Organic Electronics Saxony

Competence Overview

2023

OES
Organic Electronics Saxony

Value Chain


INDUSTRIAL DEVELOPMENT & PRODUCTION
novaled
SYNTHON CHEMICALS
CREDOXYS MATERIAL INNOVATION
covestro
MIMOTYPE
ORELTECH
DICO ELECTRONIC
Coating Consulting
ACCOMPLAST
CONTRONIX DER BLICK FÜRS GANZE
FREUDENBERG SIEBDRUCK SCHAFFT SINN
hyprint hybrid electronics
TechBlick CONNECT · ENGAGE · LEARN
SweepMe!
WOLFRAM Designer und Ingenieure
CREAPHYS MBRAUN GROUP
ROVAK
Adenso solutions you need
Kurt J. Lesker Company
creavac
Sunic system
MÜLLER customized converting
SEMPA PART OF MEPTAGON GROUP
FHR
watttron The benchmark of efficiency
iL INNOVATION LAB thinking works
Heliatek INDEPENDENT. GREEN. FUTURE.
SENORICS
PLASTIC LOGIC
SmartNanotubes
born KNITTING ENGINEERS
TES frontdesign
KUNDISCH A Phoenix Mecano Company
adSphere
MATERIALS
PROCESS INTEGRATION & SERVICES
PRODUCTION TECHNOLOGIES
APPLICATIONS
iapp
IHM
ipf Leibniz-Institut für Polymerforschung Dresden
Fraunhofer IKTS
AVT
JOANNEUM RESEARCH
ip³ Institute for Printing, Processing and Packaging Leipzig
HZDR HELMHOLTZ ZENTRUM DRESDEN ROSSENDORF
Fraunhofer IZM
Fraunhofer ENAS
Fraunhofer IWS
Fraunhofer IVV
ITM LEADING IN FIBRE & TEXTILE TECHNOLOGY Forschungsinstitut der Exzellenzuniversität
pm TUC
EKFZ Digital Health
BASIC & APPLIED RESEARCH

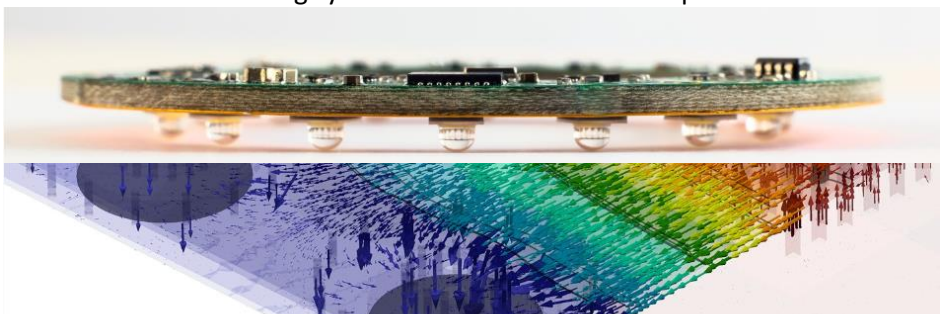
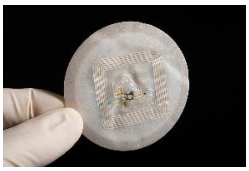
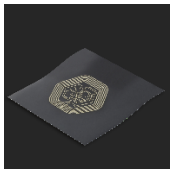
Our members

1. Accomplast
2. Adenso
3. adSphere
4. Adolf Müller GmbH & Co. KG
5. BORN GmbH
6. Coating Consulting
7. Contronix
8. Covestro Deutschland AG
9. CreaPhys
10. Creavac-Creative Vakuumbeschichtung
11. CREDOXYS
12. DICO Electronic
13. Else Kröner-Fresenius-Center for Digital Health
14. FHR Anlagenbau
15. Fraunhofer ENAS
16. Fraunhofer IKTS
17. Fraunhofer IVV
18. Fraunhofer IWS
19. Fraunhofer IZM
20. Freudenberg Industrie Siebdruck GmbH
21. Heliatek
22. HyPrint GmbH
23. Helmholtz-Zentrum Dresden-Rossendorf e.V. (HZDR)
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. InnovationLab
28. Inuru
29. Institute for Printing, Processing and Packaging (iP3), HTWK Leipzig
30. Leibniz-Institute of Polymer Research Dresden (IPF)
31. Institute of Textile Machinery and High-Performance Material Technology (ITM), TU Dresden
32. JOANNEUM RESEARCH Forschungsgesellschaft mbH
33. Kundisch GmbH & Co. KG
34. Kurt J. Lesker Company
35. Mimotype Technologies
36. Novaled
37. OrelTech GmbH
38. PL Germany
39. Institute for Print- and Media Technology (pmTUC), TU Chemnitz
40. ROVAK
41. SEMPA SYSTEMS GmbH
42. SENORICS
43. SmartNanotubes Technologies GmbH
44. Sunic System
45. SweepMe!
46. SYNTHON Chemicals GmbH & Co. KG
47. TechBlick
48. TES Frontdesign GmbH
49. watttron
50. WOLFRAM Designer und Ingenieure

