Hahn Schickard

Annual report 2020

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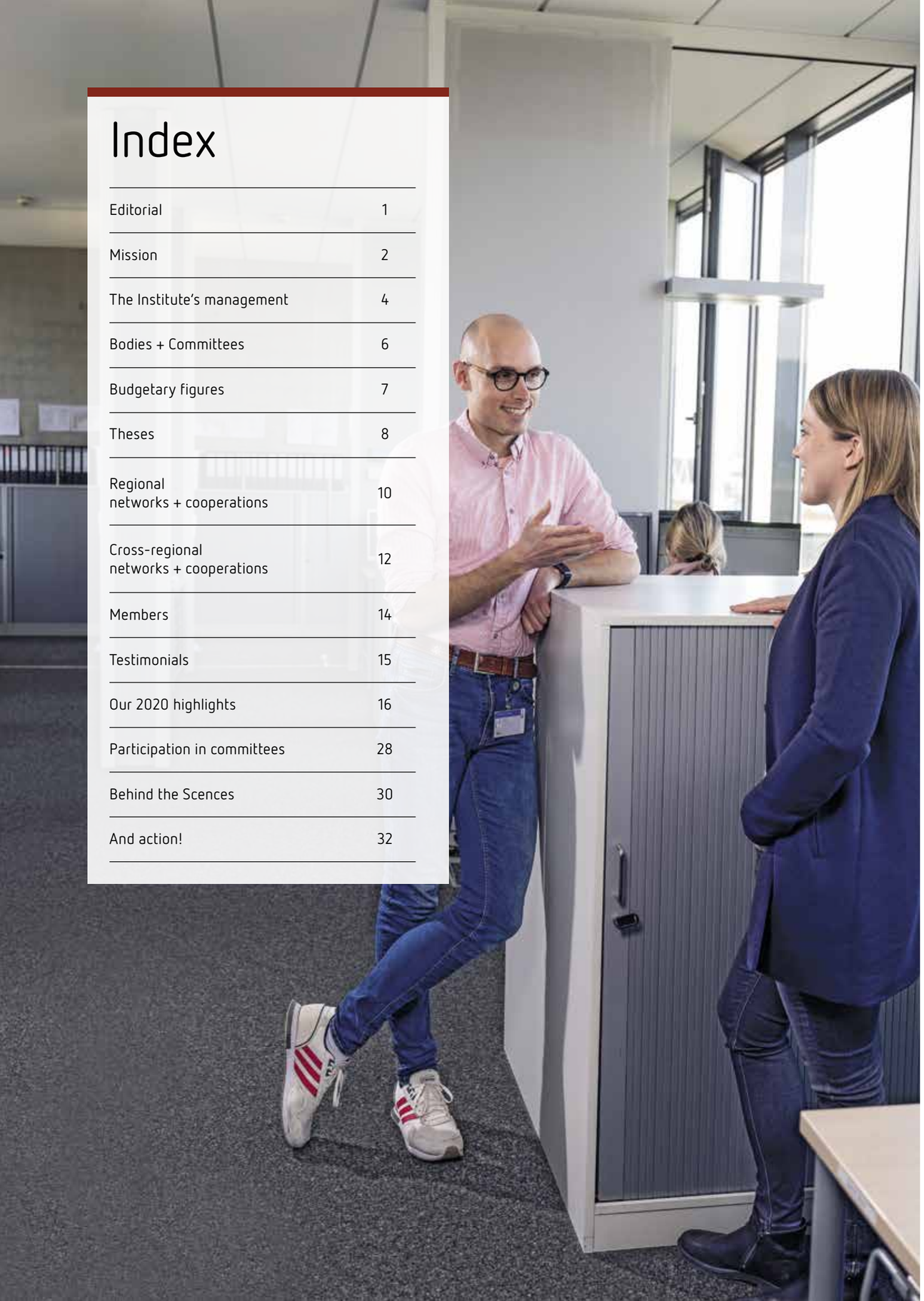


Editorial

For many years, Hahn-Schickard has been researching and developing rapid innovative diagnostic results for patients on site. For this, we have had application scenarios in mind in which dangerous pathogens such as Ebola, EHEC, avian flu, and or MRSA play a role. And yet no one could imagine the impact that the SARS-CoV-2 pandemic would have on us and how it would change our lives. The year 2020 was truly extraordinary in every respect for all of us, including our families and our clients.

But necessity is the mother of invention and it drives innovation! The year was extraordinarily innovative for Hahn-Schickard: More of our developments than ever before managed to enter the market this year. In April, our spin-off company Spindiag received generous funding from the state of Baden-Württemberg for the development of a rapid corona test, and just a few months later, Spindiag Managing Director Dr. Daniel Mark was able to announce the market launch of the rapid PCR test in laboratory quality at Klinikum Stuttgart. This test delivers a test result for the patient with two samples in significantly less than one hour. Hahn-Schickard has established a multi-shift operation for the production of the test cartridges and has thus successfully demonstrated its ability to react quickly and purposefully to current economic requirements. Just 12 months ago, none of us would have thought that a year later we would be where we are today.

We also reacted at breakneck speed from the idea to the finished product for a customer from China. Within just three months, we developed market-ready thermopile sensor chips for non-contact temperature measurement in fever measuring devices and manufactured one million of them in our own clean room. You will find further product highlights in this annual report as well as brand new exclusive insights behind the scenes. The challenges of the future are interdisciplinary and complex. In order to meet them at the highest scientific level, we have appointed two more excellent scientists to the institute's management: Boris Mizaikoff, Professor of Analytical and Bioanalytical Chemistry at Ulm University, is opening up the field of photonic diagnostics for Hahn-Schickard at our new site in Ulm. Professor Felix von Stetten, who has held leading positions at Hahn-Schickard for many years, is now bundling our expertise in molecular diagnostics across all sites.

Our spin-offs have also weathered the crisis well and are developing splendidly. More than 150 high-tech jobs have been created in the State in this way in recent years, ensuring that the expenditure on publicly funded research is returned to the State through corporate tax revenue.

Thank you for your confidence in our work. We look forward to challenges that lie ahead!

Your Hahn-Schickard Institute Directors

Source: Spindiag GmbH

Hahn-Schickard is expanding together: four locations, three institutes, one mission

Hahn-Schickard Institute of Microanalysis Systems
Freiburg + Ulm

> Microfluidics
> Point-of-care diagnostics
> Bioanalytics
> Electrochemical energy systems
> Photonic diagnostics

Hahn-Schickard Institute of Micro and Information Technology
Villingen-Schwenningen

> MEMS Foundry
> Microelectronics
> Microsensors and microactuators
> System integration
> Cyber-physical systems
> Information and communication technology
> Artificial intelligence

Hahn-Schickard Institute of Micro Assembly Technology
Stuttgart

> Optical microsystems
> Rapid manufacturing
> System-in-foil
> Spatial electronics
> Microstructuring
> Sensors

Innovators
We develop intelligent products using microsystems technology: from the initial idea to production and across all industries.

