



Organic Electronics Saxony

Competence Overview

2024



Value Chain



Our members

1. Accomplast
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24. Dresden Integrated Center for Applied Physics and Photonic Materials (IAPP), TU Dresden
25. Institute for Electronics Packaging and Assembly Technology (IAVT), TU Dresden
26. Institute of Semiconductor and Microsystems Technology (IHM), TU Dresden
27. Inuru
28. Institute for Printing, Processing and Packaging (iP3), HTWK Leipzig
29. Leibniz-Institute of Polymer Research Dresden (IPF)
30. Institute of Textile Machinery and High-Performance Material Technology (ITM), TU Dresden
31. JOANNEUM RESEARCH Forschungsgesellschaft mbH
32. KETMarket GmbH
33. Kundisch GmbH & Co. KG
34. Kurt J. Lesker Company
35. M. Braun Inertgas-Systeme GmbH
36. Mimotype Technologies
37. Novaled
38. OrelTech GmbH
39. PL Germany
40. Institute for Print- and Media Technology (pmTUC), TU Chemnitz
41. PRUJVE GmbH
42. ROVAK
43. SEMPA SYSTEMS GmbH
44. SmartNanotubes Technologies GmbH
45. Sunic System
46. SweepMe!
47. TechBlick
48. TES Frontdesign GmbH
49. watttron
50. WOLFRAM Designer und Ingenieure

Partner

ACCOMPLAST

ACCOMPLAST GmbH
www.accomplast.de

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Competences

ACCOMPLAST has become firmly established as an important supplier to the automotive and electronic markets as a result of its focus on reliability, individuality, high quality and innovation.

Our wide spectrum of technologies is based around plastic injection molding (1K/2K) and include state-of-the-art surface finishing and fully automatic assembly systems. We manufacture and maintain most of the tools in-house. Furthermore, we design and engineer fully automated systems for assembly of plastic and metal parts and effectively integrate them into our production.

Core Competences:

- Injection molding
- Custom engineering of fully automated assembly systems
- Surface finish using painting and laser marking, PVD coating and vacuum metallization



Adenso

solutions you need

Adenso GmbH
www.adenso.solutions

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Adenso business units and core competencies:

Wafer Handling Robots: www.waferhandling.solutions

adControl Cluster.Platform: www.adControl.solutions

R2R winding systems: www.R2R.solutions

Automation: www.automating.solutions

With the adControl Robot.Platform our customers can easily and safely configure their own cluster systems: flexible, versatile and delivered fast!

Core Products:

- WHR wafer handling robots
- FOU300 VAC LoadPort
- R2R winding systems
- UTG processing solutions
- DTS device tester sorter
- Stealth.Carrier
- Assembly lines
- adControl Cluster Control



Partner

adSphere

adSphere GmbH

www.adSphere.solutions

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Competences

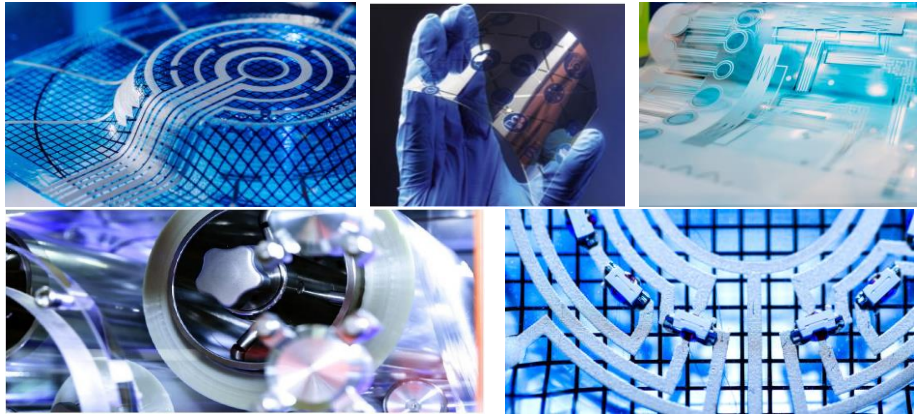
Based on its competences and special technologies in functional layers, lamination technologies, substrate handling, and confectioning, **adSphere** develops new business models for large area and flexible sensor solutions for the market of tomorrow.

Core Technologies:

- Substrate handling
- Laminating technologies
- Functional sensor layers
- Sealing technologies

Core Products:

- adSphere.Controller
- Flexglass.Sensor



MÜLLER

customized converting

Adolf Müller GmbH & Co. KG
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Adolf Müller GmbH & Co. KG is your key supplier for Roll-to-Roll converting machines of highly sensitive and adhesive films. Müller machines feature unique and accurate winding technology.

Our machines are designed for 24/7 operation in Roll-to-Roll inspection, slitting and laminating processes. Over 40 years our know-how provides solutions to key manufacturers supporting proven and new processes in adhesive- and sensitive films industry.



Partner

Competences



beeOLED GmbH

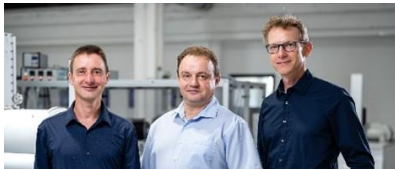
www.beeoled.com

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Contact:

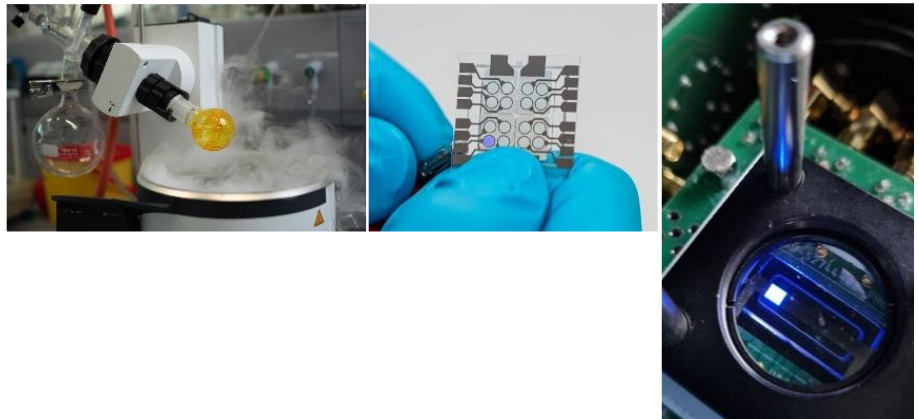
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beeOLED was founded by the two OLED-experts Dr. Carsten Rothe (CTO, ex Novaled) and Dr. Volodymyr Senkovskyy (COO, ex Novaled) in November 2020. Since then, it has grown to 22 employees (as of 08/2023).

Led by serial entrepreneur and Novaled co-founder Jan Blochwitz-Nimoth (CEO), the deep tech start-up is developing an efficient and stable deep blue emitter to enhance displays in cell phones, tablets, laptops, TV and other displays.

