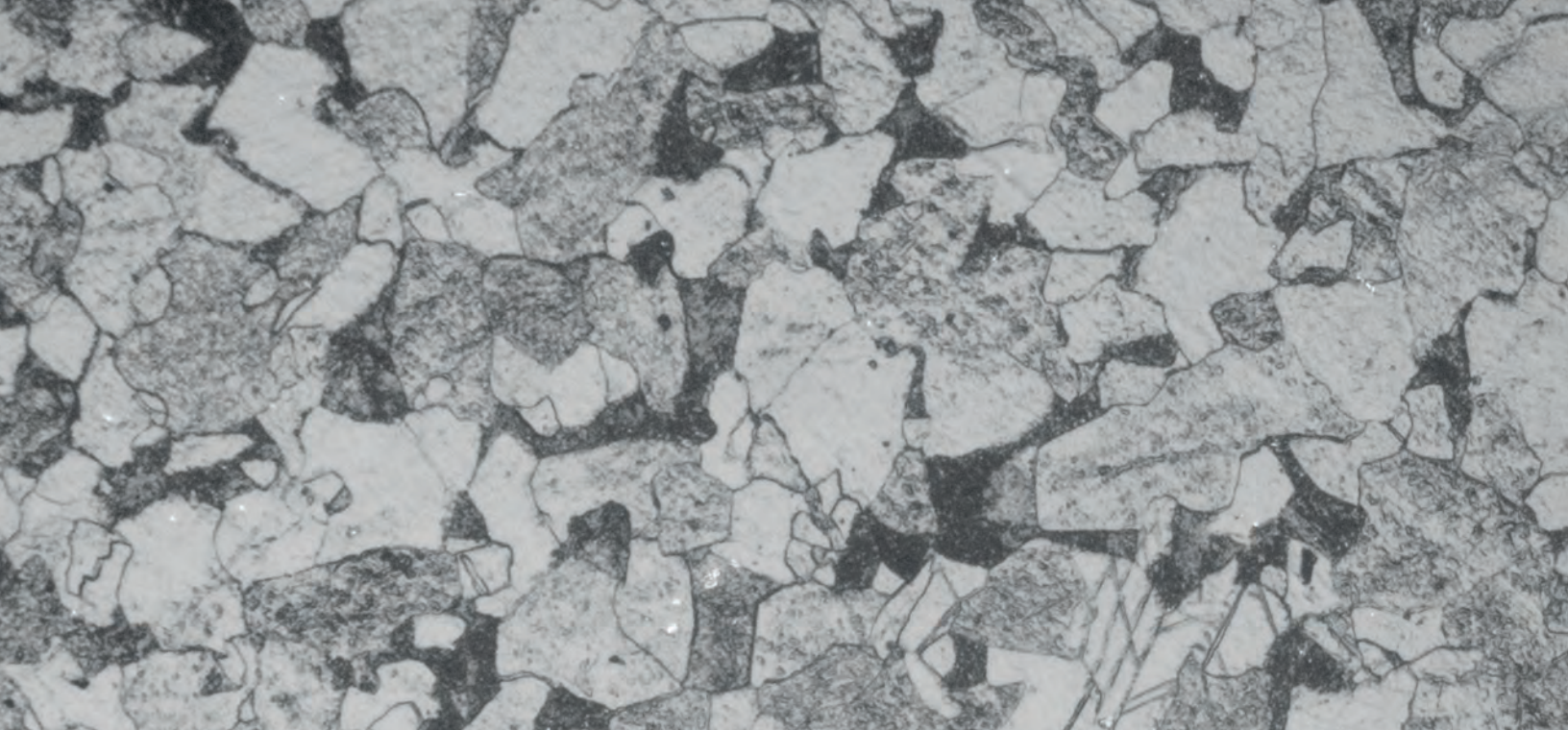


lumet 2.0

**Laser-ultrasonic
dynamic
microstructure**
analytical tool
for metal

tecnar

Innovate to differentiate.



Lumet 2.0 redefines metallurgical investigation for fast and easy analysis

Users can work beyond the uncertainties and time-consuming manual operations of standard metallographic methods. With its high-data acquisition rate, the Lumet 2.0 generates hundreds of hours of manual information in just a few minutes.

Work with the leader in the field

Over the years, Tecnar has earned a solid reputation for introducing laser-based online sensing technologies to a variety of industries. Every day, over 700 of our sensors provide better insight to various industries around the world. Today, innovation never stops. Tecnar continually invests in R&D for new products with regular voice-of-customer exercises. The Lumet 2.0 is the result of decades of devotion to innovation.

Steel

- Real-time viewing of steel recrystallization as a function of temperature
- Real-time measurement of grain size under external influence (temperature, pressure)
- Real-time viewing of phase transition of alloys
- Monitor the effect of line slow-down on coil properties

Aluminum

- Real-time monitoring of alloy recrystallization
- Testing of hardening process

High-value alloys

- Aging studies of beta-stabilized titanium alloy
- Monitoring phase transition in heated titanium alloy
- Monitoring microstructure evolution of nickel at high temperature



Read the papers

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Technical specifications

Laser UT receiver

TWM – Two Wave
Mixing photo-refractive
receiver

Ultrasonic output bandwidth: 1.0 to 40 MHz
Balanced dual detection for enhanced signal to noise
Input light-monitoring detector

Detection laser

PDL – Pulsed
Detection Laser

Firing rate up to 100 Hz
Peak power > 500 W
Pulse width > 80 μ s
Optical wavelength: 1064 nm
Beam delivery via optical fibres
Industrial-grade IP54 enclosure

Optical probe

HEPg – Lumet option

Uses Tecnar Durabeam™ technology
Optics optimized for 1064 nm wavelength
Industrial grade enclosure IP65
Generation laser head enclosure included
Test system interface panel included

Generation laser

Short pulse green
laser

Nd:YAG Q-switch solid state laser
Optical wavelength 532 nm
Nominal pulse width < 10 nsec
Nominal power output > 50 mJ at 50 Hz
Laser head mounted in HEPg

Software and digitizer

Integrated data
acquisition,
data processing and
controlled computer

Industrial-grade PC with Windows™ operating system
Digitizer with sampling rate of 125 Msamples/sec.,
14-bit ADC and 60 MHz bandwidth
Software modules for laser control,
data acquisition and data processing

The LuMetalTools software:



The *Lumet 2.0* is provided with a software package developed by Dr. Thomas Garcin, based on his over 10 years of experience in the use of laser-ulasonics for metallurgical studies. This software package enables operators to easily extract microstructure information from the laser-ultrasonic data without being experts in the field.

Altogether, this software tool allows operators to efficiently plot microstructure characteristics as a function of an external parameter, such as grain size as a function of temperature.

earlier insight changes everything

tecnar

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Learn more
about the
Lumet 2.0

References

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Germany
University of British
Columbia, Canada
US Army Research
Laboratory, USA
Voestalpine, Austria



“The laser laser-ultrasonics system for metallurgy, the Lumet, has been instrumental to expedite our microstructure engineering research on high-strength steels and non-ferrous alloys. In particular, the Lumet system has significantly augmented state-of-the-art training opportunities for our graduate and undergraduate students.”

Dr. Matthias Militzer Ph.D., Professor
Dofasco Chair in Advanced Steel Processing
University of British Columbia