Partner	Competences
ACCOMPLAST GmbH www.accomplast.de **Address:** An der Hopfendarre 2-4 09212 Limbach-Oberfrohna Germany **Contact:** Andreas Pilih a.pilih@accomplast.de +49 3722 630130 	**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 GmbH www.adenso.solutions **Address:** Am Weiher 3 OT Boxorf/Dresden 01468 Moritzburg Germany **Contact:** Uwe Beier, CEO uwe.beier@adenso.de +49 351 79597979 	**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 • FOUP300 VAC LoadPort • R2R winding systems • UTG processing solutions • DTS device tester sorter • Stealth.Carrier • Assembly lines • adControl Cluster Control 

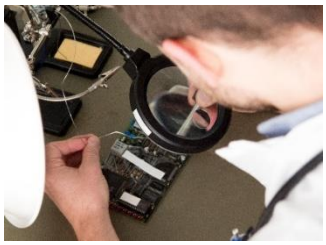
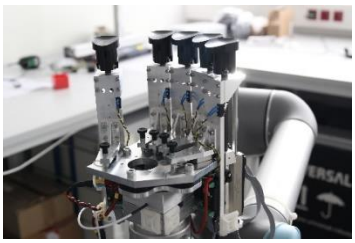
Partner	Competences
adSphere GmbH www.adSphere.solutions **Address:** Am Weiher 3 OT Boxorf/Dresden 01468 Moritzburg Germany **Contact:** Uwe Beier, CEO uwe.beier@adenso.de +49 351 79597979  Maria Esche, R&D maria.esche@adSphere.de +49 351 795979780	Based on its competences and special technologies in 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 
Adolf Müller GmbH & Co. KG www.mueller-machines.com **Address:** Am Bahnhof 3 27383 Scheessel Deutschland **Contact:** Dr. Stefan Mogck s.mogck@mueller-machines.com +49 4263 30426	**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. 

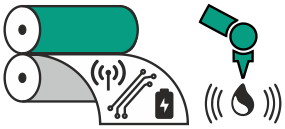
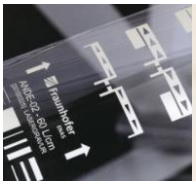
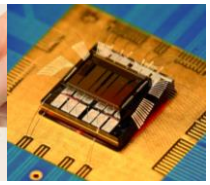
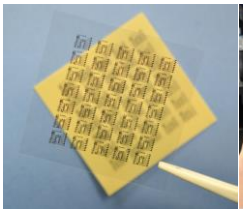
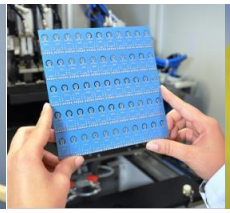
Partner	Competences
BORN GmbH - KNITWEAR FOR FASHION & ENGINEERING www.born-germany.de **Address:** Poststraße 4 37351 Dingelstädt Germany **Contact:** Michael Schneider michael.schneider@born-germany.de +49 36075 50 60	**BORN GmbH** was founded in 1991 and is a family-run, integrated textile company 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, textilebased 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
Coating Consulting **Tobias Müller** www.coatcon.de **Adress:** An der Stadtmühle 1a 04416 Markkleeberg Germany **Contact:** Tobias Müller t.mueller@coatcon.de +49 176 363 380 53 	**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.