The goal is to solve the "Blue Problem" of today's OLED displays using Lanthanide-complexes as emitters. beeOLED's technology is based on making the elementary emission of atoms fit for use in today's vacuum-processed OLED-displays.



BORN GmbH - KNITWEAR FOR FASHION & ENGINEERING

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BORN GmbH was founded in 1991 and is a family-run, integrated textile company with more than 40 employees at two sites. Using the latest textile and knitting machines, we develop and produce trend-setting innovative textile products for our customers.

Since more than 10 years, our product portfolio includes medical textiles such as orthopedic human and veterinary bandage systems. One of our main focus areas is the segment of Tec & Lifestyle products, where various innovative "wearables" are developed and produced. Within this sector we have many years of experience developing "Smart Textiles", together with our partners from Industry and Universities.

Our goal is to further expand our position as an innovation and market leader for intelligent, textile-based products at the interface of medical and sports applications. Together with our customers we want to effectively facilitate the everyday lives of people and companies in the long term.

Core competences:

- Development and production of technical textiles and wearables, especially EMS-products
- Medical textiles, from textile orthoses to medical textiles
- Fashion & Design textiles

Partner

Competences



Coating Consulting
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Coating Consulting Tobias Müller is a service provider in the field of surface technology and deals with the development, production, consulting and training in thin film coating.

Consulting

I advise you on questions about thin-film technology. You can take advantage of my support with questions about coating systems as well as coating technologies. I have many years of experience through research and contract production, especially in the coating of plastics – but also on other substrates.

Further training

Another field of activity is education and further training. In addition to thin-film technology and vacuum technology, I also deal with relating to system technology and plastics.

Project management

I am happy to help with the implementation of development and research projects. In addition to the placement of potential partners, I also support work on / in projects.

Production of samples

If necessary, I can also make small samples myself, as far as the existing thermal vapor deposition system allows or do more extensive samples through partners. Surface characterization and analysis of layer systems are also part of the portfolio.



Contronix Engineering GmbH
www.contronix.de

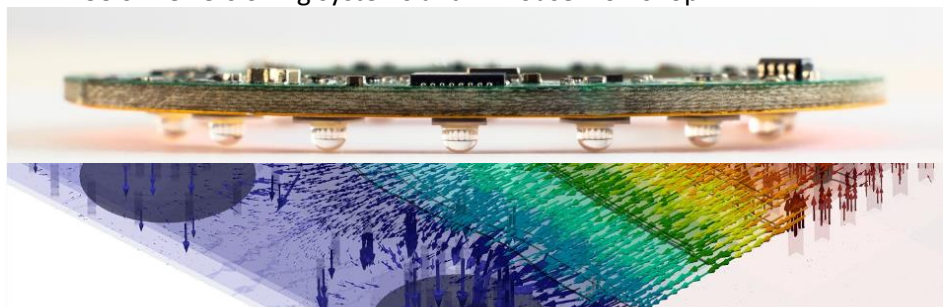
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Founded in 2003, **Contronix Engineering GmbH** develops application-specific electronic assemblies for a wide range of customers. In addition to the focus on the use of state-of-the-art components in particularly compact designs, one of Contronix's focal points is the strongly mechanic-integrated electronic development, which is enabled by the use of modern EDA development software coupled with a mechanically dimensionally accurate library of all electronic components. Our circuit boards fit into the housing – at the first attempt. Of course, EMC-compliant PCB layout is just as important as seamless production transfer and support. In addition to customers from classic industry and universities, Contronix develops complete electronic concepts for several innovative start-ups. Target quantities range from individual sample assemblies to cost-optimized products suitable for large-scale production.

Core Competences:

- **Simulation** for critical components, antennas, high-power applications
- **Development** of PCBs with > 10 years of experience and extended library
- **Software development** for firmware of integrated electronic systems
- **Tools** like versioning systems and in-house workshop



Partner



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Vakuumbeschichtung GmbH**
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Competences

CREAVAC is focused on coating of plastic parts. In addition to job coatings, CREAVAC features new vacuum coating technologies including equipment design, construction as well as research and development.

Surface finishing of plastic parts includes lacquering and vacuum metallization by PVD technology for decorative coatings, partially transparent IR-reflective layers, solderable coatings, ESD or EMI shielding etc. In addition, CREAVAC provides further technologies, such as laser engraving and tampon printing.

In the area of coating equipment, CREAVAC focuses mainly on technologically oriented specialized solutions. We offer vacuum equipment for production and laboratory use with different coating sources like thermal evaporation, E- beam and sputter techniques, PLD or plasma technologies.

Core competences:

- Job coating
- EMI/ESD- coating
- IR-reflective layers
- Vacuum coating equipment
- Technology and equipment development



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CREDOXYS is a young start-up from Dresden, Germany with the aim to take Organic Electronics to the next level. We develop materials from first ideas to scale-up in chemical production.

The next generation of OLED displays and organic solar cells can be realized only with the help of new performance materials. To provide these materials, we build on an experienced team of chemists and physicists with strong expertise in material development and organic electronics.

Starting from our rich portfolio of ideas, we translate customer requirements to material design following specific structure-property relationships.

We quickly find solutions for our customers that make their products more efficient, long-lasting, and powerful.

Core competences:

- Proprietary functional organic and metal-organic materials for application in OLED, OPV and related organic electronic and future technologies
- Special focus on redox active dopants and transport materials
- Customized solutions for maximum performance

Partner



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Competences

DICO Electronic has been a technological partner since 1986 and a supplier of pastes and materials in the field of printed electronics since 2009.

The delivery portfolio includes conductive pastes based on silver, nickel, gold but also copper. The spectrum also includes insulation, carbon and sensory pastes for all conceivable applications in medical, automotive and industrial electronics.

The delivery capability is rounded off with cleaners and a wide range of accessories for production.

Furthermore, electro-mechanical elements such as plugs, crimp contacts, snap domes and ribbon cables for membrane keyboards and input systems are an important field of activity.

An extensive stock ensures excellent delivery performance.



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ELANTAS Europe is a leading manufacturer of insulating and protective materials for the electronics and electrical industry. The Product Line Printed Electronics offers a wide range of conductive, insulating and functional screen-printing inks for applications such as membrane switches, touch surfaces, in-mold electronics, hybrid electronics, sensors, batteries, wearables, RFID antennas and electroluminescent lighting.

Core competences:

- Established industrial production of functional inks in Europe
- High level technical support for printed electronics
- Integrated printing laboratory for customized testing
- European and global sales network
- Innovative technologies (silver inks, carbon inks, insulators, adhesives)

Partner



**Else Kröner Fresenius Center
for Digital Health**
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Competences

The **Else Kröner Fresenius Center for Digital Health (EKFZ)** is a joint interfaculty initiative of the TU Dresden, the Carl Gustav Carus University Hospital Dresden, several Fraunhofer Institutes and the Helmholtz-Zentrum Dresden-Rossendorf. The research center focuses its research activities on innovative medical digital technologies at the direct interface to the patient.