Problem-solvers
We embrace our clients' challenges and work together with them toward innovative solutions.

Future Shapers of the
We are always one step ahead. We do advance research and prepare innovations for our clients.

Partners
We have regional roots and are also globally in demand.

The Institute's management

Boris Mizaikoff
Analytical chemistry

Since January 1, 2021, the 55-year-old Vienna native and passionate long-distance runner has brought his research interests in the fields of photonics in liquids and gases and biomimetic receptors to the Hahn-Schickard portfolio. Mizaikoff is a professor at the Institute of Analytical and Bioanalytical Chemistry at Ulm University and part-time head of the Hahn-Schickard Institute of Microanalysis Systems together with Roland Zengerle and Felix von Stetten.

Felix von Stetten
Molecular diagnostics

Felix von Stetten is an adjunct professor at the University of Freiburg. At Hahn-Schickard, von Stetten is currently working on the vision of so-called molecularly integrated test systems, tests that no longer require sequential pipetting of liquids, since all reactions can take place virtually side by side in a miniaturized reaction chamber. For von Stetten, the transfer into practical applications, into mobile test systems for personalized diagnostics as well as food and environmental analysis, is also at the forefront of these developments.

André Zimmermann
Mounting, connection and sensor technology

Prof. Dr.-Ing. André Zimmermann is an expert in mounting and connection technology and microtechnical components reliability. Since 2015, he has headed the Hahn-Schickard Institute of Micro Assembly Technology and the Institute for Micro Integration (IFM) at the University of Stuttgart. His professional positions at the Max Planck Institute in Stuttgart and at Robert Bosch GmbH focused on electronic mounting and connection technology, simulation, strategy and innovation management.

Alfons Dehé
MEMS

Since 2017, Professor Dr.-Ing. Alfons Dehé has bolstered the scientific management at Hahn-Schickard in Villingen-Schwenningen as head of the Institute. He represents the research field MEMS and manufacturing in the silicon clean room. His expertise in the field of microsystems is the basis for the development of intelligent sensors including so-called cyber-physical systems.

Yiannos Manoli
Microelectronics

Yiannos Manoli has headed the Hahn-Schickard Institute of Micro and Information Technology in Villingen-Schwenningen and Freiburg since 2005. His research focuses on the design and application of rotation rate and acceleration sensors as well as energy harvesting through vibration generators. Manoli holds the Fritz Hüttinger Chair of Microelectronics at the Department of Microsystems Engineering at the University of Freiburg.

Roland Zengerle
Microfluidics

For 25 years, Roland Zengerle has been instrumental in shaping the development of Hahn-Schickard. It began in 1995 with the management of the then new microfluidics division and continued in 2005 as Hahn-Schickard institute director. His specialties include lab-on-a-chip solutions, contactless microdispensing processes, and the automation of chemical and biochemical analyses.

Bodies + Committees

Managing Director

Clemens Pecha
Villingen-Schwenningen

Institute Director

Prof. Dr.-Ing. Alfons Dehé
Villingen-Schwenningen

Prof. Dr.-Ing. Yiannos Manoli
Villingen-Schwenningen

Prof. Dr. Boris Mizaikoff
Ulm

Apl. Prof. Dr. Felix von Stetten
Freiburg

Prof. Dr.-Ing. Roland Zengerle
Freiburg

Prof. Dr.-Ing. André Zimmermann
Stuttgart

Board of Directors

Chairman:
Prof. Dr. Volker Nestle
Festo SE & Co. KG

Vice Chairman:
Dr. Florian Krogmann
IST AG

Treasurer:
Thomas Albiez
IHK Schwarzwald-Baar-Heuberg

Permanent Guest:
Uwe Remer

Dr. Franz Lärmer
Robert Bosch GmbH

Dr. Wolfgang Spreitzer
Gruner AG

Supervisory Board

Chairman:
Assistant Secretary
Günther Leßnerkraus
Ministry of Economic Affairs, Labour and Tourism

Head of Ministerial Department (LMR)
Susanne Ahmed
Ministry of Science, Research and the Arts

Prof. Dr. Michael Auer
Steinbeis-Stiftung

Prof. Dr.-Ing. Bernd Gundelsweiler
Institut für Konstruktion und Fertigung in der Feinwerktechnik (IKFF), Universität Stuttgart

Eckhard Kloth
Testo SE & Co. KGaA

Prof. Dr.-Ing. Gisela Lanza
Institut für Produktionstechnik des Karlsruher Instituts für Technologie

Dr. Mirko Lehmann
IST AG

Dr. Rolf Merte
elexis AG

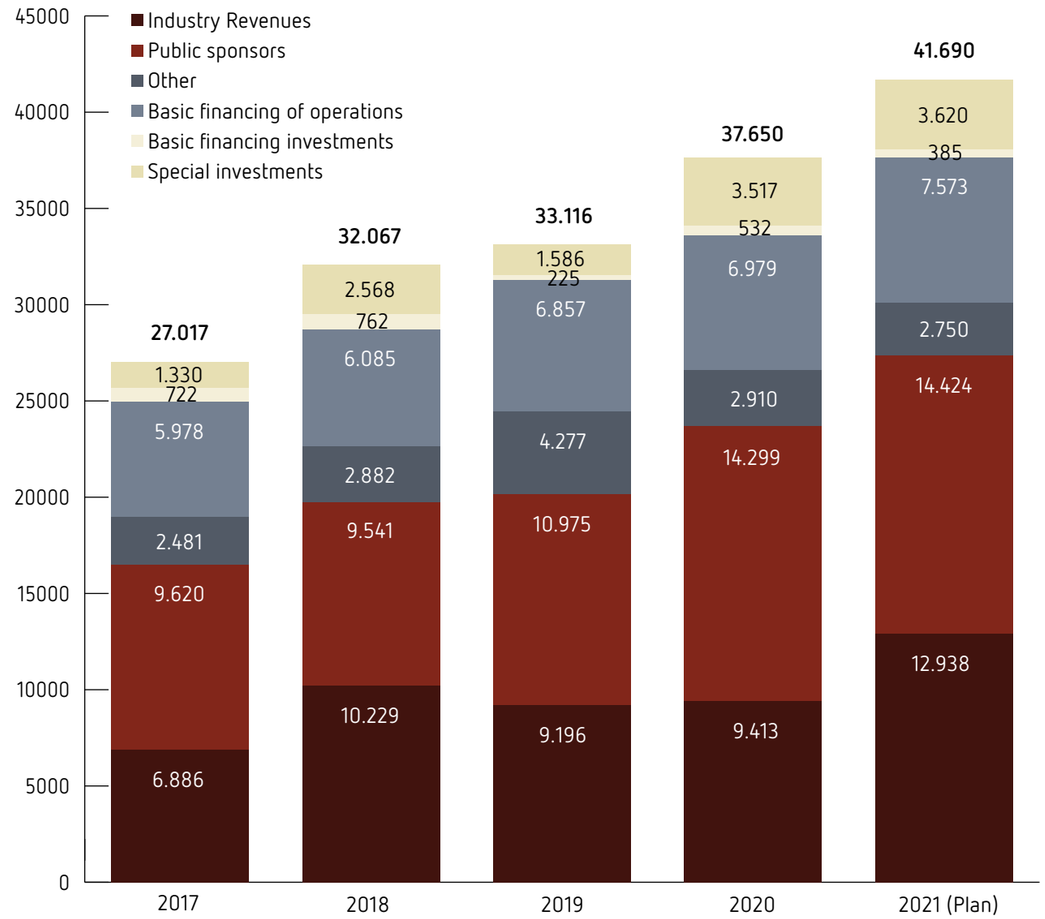
Prof. Dr. Ulrich Mescheder
Hochschule Furtwangen, Institut für angewandte Forschung

