCE & RELIABILITY

Sample Preparation



Coarse cutting, fine cutting, mechanical specimen preparation and preparation of metallographic sections

Contact:



Dr. Angelika Spalek
T +43-676 848883 201



Dr. Stefan Marsoner
T: +43-676 848883 102

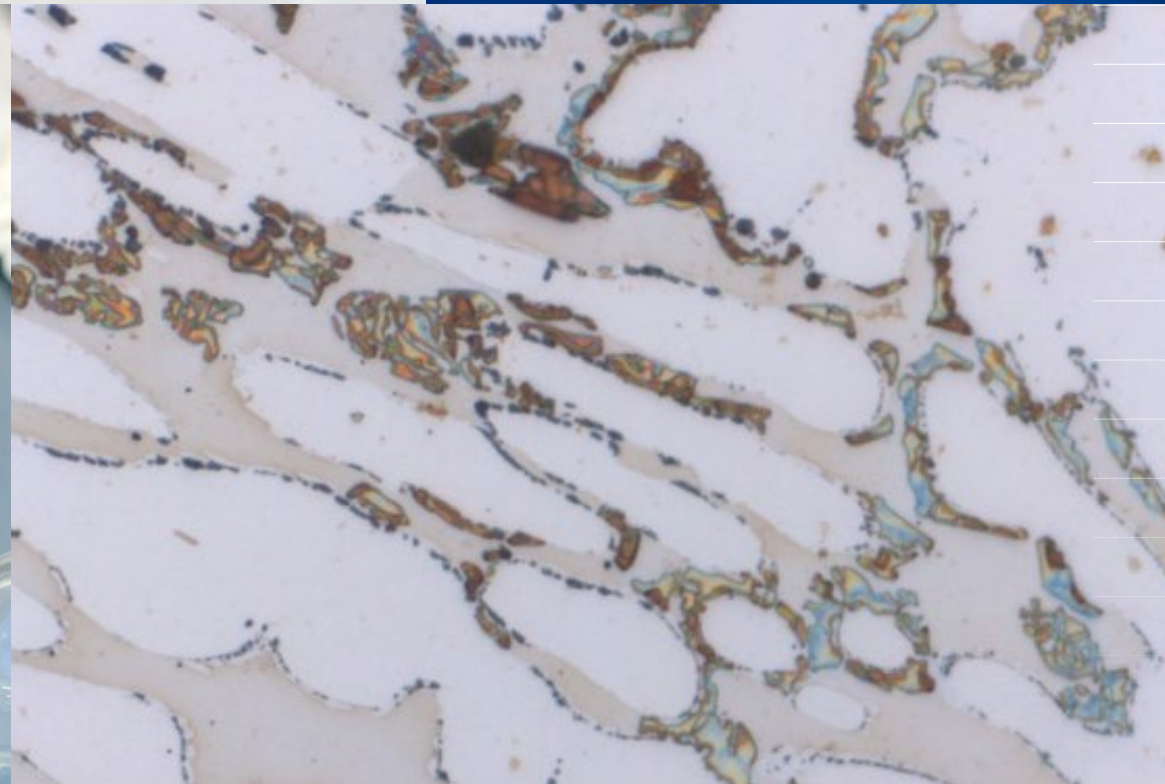
We Innovate Materials

Our Focus / Competences:

- preparation of metallic materials, ceramics, composite materials, special materials, microelectronic components
- coarse cutting of components
- fine cutting of specimen material
- mechanical production of specimens (milling, turning, grinding, eroding (*))
- production of microsections in the size ranging from <0.1 mm to >1 dm for microscopic documentation

(* in cooperation with our long-term partners/suppliers

Lightoptical Microscopy - Structure Characterization



Characterization of the microstructure of structural parts and functional components