It is initially focusing on the areas of:

- Robotics and Coworking
- Implants, Sensors and Devices
- Connected Care

To develop the topic of digital health in a holistic way, the EKFZ for Digital Health supports Interdisciplinary Innovation Projects (IIPs) that deal with medical technology, health economic aspects and the social impact of digital health technologies.



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Founded in 1991, **FHR Anlagenbau** provides customized vacuum coating equipment and sputter targets as well as coating and equipment services from a single expert source.

We support our customers in close contact starting from process development via R&D scale to mass production. Our portfolio combines technologies as sputtering, evaporation, PECVD and ALD with the tool types cluster, inline, roll-to-roll and box. Based in Germany, with tools installed worldwide in various branches such as semiconductor, MEMS, electronic, sensor, optic, display, photovoltaic and more industries, we are ready to support you wherever you want to go.

Core competences:

- Customized vacuum coating equipment
- Cluster, inline, roll-to-roll and box
- Sputtering, evaporation, PECVD and ALD



Partner

Competences

FLEXOO

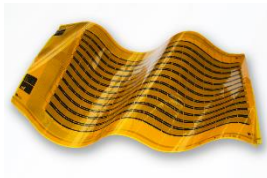
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FLEXOO is the expert in printed electronics, specialising in flexible printed sensors. We offer customised printing solutions for our customers' challenges. Our expertise is based on a solid understanding of materials, processes and printing technologies that are essential for the development of flexible and hybrid electronic systems. We are continuously expanding our portfolio in the field of printed electronics.

FLEXOO is your partner with end-to-end realisation capabilities, offering both the development and industrial production of customised integrated sensor, heater, circuit or antenna solutions. We start with an idea or a problem and bring your customised, functional printed product to production readiness on one of our two industrial printing machines, with an open mind to start at any point in between. We create unprecedented printing technology and translate the latest science into mass-produced products.



Fraunhofer

IKTS

Fraunhofer Institute for Ceramic Technologies and Systems IKTS
www.ikts.fraunhofer.de

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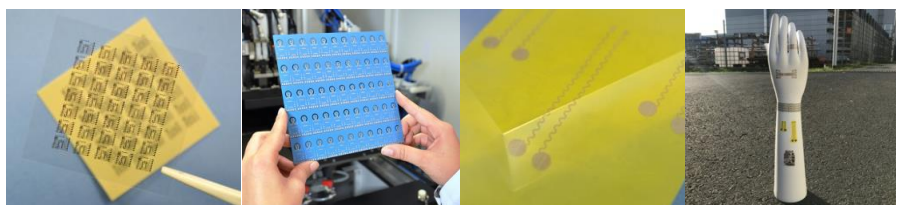
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As a research and technology service provider, the **Fraunhofer Institute for Ceramic Technologies and Systems IKTS** develops advanced high-performance ceramic materials, industrial manufacturing processes as well as prototype components and systems in complete production lines up to pilot-plant scale.

The institute operates in nine market-oriented business divisions in order to demonstrate and qualify ceramic technologies and components as well as non-destructive testing methods for new industries, product concepts and markets within and beyond the established fields of application: Materials and Processes, Mechanical and Automotive Engineering, Electronics and Microsystems, Energy, Environmental and Process Engineering, Bio- and Medical Technology, Non-Destructive Testing and Monitoring, Water as well as Materials and Process Analysis.

Flexible substrates made of polymers are used in printed electronics for the architecture of circuits and the integration of microsystems. The temperature resistance, which is limited to a maximum of 200 °C, necessitates the application of low-sintering inks for metallization and functional coatings. As **one core competence** in this field, the IKTS offers (nano-) suspensions from a variety of materials, such as Ag, Au, Pt, Cu, ITO, CNT or graphene to be applied by screen, inkjet, and aerosol printing and cured by selective laser sintering.



Partner



Fraunhofer Institute for Process Engineering and Packaging IVV
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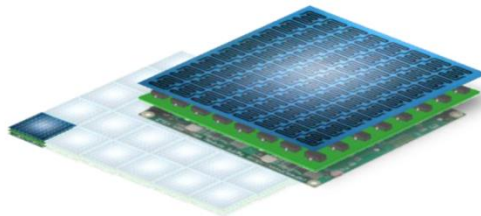
Competences

The **Fraunhofer IVV** Branch Lab for Processing Machinery and Packaging Technology Dresden undertakes applied R&D on machine processes. Product safety and efficient processes are our priority.

For flexible materials, we develop solutions for efficient thermal joining and intelligent forming. We assist you with the development of cleaning systems, the hygienic design of processes, and the microbiological validation of your processing machinery. We use modern data analysis methods to analyse and improve your processes and realize innovative approaches for industry 4.0.

Core competences for 3D electronics:

- Precise thermoforming using forming air stream impact technology and cera2heat® (more homogeneous material distribution upon forming)
- Versatile thermoforming test rig with various forming and heating methods (pressure/vacuum, contact/radiation heating)
- Several analysis and measurement instruments (wall thickness and geometry measurement gauge, infrared and high-speed camera, etc.)
- Analysis and parameterization of the forming processes and formed parts using numerical simulation
- Use of artificial intelligence for the realization of adaptive processes



Fraunhofer Institute for Material and Beam Technology IWS Dresden
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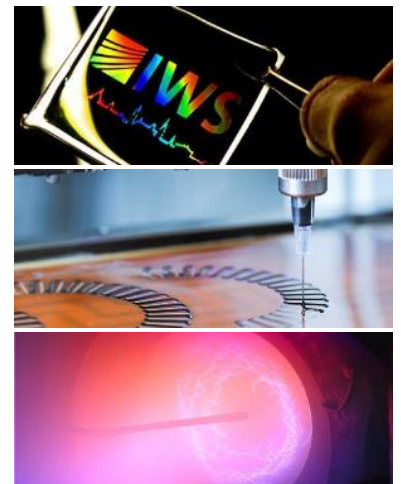
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The **Fraunhofer Institute for Material and Beam Technology IWS Dresden** is characterized by two overlapping work areas: laser technology and surface technology. The development of technologies and systems using tailor-made laser light and the production of functional surfaces are exciting fields of research with great prospects for the future.

In the field of flexible electronics, Fh IWS has developed laser processes for cutting of plastic substrates as well as structuring of thin functional layers. Furthermore, Fh IWS has profound knowledge in additive manufacturing and printing, e.g. for thermoelectric generators or piezoelectric sensors. Finally, Fh IWS develops technologies for evaluation of ultra-barrier materials for organic electronics.

Core Competences:

- Ablation and Cutting
- Microtechnology
- Joining
- Thermal Surface Technology
- Additive Manufacturing and Printing
- Chemical Surface Technology
- PVD and Nanotechnology
- Materials Characterization and Testing



Partner



**Fraunhofer Institute for
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Competences

Fraunhofer IZM helps companies assemble robust and reliable electronic systems and integrate these into the application environment.