Prof. Dr.-Ing. Peter Post
Festo AG & Co. KG

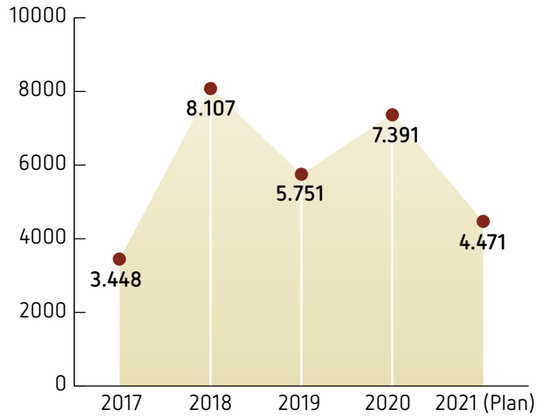
Jürgen Roth
Oberbürgermeister Große Kreisstadt Villingen-Schwenningen

Prof. Dr.-Ing. Ulrike Wallrabe
Institut für Mikrosystemtechnik, Albert-Ludwigs-Universität Freiburg

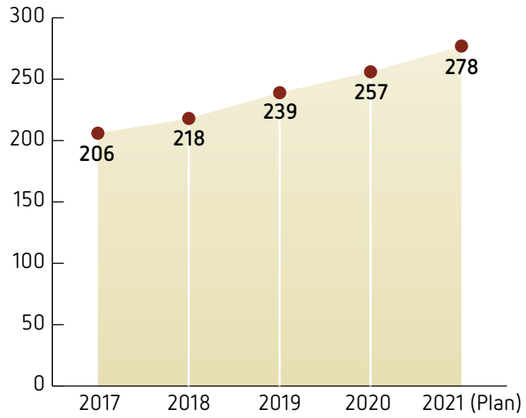
Budgetary figures (in thousand euros)



Investments (in thousand euros)



Employees (full-time equivalents)



Theses

1 Habilitation

13 Dissertations

52 Master's theses

18 Bachelor's theses

10 Student research papers

15 External events + Conferences
(analog, digital and hybrid)

2 Own events

Courses

20 Lectures

2 Seminars

1 Colloquia

11 Internships

Publications

50 Journals + Online magazines

21 Conference talks

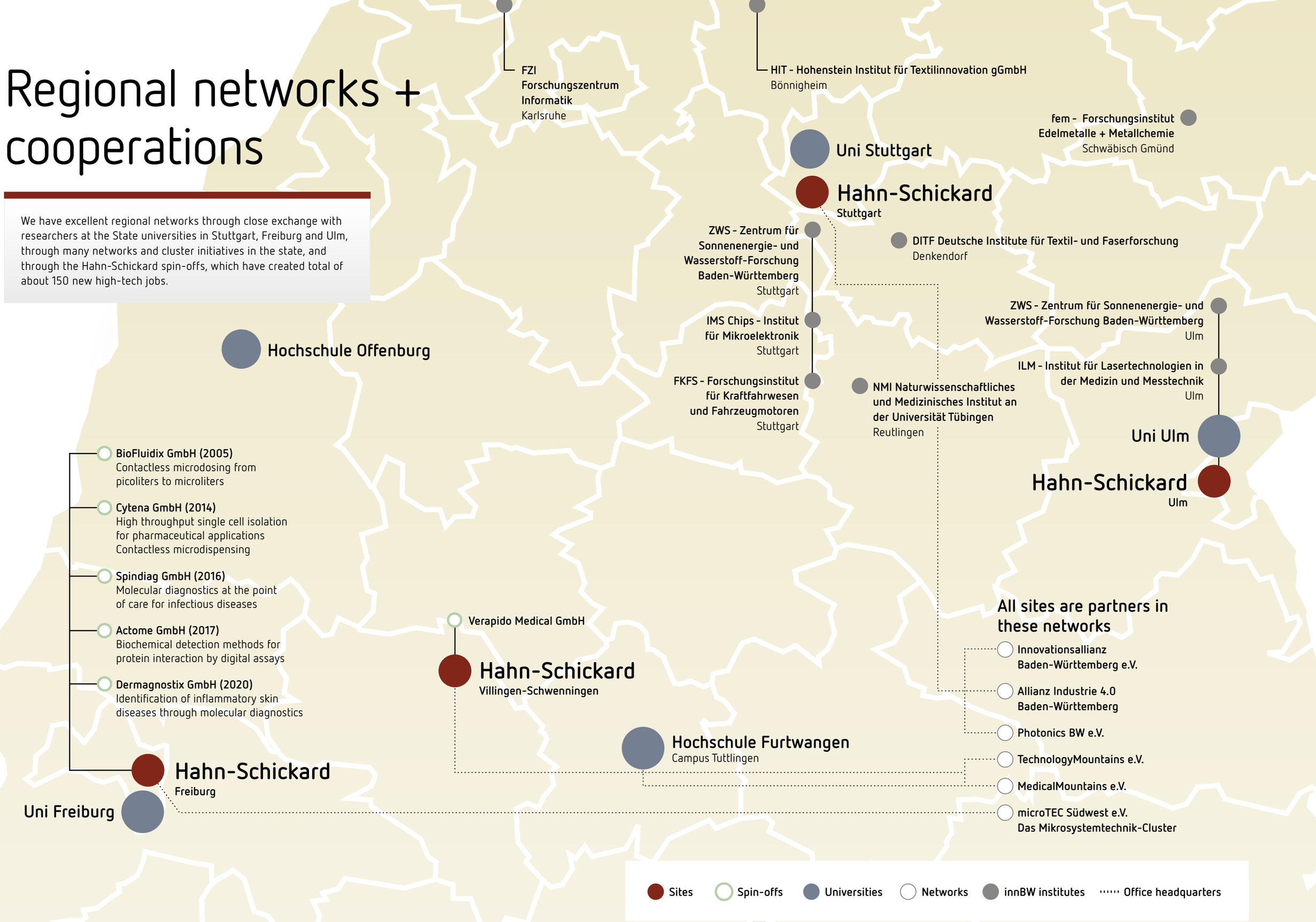
7 Published final reports

All scientific publications from Hahn-Schickard.

