

## Thin Film Characterization with Laser-Based Ultrasound

### We listen to your materials

We use laser-based ultrasonic techniques in the kHz to GHz frequency range for the metrology of bulk materials, sheets, membranes and thin films. Information about elastic properties including sound velocities, adhesion, and structural composition can be obtained over a wide thickness range, down to a few nanometers.

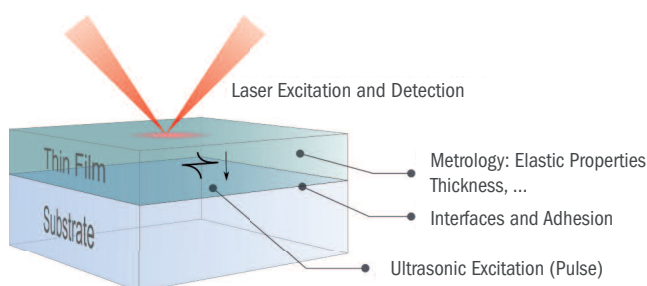
Laser-Ultrasound is an extremely powerful and versatile technique, able to analyze and characterize big and heavy parts as well as micro- and nanostructures. Short laser pulses are applied to generate and detect acoustic waves in materials (e.g., metals, semiconductors, polymers). Thus, a non-contact high-resolution characterization can be performed.

Our expertise in the fields of Laser-Ultrasonics (LUS) and Physical & Computation Acoustics (PCA) allows for

the measurement of various physical parameters:

- thickness and structural composition of coatings and multilayer systems
- elastic properties of material systems
- sound velocity in materials
- voids and defects
- assessment of adhesion

We also improve and develop data analysis methods as well as simulation- and modelling tools.



### Facts/Key-Values/ Features & Benefits

- All optical principle
- Non-destructive and non-contact
- Automatable due to laser-based operation
- Applicable to many materials (e.g. metals, semiconductors, and polymers)

### Potential Users Fields of Application

- Semiconductors
- Polymers
- Metals
- Functional materials
- Thin films
- Coatings

### Status – what do we offer?

- Measurements and analysis in RECENTDT-labs
- Development of methods to solve your specific problems
- Development of customized measurement systems for your lab or fab

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