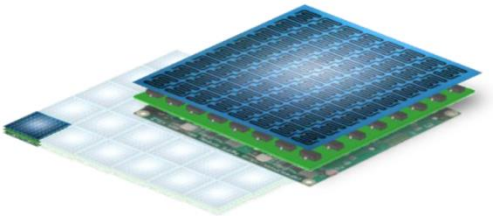
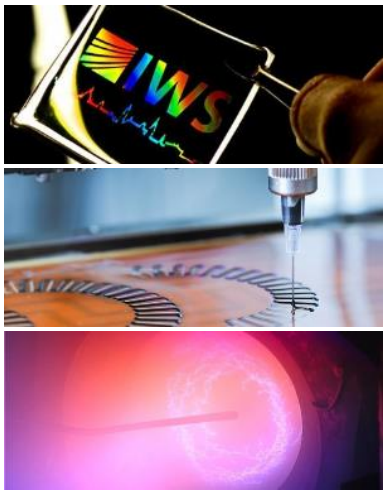
Partner	Competences
CONTRONIX DER BLICK FÜRS GANZE **Contronix GmbH** www.contronix.de **Address:** Nizzastr. 6 01445 Radebeul Germany **Contact:** Christoph Gommel chg@contronix.de +49 351 4829212 	Founded in 2003, **Contronix GmbH** develops application-specific electronic assemblies for a wide range 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 
covestro **Covestro Deutschland AG** www.covestro.com **Address:** Kaiser-Wilhelm-Allee 60 51373 Leverkusen Germany **Contact:** Gerd.Bueschel@covestro.com klas-moritz.kossel@covestro.com  Klas-Moritz Kossel  Gerd Bueschel	**Covestro** is a listed materials manufacturer headquartered in Leverkusen, Germany. The company develops. Produces and markets polymer materials at around 50 sites in Europe, Asia and America. **Specialty films + foams for the electronics industry** There are specific developments for the medical, automotive, construction and other industries. The main applications are: • Printed electronics (medical, construction, automotive, …) • Electronic soft-embedding (film + thermoplastic foam) • Fixations (medical) In the **medical sector**, the materials are mainly used in smart patches, wound dressings and packaging for implants and surgical instruments. **Core competencies of BE Specialty Films**: • Film developments, customer and application specific • Multilayer films for different requirements • Application technology support • Network for film processing (coating, laminating, die-cutting, etc.) • Materials used: TPU, PC and other thermoplastics   

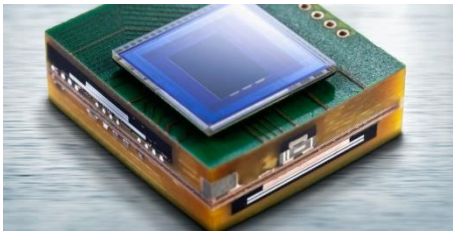
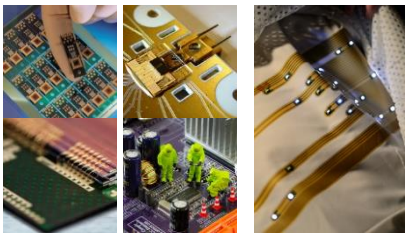
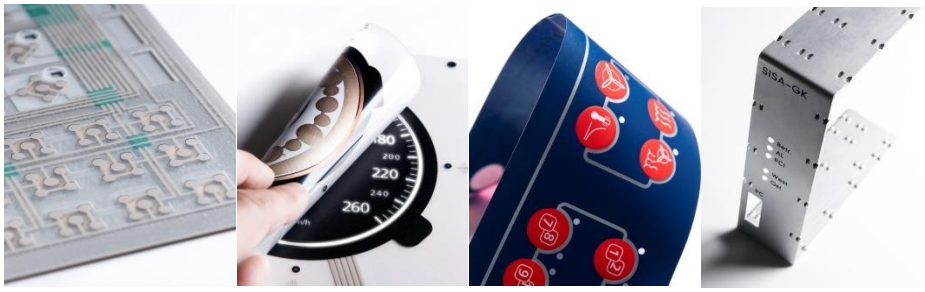
Partner	Competences
CreaPhys GmbH www.creaphys.com **Address:** Niedersedlitzer Str. 75 01257 Dresden Germany **Contact:** Jens Drechsel jens.drechsel@creaphys.com +49 351 40791625 	**CreaPhys** was founded in 1999 as a spin-off from Dresden University and became a member of the M. Braun group 2016. CreaPhys provides customized solutions in the field of thin film electronics for R&D and production scale worldwide. Within the M. Braun group, known as a provider for coating solutions and inert gas systems, CreaPhys acts as a center of competence for thin film deposition. Our portfolio ranges from single components, like deposition sources for molecular compounds (linear sources) and metals to entire customized vacuum deposition systems (e.g. cluster tools). In addition, we offer purification services for molecular compounds, purification tools for R&D or production scale as well as molecular compounds at opto-electronic grade (> 99.99%). Our proprietary QUANTIpure® technology allows the cost-efficient purification of large volumes at high throughputs for batches of multiple kilograms. **Core competences:** • Vacuum equipment for thin film deposition (evaporators to full systems) • (Organic) material purification services and equipment   
CREAVAC-Creative Vakuumbeschichtung GmbH www.creavac.de **Address:** Sporbitzer Ring 9 01259 Dresden Germany **Contact:** Dr. Steffen Heicke heicke@creavac.de +49 351 2183815	**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 

Partner	Competences
CREDOXYS GmbH www.credoxys.com **Address:** Liebigstraße 26 01187 Dresden Germany **Contact:** Dr. Sascha Dorok sascha.dorok@credoxys.com Dr. Julia Stolz julia.stolz@credoxys.com	**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
DICO Electronic GmbH www.dico-electronic.de **Address:** Rotenbergstr. 1a 91126 Schwabach Germany **Contact:** Andreas Löhnert a.loehnert@dico-electronic.de +49 9128 92 50 646	**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. 