89 Granted patent families

Regional networks + cooperations

We have excellent regional networks through close exchange with researchers at the State universities in Stuttgart, Freiburg and Ulm, through many networks and cluster initiatives in the state, and through the Hahn-Schickard spin-offs, which have created total of about 150 new high-tech jobs.



Cross-regional networks + collaborations

Zuse Association

The Zuse Association represents the interests of independent, non-profit, industry-related research institutes. The association, which is open to technology and industry, has 77 members nationwide. As practice-oriented and creative idea providers, they translate the findings of science into applicable technologies for companies, thus preparing the ground for successful innovations. The Hahn-Schickard Institutes as well as other innBW institutes are among its members.

3-D MID e.V.

The Research Association for Spatial Electronic Assemblies 3-D MID e.V. is the world's largest network for MID technology, with around 100 members from manufacturers, users and research institutions in the fields of engineering, materials, injection molding, structuring/metallization as well as mounting, soldering and testing. Founded in 1992, the non-profit association pursues the goal of promoting and further developing MID technology through joint research and appropriate measures for the exchange of experience and public relations work.

AiF - Research network for mid-size companies

To make it easier for smaller and mid-size companies to realize projects in microsystems engineering, we work intensively with funding bodies such as the German Federation of Industrial Research Associations (AiF) through whose network we have already successfully implemented many projects for industry.

EPoSS e.V.

Hahn-Schickard is actively involved as a member of EPoSS e.V., a European network of companies, research institutions and universities with the aim of further developing the topic of "Smart Systems" and establishing permanent initiatives to promote technological development and the European research landscape. Strategic research agendas flow directly into numerous calls for proposals as results of the EPoSS working groups.

Organic and Printed Electronics Association (OE-A)

The OE-A is the leading international industry association for organic and printed electronics and represents the entire value chain of this industry. Well over 200 companies from Europe, Asia, North America and Africa work together in the OE-A to further promote the development of a competitive infrastructure for the production of organic electronics. The OE-A builds a bridge between science, technology and application and was founded in 2004 as a working group within the VDMA.

Quantum Photonics Network - QPhot

The ZIM network QPhot aims to facilitate the implementation of new ideas for products and services in the field of quantum photonics by identifying synergies and creating roadmaps from the fields of quantum technologies, optics, and electronics along the entire supply chain. The resulting key components, modules and enabling technologies will serve as the basis for novel applications, services, and devices. The network is funded by the German Federal Ministry for Economic Affairs and Energy.

Members

A membership at Hahn-Schickard is worthwhile. As a member of Hahn-Schickard, you influence our thematic focus, the future topics we tackle, and always remain up to speed about the results of our preliminary research.

When it comes to funding projects or finding partners, we establish regional, national and international contacts for your business. Through our close ties to universities and other research institutes, you will always have your finger on the pulse with us.

Samples from our members

Testimonials

IST AG has been relying on Hahn-Schickard's support for years. The broad know-how along the complete value chain of sensor development is unparalleled and helps us to realize new ideas again and again. The experts from the field of bio-analytics are at our side as a partner who supports us in this exciting and rapidly growing market and shows us completely new approaches.

Dr. Florian Krogmann
Chief Research & Development Officer | Innovative Sensor Technology IST AG

As an established partner of our customers in the development of innovative solutions, we benefit from the excellent collaboration with the broad-based team of experts at Hahn-Schickard.

Dietmar Kurzeja
Manager Advanced Engineering | Possehl Electronics Deutschland GmbH

We spun off from Hahn-Schickard and the University of Freiburg back in 2005. Since then, we have carried out many joint research and development projects. As a result, new products continue to emerge for us. After 16 years, we know each other very well and are happy to rely on each other again and again! And I am pleased that both Hahn-Schickard and the University appreciate the quality of our dosing technology solutions. They are good customers of ours.

Dr.-Ing. Andreas Ernst
CEO | BioFluidix GmbH

Together with Hahn-Schickard, we have already succeeded several times in developing innovative new products and transferring them to series production. Funded ZIM and BMBF projects often served to determine the basic principles. The further development of the final product often took place bilaterally.

Dr. Andreas Pojtinger
CEO | 2E mechatronic GmbH & Co. KG

Our 2020 highlights

We work primarily with small and mid-size enterprises (SMEs) via direct research and development contracts or through funded projects. We have collected the highlights from this project work on the following pages.

But we also highlight individual achievements of our employees via the short articles. Thanks to all our network and project partners for the trusted collaboration!

With our production line in our own clean room, we cover the entire value chain of series production of test carriers for in vitro diagnostics in medium batch sizes (>200,000 units/year).

Smooth operations: We manufacture the cartridges for the SARS-CoV-2 PCR rapid test for Spindiag GmbH.

Rapid MRSA detection to laboratory-based corona point-of-care testing

"The last few months have demanded a lot from all of us, but with our combined efforts we did it!" says Dr. Markus Rombach. He is in charge of the development project at Hahn-Schickard and, together with production manager Dr. Rouven Streller, has established the disposable test cartridges in production in accordance with the specifications of the distributor Spindiag.

Hahn-Schickard produces the cartridges for the handy "Rhonda player" analyzer for the market launch on behalf of Spindiag on its own production line in multi-shift operation. "With the certification of our quality management system according to the medical device standard EN ISO 13485, we have reached an important milestone. It enables us to develop and manufacture in vitro diagnostics for clinical and point-of-care applications with the highest quality requirements," explains Professor Roland Zengerle, Hahn-Schickard Institute Director in Freiburg and Head of Laboratory for MEMS Applications at the Department of Microsystems Engineering at the University of Freiburg.

In 2016, six Hahn-Schickard employees founded Spindiag GmbH:
Dr. Gregor Groß-Czilwik, Dr. Mark Keller, Dr. Frank Schwemmer, Dominique Kosse, Dr. Oliver Strohmeier und Dr. Daniel Mark.
Source: Spindiag GmbH

Spindiag receives EU market approval for Rhonda Corona rapid PCR test. Source: Spindiag GmbH

Highest quality and hygiene standards must be maintained on the production line.

The fully automated Rhonda rapid PCR test system consists of an analyzer with a test cartridge. Source: Christian Eichenauer, scinelion

Molecular diagnostics for point-of-care use: mobile on-site testing, digital read-out of results
Spindiag's Rhonda system is based on joint research work for the detection of multi-resistant germs and will be able to detect up to 36 viral and bacterial parameters in well under an hour. The test procedure is based on the so-called "polymerase chain reaction" (PCR), the gold standard of infection diagnostics. Whether a person is infected with the SARS-CoV-2 pathogen or not can be determined quite precisely with Rhonda. The system is characterized by its simple, safe testing procedure.
The standard swab for sampling is inserted directly into the "Rhonda disk." No further work with the patient sample is necessary, minimizing the risk of contamination and infection for the staff.