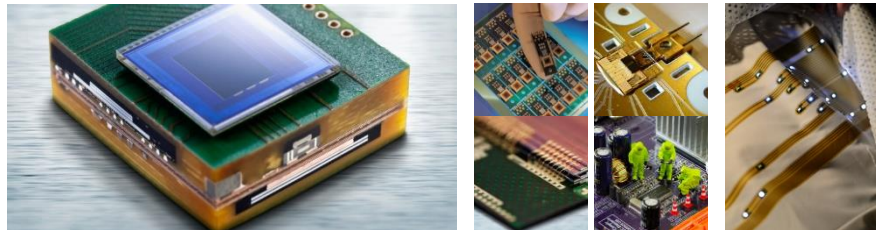
We work on

- Wafer Level System Integration
- System Integration & Interconnection Technologies
- Environmental & Reliability Engineering
- RF & Smart Sensor Systems

Main target areas are automotive, healthcare, industrial electronics and textile electronics.

Core competences in flexible technologies:

- Printing
- Bonding & Assembly
- Testing
- Stretchable electronics
- Thermoforming
- Electronic textiles



**Freudenberg Industrie
Siebdruck GmbH**
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Freudenberg Industrie Siebdruck GmbH offers a wide range of capabilities in screen printing and uses printed electronics to realize industrial applications. The wide range of customer products is enriched by individual customer solutions, which are developed together with the customer.

Core technologies:

- Screen Printing
- Printed Housings
- Laser technology
- Pick and Place
- Final Assembly

Core products:

- Flexible Membrane Keyboards
- Touch Sensors
- Sensor Technology
- Cover Films
- Cover Plates
- Housings
- Printed Electronics



Partner



GETT.GROUP

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Competences

GETT Gerätetechnik creates products & brings product ideas to life that make a difference. They make people's lives easier, generate enthusiasm & conserve the earth's resources. The holistic product experience gives every user a satisfied smile.

The aim is to create intelligent and intuitive human-machine relationships. Interaction with HMI solutions from GETT should be perceived as an experience and a relief. Freed from complicated processes and unnecessary information, customers become more efficient and have more room for the essentials!

The products help to improve hospital hygiene worldwide, ensure reliability in production and pave the way for customers to a smart, modern factory. With team spirit, expertise and ideas for the future, GETT is consistently driving this mission forward and shaping your future of tomorrow. Our claim summarises our daily work in a nutshell - **CREATING BETTER HUMAN MACHINE RELATIONSHIPS.**

GETT develops and produces both assemblies and complete, turnkey operating solutions. The added value at GETT is created by hand. This gives the production a distinctly handcrafted character. We are able to realise even the smallest quantities of individual products for our customers. Thanks to the two production sites in Germany and China, GETT can design and calculate these on a project-specific basis. The principle of design for manufacturing applies - minimum manufacturing costs with uncompromising product quality.



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As the technology leader in organic photovoltaics, **Heliatek** develops, produces and distributes industrial-grade organic PV solar solutions for virtually any building surface (horizontal, vertical, curved, rigid, and flexible). Heliatek stands for energy solutions designed for various traditional and never been possible before applications based on its unique features – it is ultra-light, flexible and truly green. HeliaSol® is a ready-to-use solution, ideal for retrofitting on existing building structures. HeliaFilm® is tailor-made solar film for companies in the building and construction material industry, to integrate into their façade or roof system products. Heliatek currently employs about 160 people at the Dresden and Ulm locations in Germany.

Core competences:

- Material and product development of organic solar films
- Development of a roll-to-roll production process for the production of organic solar films
- Sales and business development of innovative solar solutions



Partner



HELMHOLTZ ZENTRUM
DRESDEN ROSSENDORF

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Competences

The **Helmholtz-Zentrum Dresden-Rossendorf (HZDR)** is a member of the Helmholtz Association of German Research Centers. Alongside research areas in the fields Energy, Health and Matter, HZDR conducts in-house research in material science with ion beams, micro-/nanostructuring and rapid thermal processing. By using thin film and printing technologies, HZDR researchers fabricate bio-/chemical, optical, temperature, nanoelectronic, gas and magnetic field sensors on rigid and flexible large area substrates:

- flexible and printable sensors on polymeric foils (thickness: 1 to 150 μm)
- high volume production (kg scale) of functional pastes for screen and dispenser printing of temperature sensors, thermistors, magnetic field sensors, components for printed batteries, gas sensors (e.g. CO_2 or NO_x)
- impedimetric biosensors (from nano- to microscale) on rigid substrates and flexible polymeric foils, surface functionalization, biological assays
- microfluidic technologies for high-throughput contactless screening in drug discovery, real time monitoring of food quality and water cleanness
- lithographic patterning and thin film deposition over 300 mm wafer scale
- roll-to-roll inkjet printing with integrated rapid thermal annealing
- rapid thermal treatment technology for defect engineering
- ion beam modification of materials including doping of semiconductors
- high-precision analysis of tribological coatings for combustion engines, aerospace applications or cutting tools
- In situ processing of transparent thin films, 2D materials, nanocomposites



**IAPP - Dresden Integrated Center
for Applied Physics and Photonic
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Within the Technische Universität Dresden, the **Dresden Integrated Center for Applied Physics and Photonic Materials (IAPP)** is an interdisciplinary research network for organic electronics, especially OLED, OPV, OTFT, organic lasers, organic sensors, bioelectronics and related devices and technologies. Strong competences in research on basic phenomena like charge transport, organic doping or device concepts build the basis for future developments. The IAPP covers the full bandwidth of important topics: synthesis of (organic) materials, alternative electrodes, basic research and new effects, electrical, optical and morphological analyses, device fabrication and test as well as lifetime and controlled aging.

The IAPP consists of five chairs around flexible and organic electronics:

- Prof. Dr. Karl Leo, chair for optoelectronics
- Prof. Dr. Sebastian Reineke, chair for organic semiconductors
- Prof. Dr. Xinliang Feng, chair for molecular functional materials
- Prof. Dr. Stefan Mannsfeld, chair for organic devices
- Prof. Dr. Yana Vaynzof, chair for novel electronic technology



Partner



**Institute for Electronics
Packaging and Assembly
Technology (IAVT)**
www.avt.et.tu-dresden.de

Address:
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01069 Dresden
Germany

Contact:
Prof. Dr. Karlheinz Bock
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+49 351 46336345



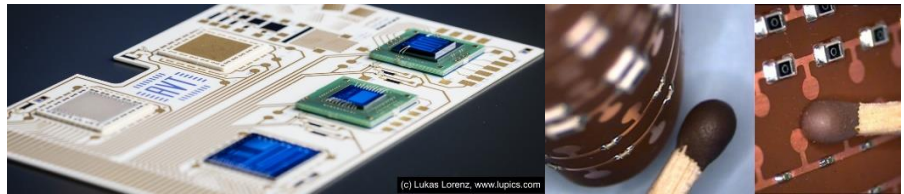
Competences

Together with the Center for Microtechnical Production (Z μ P), the **Institute for Electronics Packaging and Assembly Technology (IAVT)** forms one of the largest university research institutions for electronic packaging in Germany.