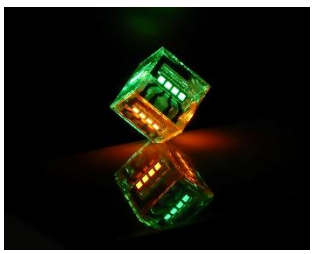
Partner	Competences
Else Kröner Fresenius Center for Digital Health digitalhealth.tu-dresden.de **Address:** Fetscherstr. 74 01307 Dresden Germany **Contact:** Sabine Marschollek ekfz@ukdd.de +49 351 458 7558	The **Else Kröner Fresenius Center for Digital Health (EKFZ)** is a joint interfaculty initiative 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.   
FHR Anlagenbau GmbH www.fhr.biz **Address:** Am Hügel 2 01458 Ottendorf-Okrilla Germany **Contact:** Dr. Hannes Klumbies hannes.klumbies@fhr.de +49 35205 520 292 	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   

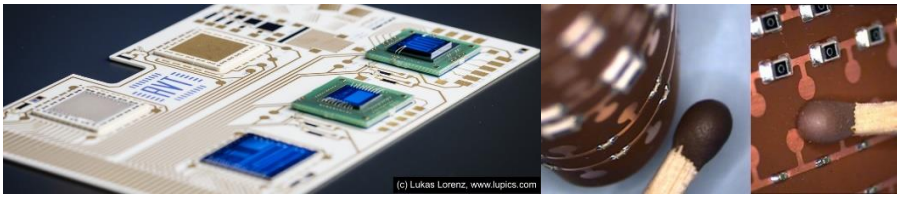
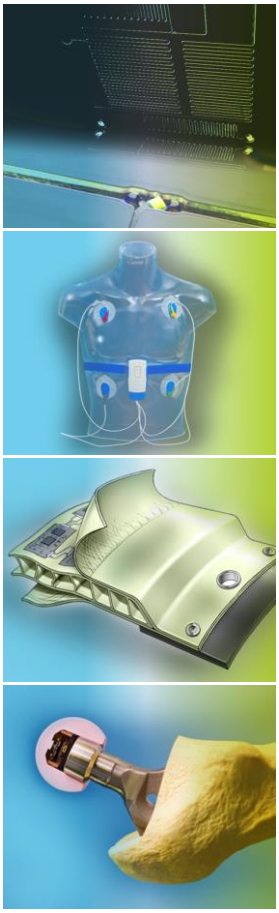
Partner	Competences
Fraunhofer ENAS **Fraunhofer Institute for Electronic Nano Systems ENAS** www.enas.fraunhofer.de **Address:** Technologie-Campus 3 09126 Chemnitz Germany **Contact:** Dr. Ralf Zichner ralf.zichner@enas.fraunhofer.de +49 371 45001441 	The particular strength of the **Fraunhofer Institute for Electronic Nano Systems ENAS** lies in the development of smart systems for various applications. These systems combine electronic components with nano and micro sensors as well as actuators, communication units and self-sufficient power supply. Fraunhofer ENAS develops single components, manufacturing technologies and system concepts, system integration technologies and transfers them into production. Fraunhofer ENAS defines the focus of the technology portfolio and the market activities of the institute with its **five business units**: • Technologies and Systems for Smart Power and Mobility • Technologies and Systems for Smart Health • Technologies and Systems for Smart Production • Micro and Nanoelectronics • Sensor and Actuator Systems One of the ENAS core competency is the **development of printed hybrid and flexible electronics applications** like sensors, antennas, batteries, conductive paths and smart systems.    
Fraunhofer IKTS **Fraunhofer Institute for Ceramic Technologies and Systems IKTS** www.ikts.fraunhofer.de **Address:** Winterbergstr. 28 01277 Dresden Germany **Contact:** Dr.-Ing. Sindy Mosch sindy.mosch@ikts.fraunhofer.de +49 351 2553-7898 	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.    