The State of Baden-Württemberg provided 6 million euros in fast-track funding for the development.
The Ministry of Economic Affairs, Labour and Housing Construction for Baden-Württemberg supported the development phase of the SARS-CoV-2 test with a funding amount of 6 million euros. For the first time in history, the economic committee of the State parliament convened for a special online session due to the urgency of granting this funding.

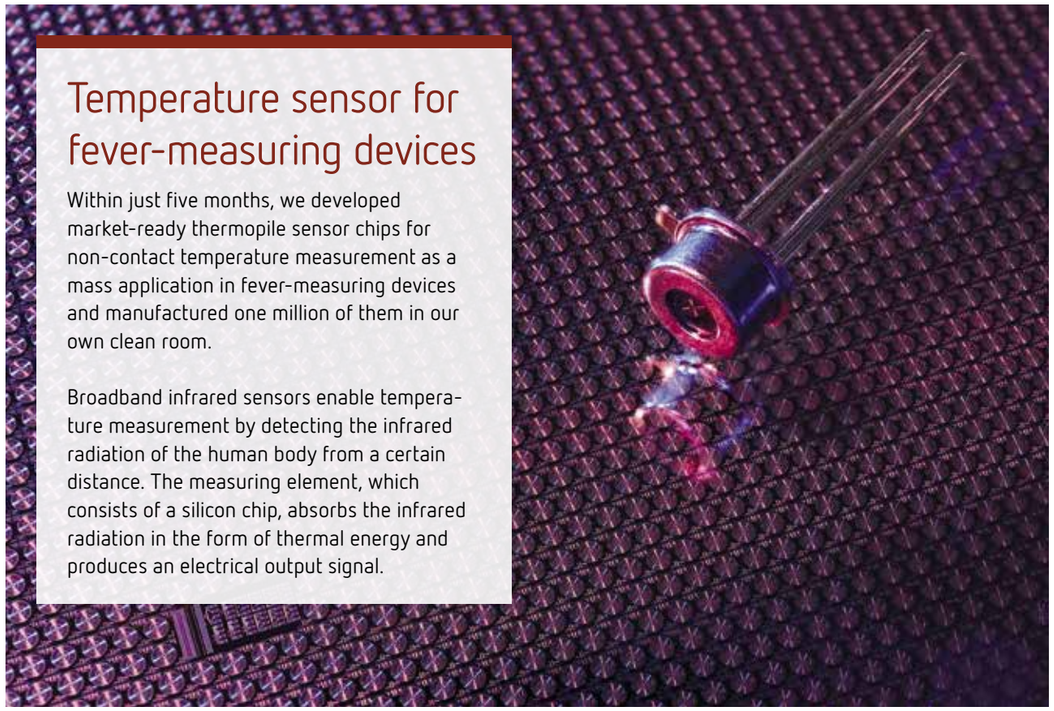
One of the first sites to use the innovative test was Klinikum Stuttgart. At the market launch of the Spindiag Rhonda test system on November 16, 2020, Minister of Economic Affairs Dr. Nicole Hoffmeister-Kraut convinced herself of its functionality and got tested herself on the spot.

For 17 years, scientists led by Professor Zengerle have been conducting research in the field of "Lab-on-a-Chip" under the umbrella of Hahn-Schickard and the University of Freiburg. The CE-IVDD-compliant corona PCR rapid test of Spindiag is another impressive example of his team's success. Time and again, basic research at the University has given rise to concrete product visions that lead seamlessly into industrial application via applied research and development at Hahn-Schickard.

Whether for a small or large batch, we guide the customer from the prototype to the finished medical product. We manufacture in our own clean room. But we can also make the manufacturing processes we have developed available to the customer and integrate them for the customer or another service provider.

Dr. Rouven Streller
Leiter Lab-on-a-Chip-Fertigung | Hahn-Schickard

Product highlights



Temperature sensor for fever-measuring devices

Within just five months, we developed market-ready thermopile sensor chips for non-contact temperature measurement as a mass application in fever-measuring devices and manufactured one million of them in our own clean room.

Broadband infrared sensors enable temperature measurement by detecting the infrared radiation of the human body from a certain distance. The measuring element, which consists of a silicon chip, absorbs the infrared radiation in the form of thermal energy and produces an electrical output signal.

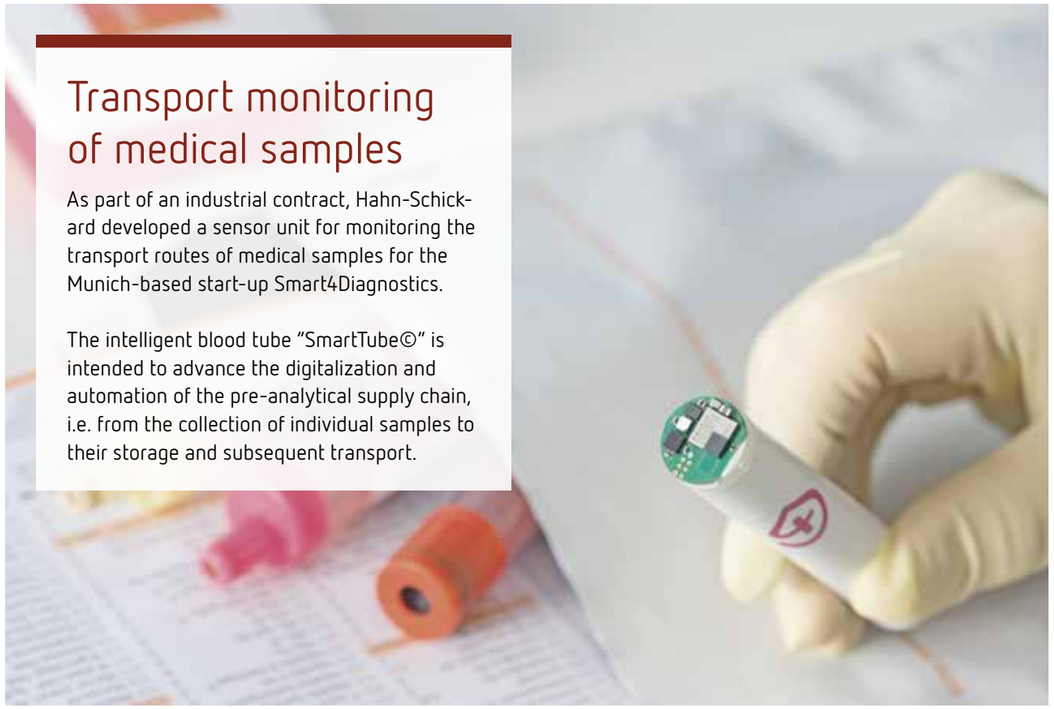
Endotoxin test with the LabDisk

For the innovative Sievers Eclipse platform from the company SUEZ Water Technologies & Solutions, we have developed a LabDisk which, by liquid handling alone, can test 21 samples simultaneously and fully automated, simple, safe and reliable testing for endotoxin contamination. This is of great importance for the production of medical infusions, for example.