Contact



Dr. Angelika Spalek
T +43-676 848883 201

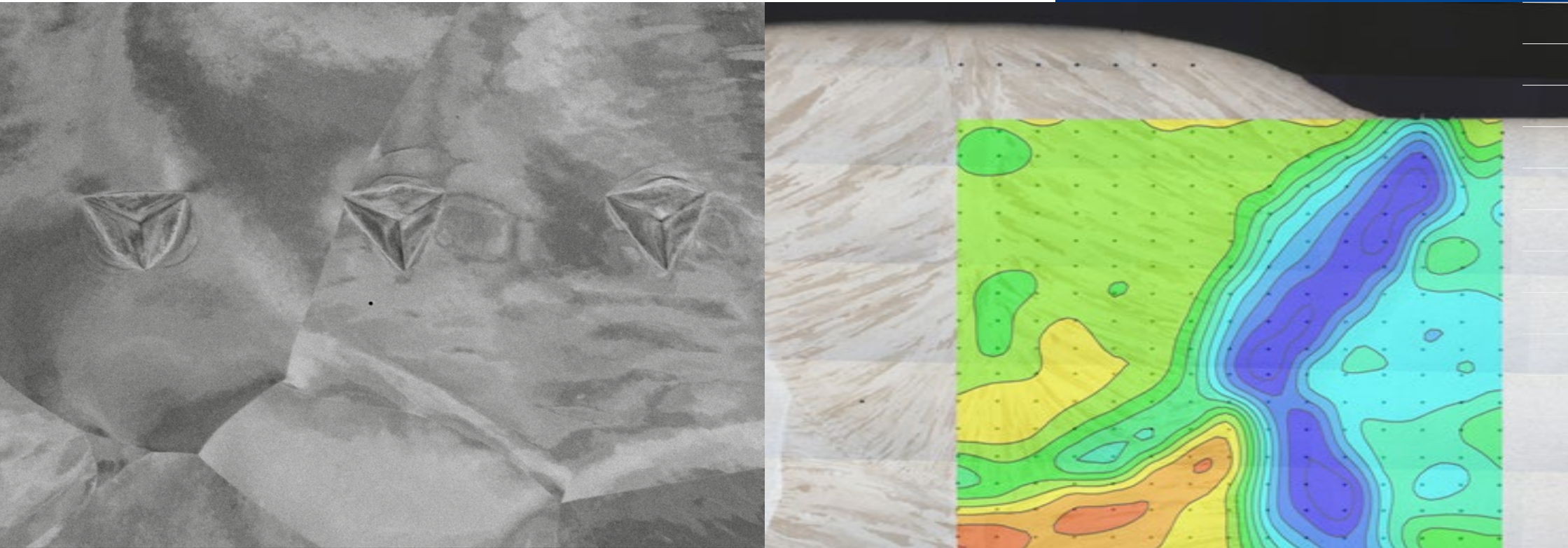


Dr. Florian Summer
+43-676 848883 202

Our Focus / Competences:

- microstructure documentation and analysis
- comprehensive range of etching methods (chemical and electrochemical) for steels, non-ferrous metals, hard metals, ...
- assessment according to various standards
 - content of non-metallic inclusions acc. to DIN 50602, ASTM E45, DIN EN 10247, ISO4967
 - carbide structure in steels acc. to SEP 1520
 - apparent grain size acc. to DIN EN ISO 643 and ASTM E112
 - depth of decarburization acc. to DIN EN ISO 3887

Hardness Testing



Performance of hardness tests from instrumented nano hardness testing to macro hardness testing
(partly within the scope of accreditation according to EN ISO 17025).