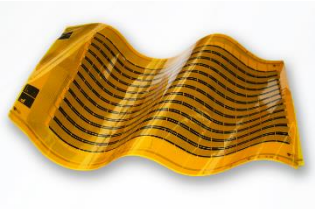
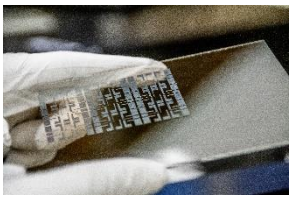
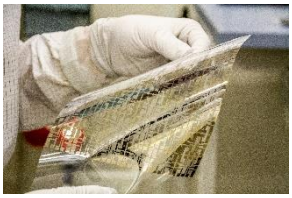
Partner	Competences
Fraunhofer IVV **Fraunhofer Institute for Process Engineering and Packaging IVV** www.ivv.fraunhofer.de **Address:** Heidelberger Str. 20 01189 Dresden Germany **Contact:** Fabian Kayatz fabian.kayatz@ivv-dd.fraunhofer.de +49 351 4361431 	The **Fraunhofer IVV** Branch Lab for Processing 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 IWS **Fraunhofer Institute for Material and Beam Technology IWS Dresden** www.iws.fraunhofer.de **Address:** Winterbergstr. 28 01277 Dresden Germany **Contact:** Dr. Wulf Grählert wulf.graehlert@iws.fraunhofer.de +49 351 83391-3406 	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 

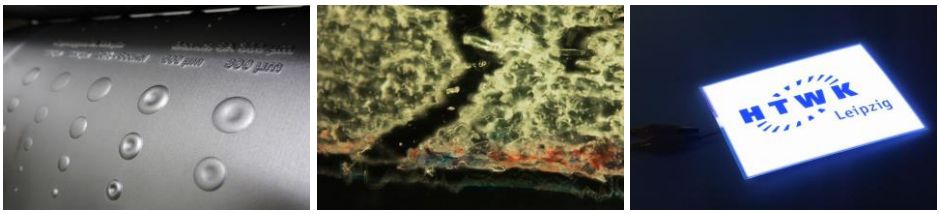
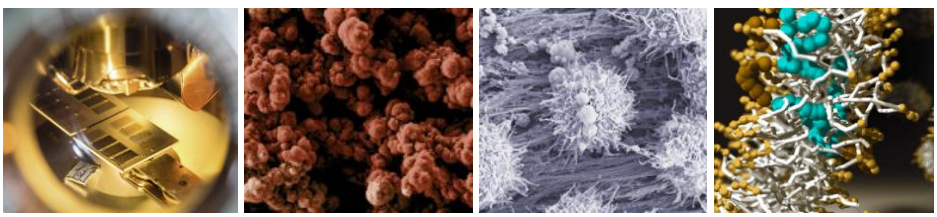
Partner	Competences
Fraunhofer IZM **Fraunhofer Institute for Reliability and Microintegration IZM** www.izm.fraunhofer.de **Address:** Gustav-Meyer-Allee 25 13355 Berlin Germany **Contact:** Christine Kallmayer christine.kallmayer@izm.fraunhofer.de +49 30 46403228 	**Fraunhofer IZM** helps companies 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 SIEBDRUCK SCHAFFT SINN **Freudenberg Industrie Siebdruck GmbH** www.siebdruck-freudenberg.de **Address:** Am Feld 4 01257 Dresden Germany **Contact:** Giorgio Abdallah g.abdallah@siebdruck-freudenberg.de +49 351 27012-19	**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	Competences
Heliatek GmbH www.heliatek.de **Address:** Treidlerstr. 3 01139 Dresden Germany **Contact:** Dr. Karsten Walzer karsten.walzer@heliatek.com +49 351 213034507 	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 
HyPrint GmbH https://hyprint.de/en/ **Address:** Carl-Friedrich-Gauß-Ring 5 69124 Heidelberg Germany **Contact:** Andreas Laib andreas.laib@hyprint.de Richard Leys richard.leys@hyprint.de	**HyPrint GmbH** develops and distributes products related to printed electronics components, combining expertise in printing technology, materials science and embedded systems engineering. HyPrint uses the interdisciplinary synergy in the field of hybrid electronics to offer full-service systems that are partly based on the printed electronics ecosystem and thus benefit from the economics of mass production. The current state of development work for smart label systems for logistics applications includes printed components such as battery, NFC antenna and electrochromic display elements that are combined with classic electronics (e.g. IC's) and are thus able to communicate with NFC smartphones or NFC reader (handheld devices). The data generated in the labels are further processed in cloud systems with functionalities relevant to the respective industries. By using printed electronic functionalities in combination with embedded systems engineering, HyPrint GmbH develops full-service systems and solutions for the logistics, pharmaceutical and packaging industries, among others.