Core topics in research:

- Bio-compatible electronic packaging
- Organic and inorganic substrate technologies
- Assembling technologies for first-level- and second-level interconnects
- Micro and nano materials for system integration
- Process optimization and quality management
- Development of sensors for non-destructive testing and structural health monitoring
- 3D integration and optical interconnect technologies
- Module reliability and material parameters of interconnect materials
- Characterization and diagnostics in electronics packaging

IAVT/Z μ P has further profound knowledge in rigid-flex connections for flexible and printed electronics.



**Institute of Semiconductor and
Microsystems Technology (IHM)**
<http://tu-dresden.de/ing/elektrotechnik/ihm>

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01187 Dresden
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The **Institute of Semiconductor and Microsystems Technology** was founded in 1990 at the Faculty of Electrical Engineering of the Technische Universität Dresden. It unites four professorships, which perform teaching and research tasks in the fields of semiconductor technology, microsystems technology, optoelectronic components and systems and nanoelectronic materials. The research at the chair of microsystems technology contains the following **core topics**:

- Microfluidics
- Unconventional chemical computing
- Silicon-based microsystems for medicine, life sciences, cyberphysical systems
- Organic and polymeric microsystems
- Autonomous smart microsystems
- Microsystems for displays and optics
- Sensor systems (plasmonic and magnetic micro and nanotransducers etc.)
- Next generation human-machine interfaces
- Organic and printed electronics
- Smart materials and technologies



Partner

Competences



Inuru GmbH

www.inuru.de

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12489 Berlin
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Inuru is a company specialized in organic light emitting diodes used e.g. in animated advertisement. Paper-like OLED light sources are eco-friendly and flexible with printed electronics!

Advantages:

- animated advertising with 8 x higher visibility than classical ads
- advertisement on paper, but with light inside
- thin and flexible
- easy to integrate
- ready to use: no plugs, cables or smartphones needed

Core Competences:

- Functional ink development
- Printed OLED devices
- Paper based products like business cards, magazine inlays etc.
- Full assembly including power supply, electronic wiring etc.



Institute for Printing, Processing and Packaging iP3

www.htwk-leipzig.de

Address:

Gustav-Freytag-Str. 42
04277 Leipzig
Germany

Contact:

Prof. Dr. Lutz Engisch
lutz.engisch@htwk-leipzig.de
+49 341 30762464



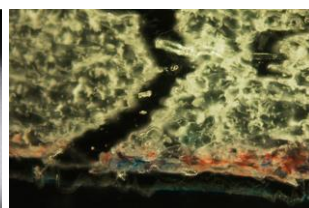
The **Institute for Printing, Processing and Packaging (iP3)** at the Hochschule für Technik, Wirtschaft und Kultur (HTWK) Leipzig acts at the crossing between industry and research with market-oriented topics ranging from graphics products to functional coatings and packaging.

Packaging cannot be virtualized but will continue to be produced in the future through printing and processing processes. Nevertheless, digital printing brings about major changes, such as automation or digitization of all process stages. In addition, printing processes are increasingly being used for electronic applications.

iP3 Leipzig also sees itself as a service provider in the network of research, industry and teaching. Our professional competence and modern technical equipment enable independent measurement and testing, application-oriented R&D, consulting and further training.

The **research fields** include:

- 3D surface structures in the printing and packaging industry
- Interaction and migration in packaging and between packaging and content
- Printed functionalities and intelligent packaging



Partner



Leibniz-Institute of Polymer Research Dresden (IPF)

www.ipfdd.de

Address:

Hohe Straße 6
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Germany

Contact:

Prof. Dr. Carsten Werner
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+49 351 4658 531

Competences

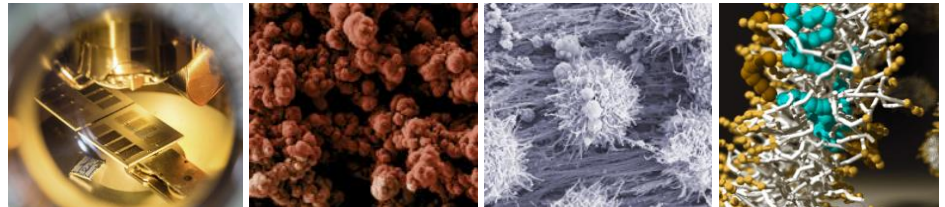
The **Leibniz Institute of Polymer Research Dresden (IPF)** is one of the largest polymer research facilities in Germany. The focus of activities at the IPF lies on the advancement of basic scientific knowledge for the development of functional polymer materials and polymer materials with new or improved characteristics for medicine, transport and mobility, as well as energy efficiency and advanced communication technologies.

The **institute's profile** is determined by four strategic areas:

- Functional nanostructured interfaces and polymer systems
- Biology-inspired interface and material design
- Polymer networks and supramolecular structures
- Process-controlled structure formation in polymer materials

Core tools for our work in those areas are

- synthesis and modification of polymer materials
- theoretical penetration, processing, and testing
- polymers and polymer hybrids for organic electronics devices
- controlling characteristics of polymer materials, biomaterials, and composites by selective interface design



Institute of Textile Machinery and High Performance Material Technology (ITM)

<https://tu-dresden.de/ing/maschinenwesen/itm>

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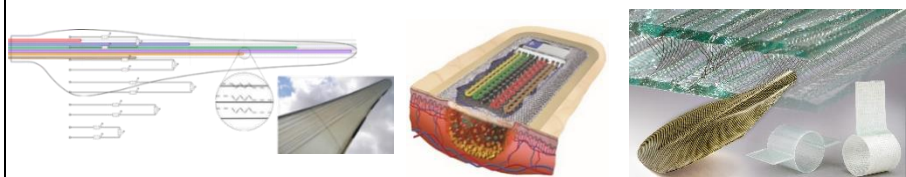
The **Institute of Textile Machinery and High Performance Material Technology (ITM)** is a world leading research institution, and is one of the most powerful of Technische Universität Dresden. Among other things, the ITM carries out extensive research and development work on the combination of technical textiles and microsystems technology, which leads to an interactive data and information medium and to the realisation of sensor and actuator networks.

Fields of application include the following high-tech applications:

- Structural monitoring and vibration damping of composites
- Medical textiles (wound monitoring, artificial muscles, implant monitoring)
- Human-machine interaction (CeTi cluster of excellence: eGloves, eSuits)

In addition, ITM has extensive expertise in the development of tailor-made functional materials and textiles as well as in the development of fibre-based sensor and actuator systems, including layout design on demand.

The **core competences** include the functionalisation of textile materials, yarn development, the integration of functions into textile construction processes, the development of intelligent textile structures for elastomer components, the development of construction, bio and medical textiles, etc.



Partner

Competences



JOANNEUM RESEARCH
Forschungsgesellschaft mbH
www.joanneum.at

Address:
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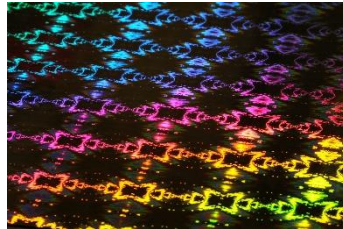


JOANNEUM RESEARCH develops solutions and technologies for a broad range of industries and public agencies and is engaged in top applied research at an international level.

