

PhD position - Development of modern laser ultrasound (LUS) metrology with the use of AI-based data analytics and modeling approaches.

Laser ultrasound is a method in which pulsed laser radiation is used to generate ultrasound waves in light-absorbing materials. The wave propagation is significantly influenced by the mechanical properties of the material. It is thus possible to obtain a fingerprint of the sample from the measured temporal ultrasound signals in order to make statements about its internal properties. If the signals are recorded by means of an optical method, one has a contactless, fast method that can be used for quality assurance applied to small measuring areas, e.g. in industrial manufacturing processes. The efficient metrological implementation, in combination with innovative artificial intelligence (AI) based signal analysis and interpretation methods, is to be researched for complex materials with regard to their external shape and production parameters.

This project is part of a national collaboration with Joanneum Research (Policies group) and MIBA Automation Systems GmbH (MAS). We are looking for an enthusiastic PhD student to support our scientific activities.

Requirements:

- Education: Master's degree or diploma in physics or engineering
- Hard skills: background in physics, signal processing, AI-methods
- Prog. skills: Matlab, Python, LabView (basic)
- Language skills: English and German (spoken and written)

Additional information:

Place of work: University of Graz, Graz, Austria
Start of work: possible from August 2021
Period: 3 years

If you are interested to work within a project in the field of laser acoustic and optical metrology with modern AI-based signal processing and prediction methods, material science, and industry, do not hesitate to contact me (ro.nuster@uni-graz.at)! The application deadline is July 31th, 2021!