Digital process chains for production

In the DigiPro project, digital process chains were used to equip a connector with individual geometries with temperature and humidity sensors. Such individualized microsystems enable new modes of operation and provide interfaces for end-to-end information exchange as a basis for Industry 4.0 applications.

It took only a few months from development to prototype production, which is proof of how innovative ideas can be implemented quickly and efficiently through digital process chains.

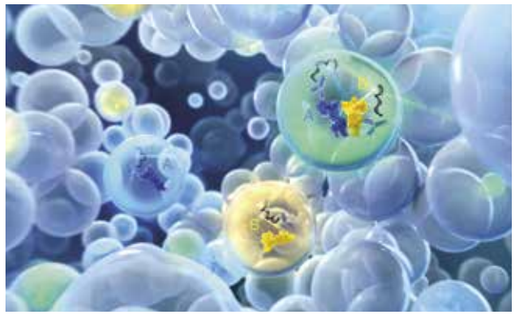


Transport monitoring of medical samples

As part of an industrial contract, Hahn-Schickard developed a sensor unit for monitoring the transport routes of medical samples for the Munich-based start-up Smart4Diagnostics.

The intelligent blood tube “SmartTube©” is intended to advance the digitalization and automation of the pre-analytical supply chain, i.e. from the collection of individual samples to their storage and subsequent transport.

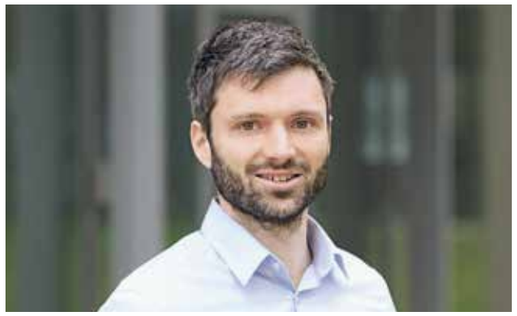
Additional highlights



30.01.2020

Actome is named "TOP 50 Start-up 2019"

Out of 741 start-ups, the spin-off from Hahn-Schickard and the University of Freiburg placed 29th in the top-50 ranking of start-up initiatives entitled "Für Gründer" (For Founders). Actome GmbH's analysis method, which translates protein complexes into DNA codes, makes it possible to precisely determine proteins and their interactions in the human body in large numbers for the first time.



03.03.2020

Vector Foundation supports electrolysis research

According to the Intergovernmental Panel on Climate Change, all areas of life must become emission-free by 2050 and emissions of greenhouse gases such as carbon dioxide (CO2) must reach a negative output in order to prevent the worst consequences of climate change and limit the temperature increase to 1.5 degrees Celsius. Dr. Severin Vierrath is meeting this challenge with a research approach that focuses on two core innovations in CO2 electrolysis in order to significantly increase its efficiency.

31.03.2020

Artificial intelligence in the Escape Room

Experience how complex data can be clearly prepared and interpreted with the help of artificial intelligence. In the EscapeROOM of the Mittelstand 4.0 Competence Centre Textil vernetzt, you will embark on a journey through time to the year 2083 and train your own AI. Topics such as data reduction, classification or neural networks are made tangible in a playful manner.

07.04.2020

Crisis aid from the 3D printer

Techies vs. Corona - under this name, around 60 scientists, technology enthusiasts and DIY tinkerers from Freiburg and the surrounding area got together to produce makeshift facial visors using 3D printing technology. These were distributed to clinics, doctors' offices and nursing homes. Dr. Severin Vierrath and Dr. Matthias Breitwieser, division managers at Hahn-Schickard, coordinated the outreach project.

20.04.2020

Production of electrolyzers

As part of the "Electrolysis made in Baden-Württemberg" project, Hahn-Schickard is developing cell-integrated sensor technology as a foil system with associated readout electronics. The aim of the project is technology transfer for electrolyzer production and the market-oriented development of a system demonstrator in Baden-Württemberg.

23.04.2020

Eposs Annual Forum 2020 as a digital conference

Hahn-Schickard and microTEC Südwest held the EPoSS conference for the first time with the European Platform for Sport Innovation (EPSI). EPSI stands for the sports sector as an industrial sector that picks up on new ideas and technological innovations from digitalization and networked collection and evaluation of data at an early stage. The event focused on smart systems that can be used in sports and for health and on key technologies for wearable systems for vital parameters.

Additional highlights

04.05.2020

New projects in personalized medicine

The State of Baden-Württemberg is funding the implementation of selected projects from the "Forum Health Center Baden-Württemberg" with a total of 50 million euros. Together with other partners, we are developing a translational platform for nanosensor-based medical diagnostics as well as diagnostic procedures and test systems for immune-associated diseases.

Source: BOS Balance of Storage Systems AG

29.05.2020

BMBF program "World Storage"

Stationary electricity storage for rural, decentralized electrification should be cheap, robust and easy to recycle. Because the new storage concept developed by the team led by Dr. Matthias Breitwieser and Dr. Severin Vierrath has the potential to be a leapfrog innovation, it is now receiving financial support from the German Federal Ministry of Education and Research (BMBF) under the "World Storage" program.

16.06.2020

Digital platforms for laundries

Hahn-Schickard is a partner for sensor technology and artificial intelligence in the German-American research network "IntWash," which focuses on smart laundries and other innovations along the textile value chain. It offers the laundry industry in the USA innovative solutions for the full automation of commercial laundries.

02.07.2020

Nils Paust is a private lecturer

Dr. Nils Paust, deputy director of the institute and division, has completed his habilitation and is now a private lecturer at the University of Freiburg. His habilitation focuses on the miniaturization, automation, and parallelization of biochemical analysis methods. For more than five years, he has headed the "Microfluidic Platforms" unit, which is made up of five groups.

16.07.2020

Showcase for European electronic products

The online platform "5E Digital Showcase" aims to increase the visibility of innovative European electronic products. After a short registration, European companies or research institutes, start-ups or student or research teams can put their innovative products on the showcase free of charge and thus increase their visibility. Hahn-Schickard developed this idea with other partners.

01.09.2020

Steffen Keller is new head of MEMS division.

The physicist took over three research and development groups in the field of silicon MEMS. Dr. Steffen Keller brings extensive experience in industrial advance and product development of sensor technology and semiconductor process technology. He is responsible for the development of silicon-based intelligent microsensors and microactuators spanning the entire spectrum from the idea to production transfer.

Additional highlights

21.09.2020

Hahn-Schickard in Stuttgart acquires new office floor.