MATERIALS has many years of experience in handling a wide range of research cooperations and -projects and enables our customers and partners to successfully participate in nationally and internationally funded research projects as well as to successfully realize project ideas. **MATERIALS** provides interdisciplinary solutions across the entire value chain - from the idea to the prototype - using innovative technologies and methods based on miniaturization, integration and materials optimization in following areas:

- (i) printed electronics & printed sensors (PyzoFlex®)
- (ii) R2R Nano-imprint structures (biomimetic surfaces & lab-on-chip)
- (iii) green Photonics and electronics
- (iv) (optical) chemo- and biosensors

In combination with state-of-the-art equipment and infrastructure, **MATERIALS** offers innovative solutions and services that are optimally tailored to the needs of our partners from business and industry.



KETMarket GmbH
ketmarket.eu

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+49 151 4070 7380



KETMarket's mission is to drastically accelerate the adoption of new technology in the market by providing fast-track access to various technologies for SMEs. We operate the largest digital innovation marketplace in the world which provides easy access to technologies, innovation services, knowledge, and funding opportunities at one place. The KETMarket marketplace makes finding project partners, suppliers, technology services and customers simple. Core end user markets are advanced materials, smart architecture, printed and large area electronics, clean energy solutions and clean and smart vehicles.

Supported by our marketplace and our strong partnership with multiple major European Innovation Networks, we deliver to SME and industry profound technology consulting services, R&D and development project planning, access to funding and finance and qualification services towards a reliable and strong value chain.

Research and technology organizations benefit from KETMarket by gaining a platform to promote their technologies and services to SMEs across Europe leading to new collaborations and partnerships that drive innovation. Investors benefit from KETMarket's technical due diligence services and gain insights into the market potential of investment opportunities. This enables informed decisions and maximizes return on investment.

Partner



A Phoenix Mecano Company

Kundisch GmbH & Co. KG

www.kundisch.de

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78056 Villingen-
Schwenningen
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Contact:

Sebastian Gepp
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Competences

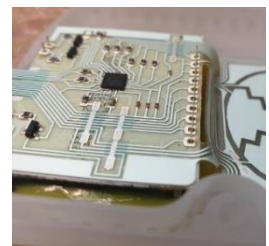
Kundisch GmbH & Co. KG was founded in 1979 and specialises in the manufacture and development of printed electronics, high-quality touch systems, membrane keyboards and operating units.

Kundisch is the technology leader in the field of high-quality copper keyboards. As a material for printed electronics, Kundisch utilizes the clever combination of copper and printed silver to get the best properties for each application. With this expertise especially hybrid electronics can be manufactured at high reliability. The range of applications for the products extends from simple hand-held devices to sophisticated medical technology apparatus.

As a subsidiary of the Swiss Phoenix Mecano AG, Kundisch is represented worldwide with its products and services.

Core products:

- Printed and hybrid Electronics
- Membrane keyboards, touch systems and HMI Systems
- Digital Label System and E-Paper Integration
- Customized USB keyboards



Kurt J. Lesker Company

www.lesker.com

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Germany

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+49 151 1117 5110

Kurt J. Lesker Company is a global leader in the design and manufacture of vacuum technology solutions for research and production applications. With our four divisions – Vacuum Mart, Process Equipment, Materials and Manufacturing – we offer the broadest range of products and service solutions in the vacuum industry.

From the simplest components to complex vacuum chambers and precision computer-controlled deposition systems, our company works with you to provide solid and economical solutions for all your vacuum research and development needs.

We offer over 14,000 products, customized solutions, expert technical support and outstanding customer service to meet your needs.

Core Competences:

- High-quality vacuum equipment for R&D and production
- Largest stock of vacuum parts in Europe
- Materials center
- Superior customer service



Partner



M. Braun Inertgas-Systeme GmbH

www.mbraun.com

Address:

Vacuum Deposition &
Sublimation
Niedersedlitzer Str. 75
01257 Dresden
Germany

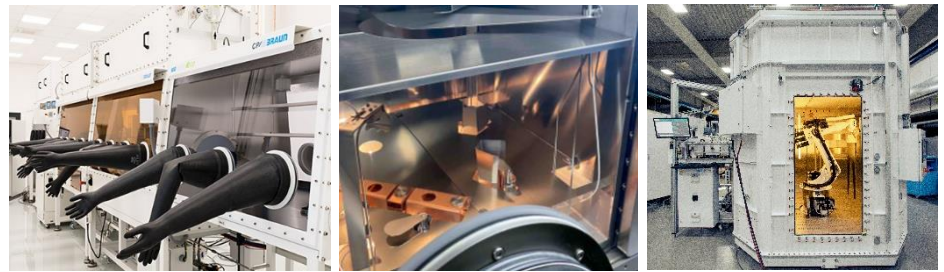
Contact:

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Competences

M. Braun Inertgas-Systeme GmbH, MBRAUN for short, is a medium-sized, globally active company specializing in the development and production of standard and customer-specific inert gas system solutions. These tightly sealed systems, also known as gloveboxes, generate and maintain an inert atmosphere and offer protection against oxygen, moisture and dust. They are used in laboratories, research facilities and industrial applications, especially where the protection of materials and/or operators is required. With headquarters in Munich and a second office in Dresden as well as subsidiaries worldwide, including the USA, China, Korea, India, Great Britain and France, MBRAUN has established itself as a reliable partner for institutes and companies. The company offers comprehensive expertise ranging from advanced glovebox systems to customized solutions for demanding applications in research and industry. The service portfolio ranges from thermal treatment, vacuum coating and personal protection to automated material handling.



Mimotype Technologies GmbH

<https://www.linkedin.com/company/mimotype>

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10969 Berlin
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Contact:

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+49 176 82423579

Mimotype Technologies is a Berlin-based Start-up working in the research and production of bio-inspired Materials. It uses the open-source code of nature to extract specific molecules that can be used in an industrial scale as a new generation of advanced materials. These advanced materials have several advantages: They have proven in billions of years of evolution, they are cleaner and cheaper in their production, compared with their chemical counterparts, and they are 100% biodegradable.

Currently Mimotype has two prototypes in its pipeline:

1. **Bio Nanophotonic Arrays (BNAs):** Inspired by the Japanese Ostracod "umi-hotaru", Mimotype works on using the bioluminescent properties of the "fireflies of the sea" to create a new generation of clean and biobased OLED-emitter materials.
2. **Project gold:** Mimotype works on using the goldbeater skin, found in animal intestines and already used 100 years ago in Zeppelin and as wetness protection by the inuit, as new bio-based "Gore-Tex" to reduce the environmental impact of the textile industry.

