

Equipment:

ZESS provides on a floor space of about 1.500 square meters (office and laboratory space) modern equipment for the three main research topics.



Novel Sensor Principles and Sensor Development

For investigation and development of novel sensor principles and sensor hardware, ZESS provides laboratories and measuring places for performance checks and compliance tests:

- High speed precise gantry platform
- Calibration equipment with translational and rotational positioning units for verifying, testing and calibrating navigation sensor elements (IMU, INS, Gyro, Accelerometer, high end inclination sensors)
- 3 axes coordinate moving platform on heavy granite table
- Laser interferometry-based guidance (LIG) system for accurate sensor positioning
- Laser vibrometer for non-contact measurement of vibration velocities
- Electromagnetic shakers with forces up to 600 N
- High speed camera for motion analysis
- Robotic research lab with setups for analysing dynamic sensor effects
- Turning roll test bench for axisymmetric symmetrical components
- Acoustic camera with 48 microphones for noise detection and localization
- EMV-measuring equipment

Additionally we can provide setups (optionally equipped with high-speed and high-precision analogue data acquisition devices up to 8 GHz) for:

- New camera developments, camera modules/image sensors with different interfaces (VIS, NIR,)
- Depth cameras based on ToF sensors from different manufacturers (single sensors and multi sensor arrangements, PMD devices, mono- and binocular RGB-D sensors)
- Thermal infrared cameras
- THz camera systems
- Optical developments (stabilized tables, spectral radiometry, confocal microscope, laser power measuring facility, dark room for calibration and experiments)
- Chemical experiments (wet laboratory and a chemical laboratory with fume hood)
- Medical experiments (robotic research lab with medical robots, X-ray room)
- Radar experiments (laboratory with direct roof access for free-space measurements and test site with different microwave Signal generators and Spectrum/Signal Analysers and various Ku- and X-Band Radar transmitter and receiver up to 750MHz (analogue bandwidth)

together with:

- Clean room on class 1000
- SMD soldering equipment (reflow ovens, etc.)
- 3D scanner (structured light) and 3D printer for rapid prototyping of miniature sensor enclosures
- Automated spraying system for graphene based thin-film nano-sensors