Founded in 1959 in Stuttgart, the Institute of Micro Assembly Technology moved to the Vaihingen campus of the University of Stuttgart in 2007. Thanks to positive developments and the associated increase in space requirements, the building at Allmandring 9b has been expanded by an additional floor and will have more than 400 square meters of new office space. On September 21, all those involved in the construction and the employees at the site celebrated a topping out ceremony.

12.10.2020

Top rankings in start-up competitions

The start-up around founder and Hahn-Schickard group leader Dr. Katharina Dormanns achieved second place in the "Life Science & Health Care" category of the CyberOne 2020 start-up competition. The business idea also came in first in the "Science4Life Venture Cup 2020." Dermagnostix develops molecular tests for skin diseases.

01.11.2020

Mittelstand 4.0 Competence Centre Textil vernetzt

The "Mittelstand 4.0 Competence Centre Textil vernetzt" supports small and mid-size enterprises (SMEs) with free digitalization offerings such as workshops and implementation projects regarding digital transformation and AI-based applications. The network of experts has helped over 3,000 SMEs thus far. The main topics include smart sensor systems, retrofit systems for production processes, and sensor integration.

02.11.2020

Hien Nguyen receives two prizes for her research.

The research associate is investigating the proton exchange membrane in fuel cells in the Electrochemical Energy Systems group led by Dr. Matthias Breitwieser and Dr. Severin Vierrath. She was honored twice for her outstanding work: with the Robert Mayr Young Scientist Award from the University of Freiburg and second place in the "Energy and Environment - My Idea for Tomorrow" competition.

15.11.2020

Award for digital manufacturing processes

With the topic "Individualized production based on digital manufacturing processes," we won the award for "100 Places for Industries 4.0 in Baden-Württemberg." It is awarded by the "Allianz Industrie 4.0 Baden-Württemberg" initiative and aims to bundle competencies from production, information and communication technology, network the key players and support SMEs in implementing Industry 4.0 through innovative transfer offers.

18.12.20

Selective metallization for thermosets

In the Slimdup project, a process was developed for the laser-based generation of conductive 3D structures on thermoset 3D packages and for the direct electric connection of encapsulated electronic components. In order to achieve optimum performance and process reliability, the effects of fillers in thermoset molding compounds on the selective metallization process were investigated.

Participation in committees

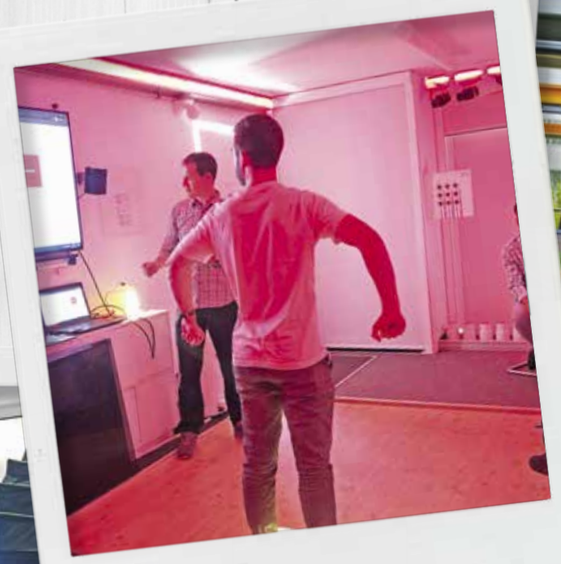
Name	Type of engagement	Name of committee and/or organization
S. Becker	Member	Working Group Accounting / Controlling for the Zuse Association
C. Blattert	Member	Specialist Group Surfaces, microTEC Südwest e.V.
A. Dehé	Program Committee	Smart Systems Integration Conference
	Member	AMA Science Council
	Economic Advsiory Council	Sparkasse Schwarzwald-Baar
	Member	IHG-SBH Working Group Production 2030
	Advisory Council	Innovation and Research Center (IFC) Tuttlingen at the HFU
	Member	Steinbeis Board of Trustees
	Board Member	CoHMed
	Spokesperson	Innovationsallianz Baden-Württemberg (innBW)
	Board Member	TechnologyMountains e.V.
	Partner	MedicalMountains e.V.
	Advisory Council, Science, Research and the Arts	Baden-Württemberg International (bw-i)
	Member	Allianz Industrie 4.0 Baden-Württemberg
	Program Committee	Eurosensors
W. Eberhardt	Member	VDE/VDI Association for Electrical, Electronic and Information Technologies (GMM), Technical Committee 5.5 Mounting and Connection Technology
	Member	VDE/VDI Association for Electrical, Electronic and Information Technologies (GMM), Technical Committee 5.6 Mechatronics integrated assemblies
B. Folkmer	Member	NAFEMS - The International Association for the Engineering Analysis Community
	Member	ANSYS User Club e.V.(AUC)
	Board Member	Virtual Dimension Center w.V. - Zentrum für Digitale Produktentwicklung (Center for Digital Product Development / Virtual Dimension Center - VDC TZ St. Georgen)
	Member	Specialist Group Smart Systems, microTEC Südwest e.V.
K.-P. Fritz	Member	Federal Ministry of Education and Research (BMBF)
K. Gläser	Member	Specialist Group Printing Technologies, microTEC Südwest e.V.
T. Grözinger	Member	VDE/VDI Association for Electrical, Electronic and Information Technologies (GMM), Technical Committee 5.6 Mechatronics integrated assemblies
R. Günzler	Scientific Committee Member	Smart Systems Integration Conference
	Executive Committee Member, Co-Chair Working Group Healthy Living	European Technology Platform on Smart Systems Integration (EPoSS)
	Advisory Member in the German Committee	Interreg North-West Europe Programme
	Evaluator und Reviewer	Horizon 2020, European Commission
S. Herrlich	Member	Steering Committee TechnologyMountains e.V.
	Member	Steering Committee Digital Mountains – Digitalization Network of the Schwarzwald-Baar-Heuberg region
	Deputy Board Member	Connected Health in Medical Mountains (CoHMed)
T. Hutzenlaub	Member	BioLAGO (Health Network in the Four-Country Region of Lake Constance)
	Member	Proteomics4Future (ZIM- Cooperation Network for Protein Analysis)
	Member	European Liquid Biopsy Society (Network for Liquid Biopsy)
B. Inthasane	Office Head	Smart Home & Living Baden Württemberg e.V.
B. Johannsen	Director	Medical Technology Network of the Black Forest VDI District Association
S. Karmann	Member	Specialist Group, microTEC Südwest e.V.
	Evaluator	Trade Mark Vergabekommitte der EPoSS
S. Kartmann	Expert	DIN (German Institute for Standardization) NA 055 DIN Standardization Committee for Laboratory Devices and Installations (FNLa) NA 055-01-08 AA, Working Committee Volumetric Instruments
	Expert	ISO/TC 48/WG 5 Liquid Handling Devices - Automatic
Y. Manoli	Life Fellow	Institute of Electrical and Electronics Engineers (IEEE)
	Member	Circuits and Systems Society (IEEE)
	Member	Solid-State Circuits Society (IEEE)
	Member	Electron Device Society (IEEE)
	Member of the Editorial Board	Journal of Low Power Electronics
	Member	Association for Electrical, Electronic and Information Technologies (VDE)
	Member, Specialist Committee	GI/GMM/ITG FG2 (Analog circuit design)
	Reviewer	German Research Foundation (DFG)
	Member, Program Committee	IEEE International Solid-State Circuits Conference (ISSCC)