Partner

Competences



Novaled GmbH
www.novaled.com

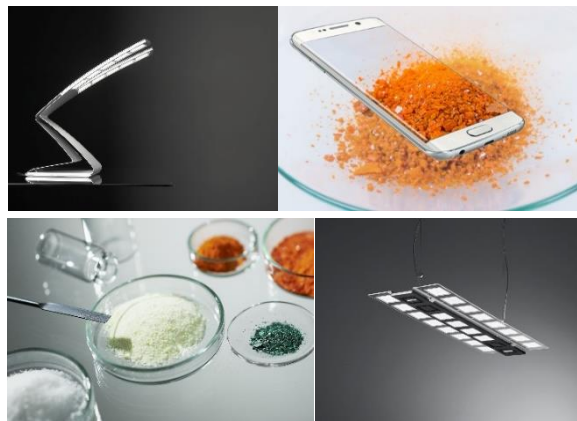
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Contact:
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Novaled GmbH is a leader in research, development and commercialization of technologies and materials that enhance the performance of OLEDs (organic light-emitting diodes) and other organic electronics. Novaled offers OLED product manufacturers a unique combination of proprietary technology, materials and expertise, and is currently the only company in the OLED industry licensing and selling organic conductivity doping technology and materials for use in the commercial mass production of display products. Novaled has developed strategic partnerships with key OLED innovators and producers throughout the world and, with a broad portfolio of more than 500 patents granted or pending, has a strong IP position in OLED technologies, structures and materials.

Core Competences: Materials for OLED applications (dopants, transport materials, emitters)



ORELTECH

OrelTech GmbH
www.oreltech.com

Address:
Rudower Chaussee 29
12489 Berlin
Germany

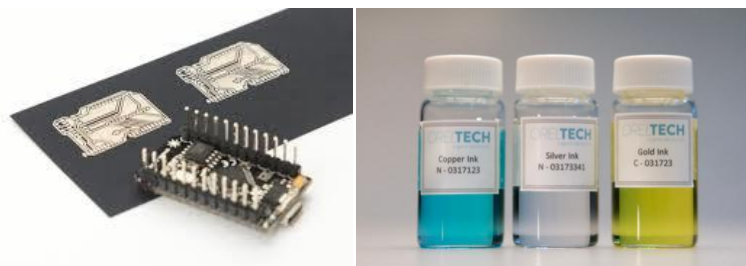
Contact person:
Dr. Klaus Mertens
klaus@oreltech.com

ORELTECH is a trailblazer in the field of new metallization inks and is focused on R&D of new technologies for printing thin functional metal coatings. These inks can be easily printed on a variety of substrates including plastic, paper, textiles, ceramics, transparent substrates and 3D structures.

ORELTECH inks do not contain nanoparticles, are significantly environmentally friendlier and more cost-effective than the alternatives. This technology utilizes inkjet/aerosol printing and other conventional printing methods as well as cold plasma for curing. This allows keeping the process temperature at <70°C and working with even the most sensitive substrates. ORELTECH offer functional metal-based inks for different applications and assistance in integration of metallization technology into customer's production line.

Core competences:

- Functional metal-based inks
- R&D for custom products



Partner

Competences

PLASTIC LOGIC

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www.plasticlogic.com

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PL Germany has successfully industrialized the production process for flexible electrophoretic displays. As such, Plastic Logic is the world leader in the development, manufacture and sale of such devices. Using a stable and proven transistor platform technology, the company manufactures an extensive range of high quality flexible plastic displays in both low and high volumes under an exclusive license agreement. These shatterproof, malleable, daylight readable displays are ultra-thin, lightweight and extremely energy efficient and offer enormous advantages over conventional displays as they are extremely robust and durable. Plastic Logic Germany's customers include original equipment and electronics manufacturers for signage and logistics, mobile electronics, smart cards, wearables and more.

Core Competences:

- Production of thin, flexible, high-res organic transistor backplanes
- Fabrication of flexible b&w and colour EPD Displays for e-readers, IoT applications, jewelry, mobile/off-grid applications etc.



pm TUC

**Institute for Print and Media
Technology, TU Chemnitz**
www.tu-chemnitz.de/mb/PrintMedienTech

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09126 Chemnitz
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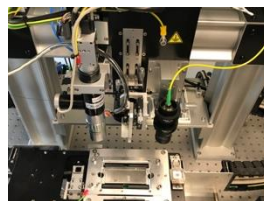
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The **Institute for Print and Media Technology** at the TU Chemnitz is specialized on printing technologies and printed electronics applications. The pmTUC covers all printing processes from gravure printing to inkjet, in machine design as well as in processing. A lot of different application fields are addressed, like organic photovoltaics, sensors, memristor, printed loudspeakers, energy storage and more.

Core Competences:

- Printed functionalities and devices
- Semi-industrial laboratory printing equipment



Partner

Competences



PRUUE GmbH
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The **PRUUE GmbH**, a spin-off from the IAPP - TU Dresden, develops electronics-free and flexible UV sensor films (UV strips) for industrial UV applications in growth markets.

The films glow when the desired UV dose is reached. In combination with the readout device (MACS), this enables rapid process monitoring in UV curing or UV disinfection as well as documentation for QM. In addition, the films can also be used as self-luminous labels or in security applications in the future.



ROVAK GmbH
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Since 2002, **ROVAK** offers services and products around vacuum technology equipment. ROVAK cooperates intensively with research institutes, universities and high-tech start-ups in order to stay tuned to the latest developments in vacuum technology. This advantage in knowledge enables us to provide to our customers customized vacuum systems and optimal advice. ROVAK is characterised by a very high vertical range of manufacture for the industry, with flexibility towards individual requirements. The portfolio is extended by experience in thin film technology, especially flash lamp annealing.

Core Competences:

- Vacuum pumps, vacuum pumping stations
- Vacuum chambers and container construction
- Mechanical engineering, special solutions & engineering
- Equipment for flash lamp annealing
- Mechanical processing



Partner



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Competences

SEMPA SYSTEMS develops, produces and sells ultra-purity media systems and ready-to-use solutions for specialty gases and chemicals for the semiconductor, photovoltaics, electronics and glass fiber industry. SEMPA has been part of the Meptagon Group since 2021.

Core Competences:

- Bulk and special gas distribution systems
- Chemical supply systems in stainless steel
- Control software and automation of our systems
- Customer-specific development projects
- Asian representation by local partners

Some examples are TMAI and ozone systems for AlOx backside passivation or supply systems for IGZO residues.

WVTR measurement

In cooperation with Fraunhofer IWS, we developed the HiBarSens© system for ultra-high precision measurements of the water-vapor permeation through ultra-barriers, like used for organic electronics applications.



SmartNanotubes Technologies GmbH
<https://smart-nanotubes.com/>

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+49 351 85073684



SmartNanotubes deals with the production smell detector chips Smell iX16 and ready-to-use devices Smell Inspector, which can detect different gases and odours. Applications range from environmental and safety applications, quality control, home and work safety to wearables and IoT lifestyle products.

Smell iX16 is compact and makes it affordable for any use-case. Smell iX16 is 100 times more sensitive and lighter than traditional tools for electronic smell detection and uses less energy. It can be easily integrated into different electronic devices.



