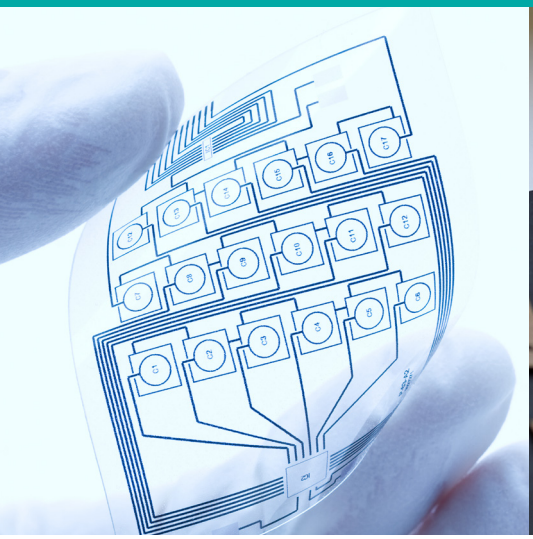

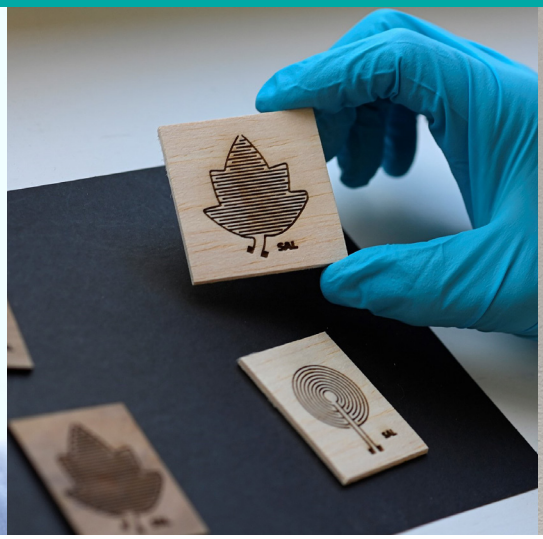

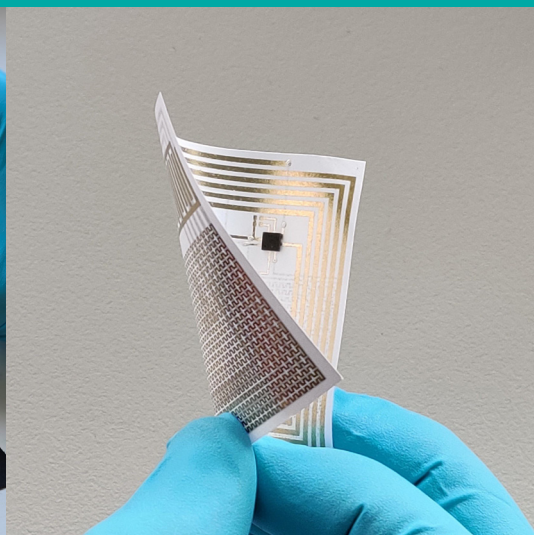

Advanced Sensors & Electronics Technologies

Printed electronics redefine electronic systems.

Smart systems and their integration in both products and processes are key issues in manufacturing industries today. The aim within the Sensor Application research unit is to develop the most efficient form of systems integration for the specific application.

We offer our partners R&D services and customized solutions, from concept development, design and simulation to characterization and testing, through prototyping and manufacturing via different printing techniques (inkjet, screen, aerosol jet, pad, and spray printing) on 2D and 3D surfaces. With a special focus on environmentally friendly solutions, our portfolio includes flexible environmental, chemical, and mechanical sensor systems, displays, solar cells, OLEDs, batteries, and different types of wireless communication.

Printed Electronics Design & Application Support

- Application-specific printed electronics
- Simulation and modeling
- Sustainable processes and materials
- Wireless sensor systems
- Reduced footprint
- Battery-free sensor systems
- Integration and packaging
- Materials development
- Optimization of printing processes
- Heterogeneous integration

Fabrication & Rapid Prototyping

- Printing of high-resolution structures (down to 1um lines)
- Large-area printed electronics (meter scale)
- Flexible and conformable electronics
- Thermoformed structures
- Thin-film printing (10nm scale) and coating (100nm scale)
- Photonic and low temperature curing
- High temperature sintering (up to 1000C)
- Printed electronics on 3D structures
- 3D printing
- Laser induced graphene electronics
- Hybrid Electronics bonding and interconnection

Our Service Portfolio

Measurement, Characterization & Testing

- Push- and pull testing of materials and sensors
- Ablation and peel-off testing of coated and printed layers
- Bending testing
- Accelerated aging of sensors
- Contact angle and surface energy measurements
- Biodegradability and sustainability assessments
- Electrical characterization
- Material characterization
- Surface characteristics

Printed Device Portfolio

- Physical Sensors (proximity, humidity, temperature, strain, bending, pressure,…)
- Chemical Sensors (gas, medical, biosensors,…)
- Displays (Electrochromic, Electroluminescent, Light emitting diodes…)
- Energy Harvesting (photovoltaics, piezoelectric, thermoelectric…)
- Energy Storage (capacitors, supercapacitors, batteries…)
- Wireless communication (Antennas, NFC, UHF, Bluetooth, inductive…)
- Actuators (heaters, piezo-transducers,…)

Surface Modification & Functionalization

- Targeted deposition and assembly of (conducting and insulating) polymers
- Electrode surface functionalization
- Metal nanoparticle deposition
- UV-Ozone and oxygen plasma treatment
- Self-assembled monolayers

Key Equipment

- Aerosol Jet Printer, 5 Axis, Optomec
- Electrohydrodynamic printer, Scrona
- Inkjet printer Pixdro LP50, Süss MicroTec
- Semi-Automatic Universal Screen Printer SCF300DE, Eickmeyer GmbH
- Slot Die coater with flexographic and bar coating unit, InfinityPV RLC 3DPrint Slot
- Ultrasonic Spray Coater ND-SP, Nadetech Innovations
- Pad Printer, Inkcups ICN2200PS
- Fine Placer Lambda
- U-Assembly Hacker Our Plant
- Wire bonding, Kulicke Soffa & TPT HB16
- Bond Tester, Nordson Dage

- Parylene coater C30, Comolec SA

- Photonic curing system PulseForge 1200, Novacentrix
- Laser cutter platform, PLS150D, Universal Laser Systems
- Force test bench, Zwick|Roell

ABOUT SAL

Silicon Austria Labs (SAL) is a top European research center for electronic based systems (EBS). The application-oriented center offers cooperative research & services at three locations – Graz, Linz and Villach – in the pioneering research areas of Sensor Systems, Microsystems, Intelligent Wireless Systems, Power Electronics and Embedded Systems.

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