Partner	Competences
Helmholtz-Zentrum Dresden - Rossendorf e. V. www.hzdr.de **Address:** Bautzner Landstraße 400 01328 Dresden Germany **Contact:** Prof. Dr. Jürgen Fassbender j.fassbender@hzdr.de +49 351 2603096 	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 Materials, TU Dresden www.iapp.de **Address:** Nöthnitzer Str. 61 01187 Dresden Germany **Contact:** Prof. Dr. Karl Leo karl.leo@tu-dresden.de +49 351 46337533 	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	Competences
Institute for Electronics Packaging and Assembly Technology (IAVT) www.avt.et.tu-dresden.de **Address:** Helmholtzstr. 10 01069 Dresden Germany **Contact:** Prof. Dr. Karlheinz Bock karlheinz.bock@tu-dresden.de +49 351 46336345 	Together with the Center for Microtechnical Production (ZµP), 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/ZµP 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 **Address:** Nöthnitzer Str. 64 01187 Dresden Germany **Contact:** Prof. Andreas Richter andreas.richter7@tu-dresden.de +49 351 46336336 	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
InnovationLab GmbH (iL) www.innovationlab.de **Address:** Speyerer Straße 4 69115 Heidelberg Germany **Contact:** Dr. Michael Kröger info@innovationlab.de +49 6221 54 19 100	**InnovationLab GmbH (iL)** is a one-stop shop for printed electronics, located in the heart of the Rhine-Neckar Metropolitan Region. As a unique research and development platform, iL fosters cross-disciplinary research and innovation as well as continuous knowledge transfer, at the interface between science and industry – from Lab-2-Fab. iL's **core competence** is the development of individual and tailor-made overall solutions. This covers the entire process from the first concept draft through the development to the industrial production of flexible sensor products – all under one roof. This interdisciplinary field requires deep knowledge across multiple domains. iL's expertise is based on a solid understanding of the materials, processes and printing technologies that are essential for the development of flexible and hybrid electronic systems. iL is initially working on the future technology of printed and organic electronics. Their focus is on cost-effective, environmentally friendly production of electronic components such as circuits and sensors, and particularly emphasises the area of printing technology as a cost-effective manufacturing method for passive and active electronic components.   
Inuru GmbH www.inuru.de **Address:** Johann-Hittorf-Str. 8 12489 Berlin Germany **Contact:** Patrick Barkowski barkowski@inuru.com +49 30 63927478 Marcin Ratajcak ratajczak@inuru.com +49 30 63927479  	**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.   

Partner	Competences
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 
Leibniz-Institute of Polymer Research Dresden (IPF) www.ipfdd.de **Address:** Hohe Straße 6 01069 Dresden Germany **Contact:** Prof. Dr. Brigitte Voit voit@ipfdd.de + 49 351 46590 	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 

Partner	Competences

Institute of Textile Machinery and High Performance Material Technology (ITM)
https://tu-dresden.de/ing/maschinenwesen/itm

Address:
Hohe Straße 6
01069 Dresden
Germany

Contact:
Dr. Dilbar Aibibu
dilbar.aibibu@tu-dresden.de
+49 351 463 44040

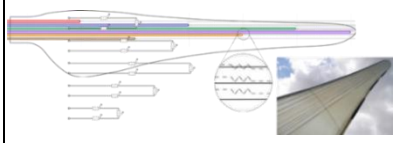
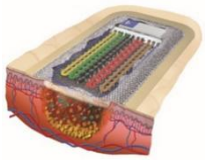
The **Institute of Textile Machinery and High Performance Material Technology (ITM)** is a world leading research institution, and is one of the most powerful of Technische Universität Dresden. Among other things, the ITM carries out extensive research and development work on the combination of technical 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.


JOANNEUM RESEARCH Forschungsgesellschaft mbH
www.joanneum.at

Address:
Leonhardstrasse 59
8010 Graz
Austria

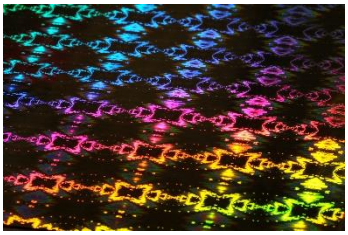
Contact:
Gregor Scheipl
gregor.scheipl@joanneum.at
+43 316 876 3116

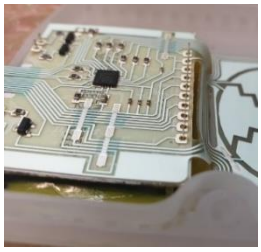
JOANNEUM RESEARCH develops solutions and technologies for a broad range of industries and public agencies and is engaged in top applied research at an international level.

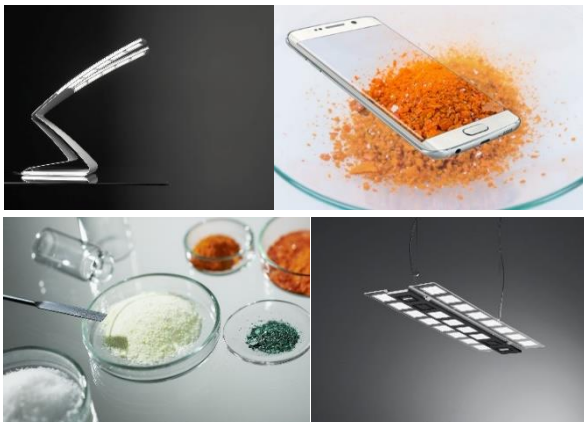
MATERIALS has many years of experience in handling a wide range of research cooperations and -projects and enables our customers and partners to successfully participate in nationally and internationally funded research projects as well as to successfully realize project ideas. MATERIALS provides interdisciplinary 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:

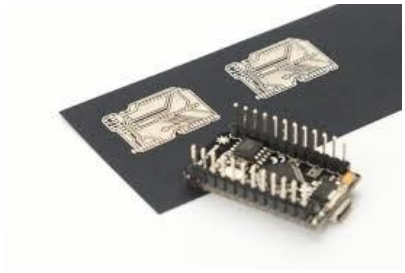
(i) printed electronics & printed sensors (PyzoFlex®)
(ii) R2R Nano-imprint structures (biomimetic surfaces & lab-on-chip)
(iii) green Photonics and electronics
(iv) (optical) chemo- and biosensors

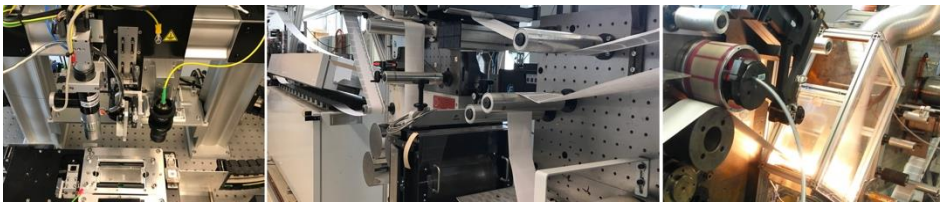
In combination with state-of-the-art equipment and infrastructure, MATERIALS offers innovative solutions and services that are optimally tailored to the needs of our partners from business and industry.

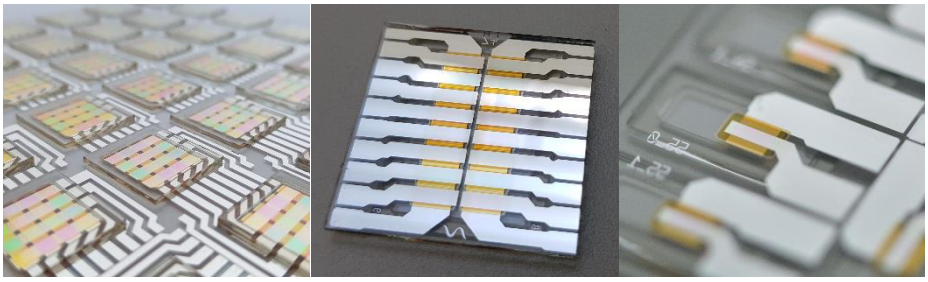



Partner	Competences
Kundisch GmbH & Co. KG www.kundisch.de **Address:** Steinkirchring 56 78056 Villingen-Schwenningen Germany **Contact:** Sebastian Gepp Sebastian.Gepp@kundisch.de +49 1516 474 7288 	**Kundisch GmbH & Co. KG** was founded in 1979 and specialises in the manufacture and development of 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 **Address:** Fritz-Schreiter-Str. 18 01259 Dresden Germany **Contact:** Manfred Beckers manfredb@lesker.com +49 1516 771 1530	**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	Competences
MIMOTYPE **Mimotype Technologies GmbH** https://www.linkedin.com/company/mimotype **Address:** Friedrichstraße 17 10969 Berlin Germany **Contact:** Claudio Flores claudio@mimotype.org +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.
novaled **Novaled GmbH** www.novaled.com **Address:** Elisabeth-Boer-Str. 9 01099 Dresden Germany **Contact:** Gerd Günther info@novaled.com +49 351 79890100 	**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) 

Partner	Competences
ORELTECH **OrelTech GmbH** www.oreltech.com **Address:** Rudower Chaussee 29 12489 Berlin Germany **Contact person:** Marie Westphal marie@oreltech.com +49 1726279473 	**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. ORELETCH 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  
PLASTIC LOGIC **PL Germany GmbH** www.plasticlogic.com **Address:** Zwickauer Str. 46 01069 Dresden Germany **Contact:** Bernd Zimmermann bernd.zimmermann@plasticlogic.com +49 351 88344198 	**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.    