Through a proprietary developed API, our developer kit **"Smell Board16x4"** and the ready-to-use device **"Smell Inspector"** are compatible with Arduino and Raspberry Pi, enabling developers, companies and research institutes to implement Smell iX16 easily in their projects and conduct comprehensive tests. The data from these tests is directly transmitted through the API to the creators, allowing them to constantly improve the product.

Partner

Competences



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www.sunic.co.kr

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+49 351 88969255

SUNIC SYSTEM supplies OLED evaporation systems along the whole value chain from R&D to mass production. The main system is the G6H Mass Production Line, which has been successfully installed and operated in customer sites for several years. Furthermore, SUNIC has been involved in the pilot production market with G2.5 for PM & OLED Lighting during the last 10 years and finally achieved Market Share No. 1 worldwide with pilot systems.

In addition, since the beginning of OLED industry, SUNIC has contributed to the development of this industry with R&D equipment for more than 20 years and achieved Market Share No. 1 with standard R&D equipment among OLED material suppliers. Recently, SUNIC entered a new challenging field, which is microdisplays for applications such as VR/AR and already installed several systems for mass production both for 200mm and 300mm based wafer sizes for market leading manufacturers in China.

SUNIC has particular strength not only in fabrication equipment but is also known among all customers for its excellent customer service experience.



SweepMe! GmbH
<https://sweep-me.net/>

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01187 Dresden
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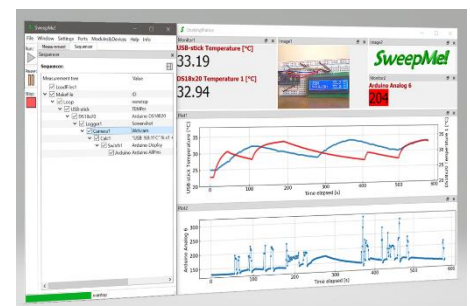
Contact:
Dr. Axel Fischer
contact@sweep-me.net
+49 351 41882423



SweepMe! is a flexible and modular measurement and control software. Users can combine ready-to-use modules to create their custom procedures in short time. All instruments are connected via drivers that are made available to all users.

Services:

- Creating new content, e.g. new modules or drivers
- Creating setups and support
- Licenses for add-on modules
- Consulting (equipment, Measurement techniques)



Typical use cases:

- Characterization of on-wafer semiconductor devices
- Control of thin-film deposition in vacuum chambers
- Spectral characterization of solar cells and photodetectors
- Characterization of light-source such as organic light-emitting diodes
- Memory device testing, e.g. write-read-erase-read cycles and retention time measurements
- Acquisition of data from multiple sensors
- Connecting to databases or IoT-Servers

Partner

Competences



TechBlick

www.techblick.com

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TechBlick is a year round event series with over 350+ analyst selected live online presentations and 30+ masterclasses. With a single annual pass, members have access to its portal where they can join the monthly conferences, liaise with sponsors, network with fellow attendees and watch past presentations.

Uniques for our Members:

- **All-year-round events on emerging technologies**
Our events do not begin and end in one or two days. Instead, the event goes on for the entire year. What this means is that we organize regular major and mini conferences on select emerging technology topics throughout the year for our members
- **In-Personal Virtual Events** - Our events take place LIVE online but are extremely interactive. In fact, the networking and LIVE (online) exhibition experience will match, and even surpass, what you can do in the physical world
- **On your screen anywhere anytime** - All our content will be available on-demand all-year-around on any device, putting a searchable library of talks on select emerging technologies at your fingers tips.
- **Community Centre Platform** - Our online platform is fully integrated meaning that it brings together the agenda, the streaming, the on-demand, the booths, the attendee-to-exhibitor video links, and, crucially, the community together in one easy-to-use online platform which is accessible anytime, anywhere, and on any device.



TES Frontdesign GmbH

www.tes-frontdesign.de

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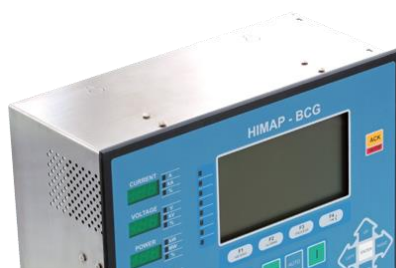
Contact:

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+49 3391 594448

TES Frontdesign is one of the leading suppliers of individual machine user interfaces in Germany. The company offers the full service and engineering chain from customer-specific foil-based keypads up to complete interfaces including housing and assembly of electronic components with special focus on small and medium quantities. The core competence is complete manufacturing with a high production depth at a single location as unique feature. We continuously increase our market share in our three focus areas: foil keypads, housing solutions, and components assembly.

Core competences:

- Customer specific foil keypads and touch input systems
- screen printing, Laser cutting
- front panels based on aluminum, PCBs, stainless steel
- Electronics assembly, printed electronics
- Stainless steel housings including surface finish
- Glass processing



Partner

watttron
The benchmark of efficiency

watttron GmbH
www.watttron.com

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Germany

Contact:
Ronald Claus von Nordheim
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+49 351 85073041



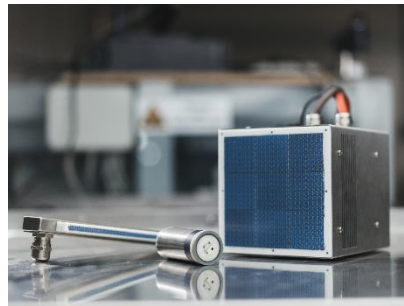
Competences

watttron's patented technology is both simple and ingenious: The heating circuits of the small dynamic matrix heating elements are screen-printed on thin ceramic plates allowing for custom designed heating circuit layouts that are both simple and efficient. The combination of a low thermal mass and a high thermal stability allow high resolution and ultra-dynamic customized heating patterns. Integrated sensors close to the heating circuits ensure precise monitoring of the surface temperature during the entire process.

The heating technology serve different industries and sectors to make processes more flexible, faster and resource-efficient, in addition to improving time and control.

Core Competences:

- Design and layout of the temperature field
- Production of the heating system
- Installation and initial operation supervision



Innovative heating technology for various applications



WOLFRAM
Designer und Ingenieure

WOLFRAM Designer und Ingenieure
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WOLFRAM Designer und Ingenieure is a complete solution design consultancy creating unique success for the industrial and transport sector. Our experienced team consists of engineers and designers, providing services with regard to the entire product development process – from the initial idea in the form of design sketches to the detailed CAD construction of a product right up to mass production. Working together with our customers, we assess the potential and unique selling proposition and define the innovation strategy.

Together with our customers, we create innovations in the fields of industrial goods, automotive design and consumer products. In the field of OLED technologies, WOLFRAM Design/Engineering creates innovative light sculptures using state-of-the-art OLED technology and precious materials, which have never been seen before in light design.

Core Competences:

- innovation research
- conceptualization
- industrial design
- CAD mechanical engineering