Contact:



Dr. Angelika Spalek
T: 43-676 848883 201

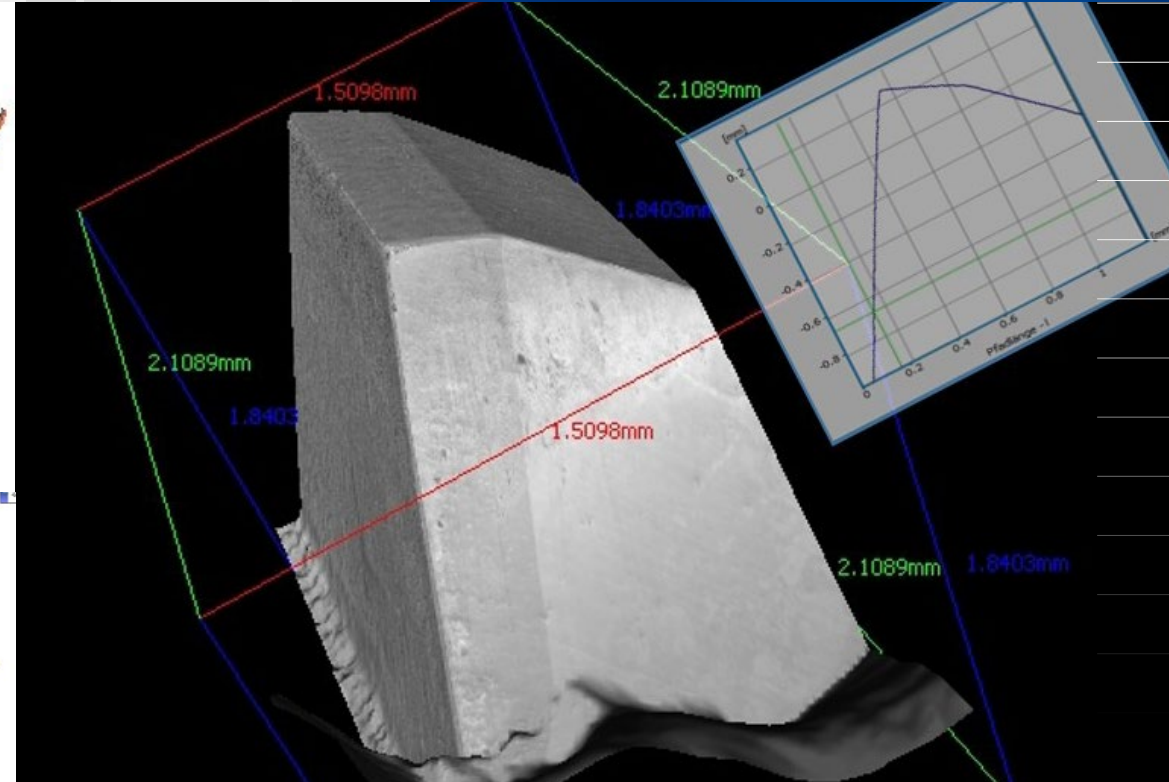
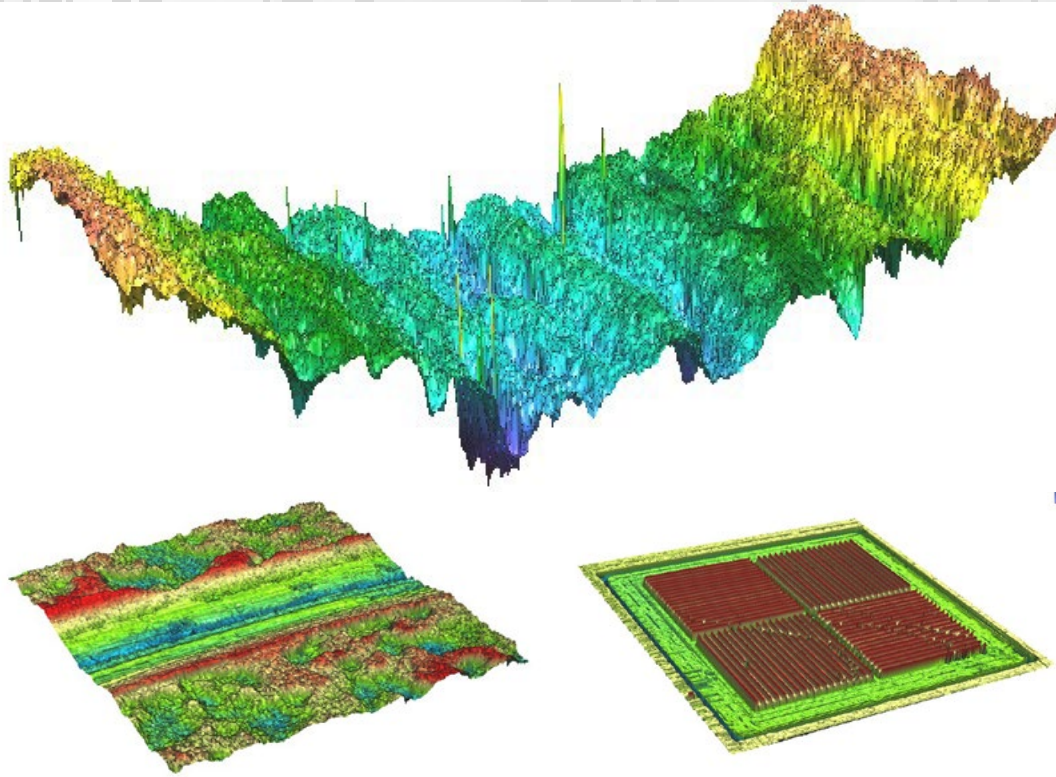
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Our Focus / Competences:

- determination of the core hardness HV, HRC, HB in the accredited testing lab acc. to EN ISO 6506-1 (HB), EN ISO 6507-1 (HV), EN ISO 6508-1 (HRC)
- measurement of hardness profiles and hardness mappings
- instrumented small load hardness measurement
- instrumented nanoindentation (*)
- insitu nanoindentation in SEM

() in cooperation with the Department Materials Science of the University of Leoben*

Surface Structures and Topography



2D and 3D - imaging of contours and surfaces from several millimeters to a few nanometers.

Contact:



Ing. Robert Peissl
T: +43-676 848883 103



Bernhard Sartory
T: +43-676 848883 129

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Our Focus / Competences:

- imaging of surfaces, contours or components by means of stereomicroscopy, profilometry and scanning electron microscopy
- roughness measurements (Ra, Rt, Rz)
- wear characterization on samples, components and tools
- 3D topography of contours, damage, etc. incl. measurement in the mm to sub- μ m range in SEM.
- analysis of local deposits, ablations incl. local chemical analysis (EDX).

Service Offer

- coarse/fine cutting, mechanical production of specimen material
- preparation of metallographic sections (metallic materials, metal-ceramic composite, electronic components)
- light microscopic examinations (microstructure documentation, microstructure assessment)
 - content of non-metallic inclusions acc. to DIN 50602, ASTM E45, DIN EN 10247, ISO4967
 - carbide structure in steels acc. to SEP 1520
 - apparent grain size acc. to DIN EN ISO 643 and ASTM E112
 - depth of decarburisation acc. to DIN EN ISO 3887
- stereomicroscopic examinations (surface and fractography)
- roughness measurement (Ra, Rt, Rz) by confocal microscopy
- creation of topography images, qualitative and quantitative evaluation in 2D or 3D, also on small to medium-sized components, cutting edges, friction marks, wear surfaces, etc.
- ambulant metallography (on-site-testing)
- one to several days on-site-trainings in the field of metallographic preparation and microstructure evaluation



COMPETENCE & RELIABILITY

Equipment

- coarse and fine cutting machines for sample preparation
- CNC milling and turning machines for sample production
- equipment for hot and cold embedding of microsections
- automated and manual grinding and polishing equipment
- lightoptical microscopy incl. digital image recording and automatic x-y table for analysis of large microsection surfaces
- stereomicroscopy with 3D recording technology
- quantitative image analysis system
- nanofocus μ surf confocal microscope (profilometer) with automatic x-y stage (analysis of large areas)
- various scanning electron microscopes (see SEM folder)