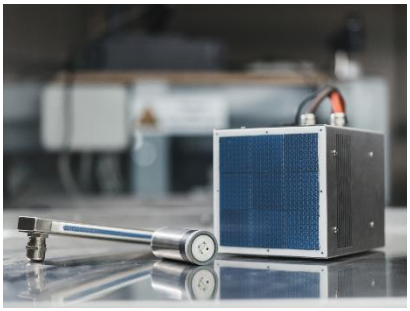
Partner	Competences
Institute for Print and Media Technology, TU Chemnitz www.tu-chemnitz.de/mb/PrintMedienTech **Address:** Reichenhainer Str. 70 09126 Chemnitz Germany **Contact:** Prof. Dr. Arved Hübler arved.huebler@mb.tu-chemnitz.de +49 371 53123610 	The **Institute for Print and Media Technology** 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 
ROVAK GmbH www.rovak.de **Address:** Zum Teich 4 01723 Grumbach Germany **Contact:** Udo Reichmann reichmann@rovak.de +49 35204 7889013 	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	Competences
SEMPA SYSTEMS GmbH www.sempa.de **Address:** Grenzstraße 13 01109 Dresden Germany **Contact:** Johannes Grübler gruebler@sempa.de +49 351 8881033 	**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.   
Senorics GmbH www.senorics.com **Address:** Messering 19 01067 Dresden Germany **Contact:** Hannah Szynal hannah.szynal@senorics.com +49 351 850 32 416	The **Senorics GmbH** is a high-tech spin-off of the Dresden Integrated Center for Applied Physics and Photonic Materials (IAPP) of the TU Dresden. Senorics develops optical sensor technology for visible and near-infrared spectroscopy (NIRS) that enables the detection of ingredients and contaminants in many areas of modern life and work. The detector chip itself takes the function of the spectrometer, further optical elements are not necessary. The technology is based on organic semiconductors, is inexpensive, powerful and can be miniaturized. The detector is customized to a specific measurement task. Typical application areas are breweries, smart farming, packaging, predictive maintenance, plastics processing and others. **Core Competences:** • Near-infrared spectroscopy optical sensor technology • In-house chip design and fabrication • Detector customization to specific measurement task 

Partner	Competences
SmartNanotubes **SmartNanotubes Technologies GmbH** https://smart-nanotubes.com/ **Address:** Dresdner Str. 172 01705 Freital Germany **Contact:** Dr. Viktor Bezugly bezugly@smart-nanotubes.com +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.
Sunic system **Sunic System Ltd.** www.sunic.co.kr **Address:** Maria-Reiche-Str. 1-7 01109 Dresden Germany **Contact persons:** Seong Woo Chung swchung@sunic.co.kr +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.

Partner	Competences
SweepMe! GmbH https://sweep-me.net/ **Address:** Bienertstraße 18 01187 Dresden Germany **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
SYNTHON Chemicals GmbH & Co. KG www.synthon-chemicals.com **Address:** Werkstattstraße 10 06766 Wolfen Germany **Contact:** Michael Felicetti mfelicetti@synthon-chemicals.com + 49 3494 6663312 	**SYNTHON Chemicals GmbH & CO. KG** is an ISO9001 certified owner-managed producer of speciality and fine chemicals. The company has modern production facilities, laboratories, warehouses and offices with a total area of 2000 square meters. The company has a highly qualified staff of chemists, plant operators, laboratory technicians and engineers, and has extensive experience in the development of multi-step syntheses of organic compounds. SYNTHON Chemicals supplies the industry with high-quality final products and intermediate products in quantities ranging from a few grams to several hundred kilograms. The company's **core competence** lies in the following product groups: • Dyes and fluorescent dyes for high-tech applications • Liquid crystals for electro-optical displays • Reactive mesogens for display technology and security applications • Heterocyclic compounds as intermediates for bioactive compounds • Materials for organic electronics • Fine chemicals for R&D and small-scale production plants • Medical devices • Photoinitiators • Custom syntheses    

Partner	Competences
TechBlick www.techblick.com **Address:** Arndtstrasse, 47 60325 Frankfurt a. M. Germany **Contact:** Christoph Wenschinek Christoph@TechBlick.com +49 176 64401865 Dr. Khashayar Ghaffarzadeh Khasha@TechBlick.com +49 176 61704139 	**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 **Address:** Friedrich-Bueckling-Str. 19 16816 Neuruppin Germany **Contact:** Michael Cerbe michael.cerbe@tes-frontdesign.de +49 3391 594424 	**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 steal • Electronics assembly, printed electronics • Stainless steel housings including surface finish • Glass processing   

Partner	Competences
watttron *The benchmark of efficiency* **watttron GmbH** www.watttron.com **Address:** Dresdner Str. 172c 01705 Freital Germany **Contact:** Ronald Claus von Nordheim ronald.claus-von-nordheim@watttron.com +49 351 85073041 	**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  
WOLFRAM Designer und Ingenieure **WOLFRAM Designer und Ingenieure** www.wolframdesign.de/ **Address:** Mengsstr. 35 01139 Dresden Germany **Contact:** Sebastian Wolfram wolfram@wolframdesign.de +49 351 82872170 	**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