Name	Type of engagement	Name of committee and/or organization
Y. Manoli	Member, Program Committee	IEEE European Solid-State Circuits Conference (ESSCIRC)
M. Nagler	Member	Working Group Accounting / Controlling for the Zuse Association
C. Pecha	Member	Executive Committee of the AIF Research Associations South
	Member	Economic Advisory Board of Sparkasse Schwarzwald-Baar
C. Rathfelder	Spokesperson	Working Group Modularity, Smart Home & Living Baden-Württemberg e.V
	Member	Specialist Group Smart Systems microTEC Südwest e.V.
	Member	Program Committee Embedded World Conference 2020
	Deputy Chairmain	Smart Home & Living Baden-Württemberg e. V
S. Rockstroh	Member	Working Group Accounting / Controlling for Zuse Association
R. Rother	Member	Specialist Group Surfaces, microTEC Südwest e.V.
A. Schumacher	Guest Member	Technical Committee 10: Microjoining Technology of the German Research Association for Welding and Allied Processes e.V. (DVS)
J. Seybold	Member	Photonics BW e.V., Innovation Network for Optical Technologies
A. Sikora	Spokesperson for the Research Cluster Technologies for Intelligent Systems	Research Network Baden-Württemberg Center of Applied Research (BW-CAR)
	Spokesperson	Specialty Group Smart Systems, microTEC Südwest e.V.
	Chairman	embedded world Conference
	Chairman of Advisory Board	embedded world Exhibition
	Scientific Advisory Council	Wireless Congress - Systems and Applications
	Scientific Advisory Council	IoT Conference – From Sensor to the Cloud
	Board Member	OMS-Group e.V.
	Chairman of the Board of Advisors	cedalo AG
S. Spieth	Member	Expert Committee Implantable Assistance Systems of the DGBMT
	Member	Specialty Group, Micromedical Engineering, microTEC Südwest e.V.
	Deputy Chairman	AiF Medical Technology Research Alliance (AiF-FAM)
S. Vierrath	Member	Research Network Functional Nanostructures
	Associate Member	Cluster of Excellence livMatS
	Member	Cluster Fuel Cell emobilBW
	Member	Electrochemical Society
F. von Stetten	Specialist Group Spokesperson	in-vitro diagnostics, microTEC Südwest e.V.
R. Zengerle	Member	German National Academy of Sciences, Leopoldina
	Member	Advisory Board des Journals Lab on a Chip
	Member	Advisory Board Member for IVAM (Microtechnology and Advanced Materials Network)
	Chairman of the Board	VDE/VDI Association for Electrical, Electronic and Information Technologies (GMM)
	Member	GMM VDE/VDI Committee Area 4.1: Fundamentals about Microsystems Engineering and Nanotechnology
	Member	Steering Committee Microsystems Engineering Congress
	Member	Steering Committee Allianz Industrie 4.0 Baden-Württemberg
	Member	Science Advisory Board for Cancer Research Institute in Lille, France
	Member	Research Network Functional Nanostructures
	Advisory Board Member	Association of Friends of the University of Freiburg im Breisgau e.V.
	Member	Forum Health Center Baden-Württemberg
	Reviewer	Young Innovators
A. Zimmermann	Member	German Materials Society (DGM)
	Member	International Microelectronics and Advanced Packaging Society (imaps)
	Member	Organic and Printed Electronics Association (oe-a)
	Reviewer	German Research Foundation (DFG
	Member	Multi Materials Micro Manufacturing (4M)
	Member	Conference Committee FLEX Europe
	Deputy Chairwoman	Research Advisory Board of the Research Association Spatial Electronic Assemblies 3-D MID
	Reviewer	Reviewer Group 6: German Federation of Industrial Cooperative Research Associations Otto von Guericke (AiF)
	Member, Scientific Committee	13th International Congress Molded Interconnect Devices
	Member, Scientific Committee	World Congress on Micro and Nano Manufacturing
	Member	Speakers' Circle for the Network Nanoma
	Member, Steering Committee	Microsystems Engineering Congress

Behind the Scences

Despite the lockdown that put public life to a halt, there was a lot going on behind the scenes at our company.

360-degree shots in printing technology - where is the best place for the camera?



Samples in the AI EscapeROOM, Mittelstand 4.0 Competence Centre Textil vernetzt.

Topping out ceremony for the 3rd floor in the institute building in Stuttgart (September 21, 2020).

We'll do almost anything for new photos - even transforming a sitting area into a living room for the telemedicine theme. Photographer Bernd Müller and model Dr. Andreas Schreiber did their best. (October 5, 2020)

Photo shoot in the metallization lab for the "BW Electrolysis" project.

For the first time, Villingen-Schwenningen took part in the city cycling competition STADTRADELN from September 14 to October 4. Our cyclists did a super job for the environment.

For the short video clip "Molecular Diagnostics for the Point-of-Need," it was time for some employees to "roll the cameras, turn up the volume." Here our protagonists showed their telegenic side. (October 1+2)

And action!

Youtube channel

While we haven't gone into the film industry, we do produce short clips from time to time to give you an insight into our work. To make sure you don't miss a single video, subscribe to our YouTube channel:

You can find our YouTube channel at the following address.
https://t1p.de/Hahn-Schickard-YouTube-Kanal

Molecular diagnostics at the point-of-need

With our LabDisk, we have developed a solution in which all components and steps of a laboratory test are housed in the smallest possible space. This allows us to bring the test exactly where it is required most: at the point-of-need.

You can find the video at the following address.
https://t1p.de/MolekulareDiagnostik

Digital process chains for microsystems

In the DigiPro research project, digital process chains were used to equip a connector with individual geometries with temperature and humidity sensors. The individualized microsystems enable new modes of operation and provide interfaces for the continuous exchange of information and thus the basis for Industry 4.0 applications.

You can find the video at the following address.
https://t1p.de/DigitaleProzesskette

Digitalization in injection molding production

The use of AI methods holds enormous potential in the industrial environment. Using our injection molding production as an example, we analyze the individual process steps together with you and go in search of potential.

You can find the video at the following address.
https://t1p.de/DigitalisierungSpritzgussproduktion

Products with individualized microsystems

We show how new functionalities and smaller dimensions of micro products can be achieved by a higher degree of integration of materials and components. Individualized geometries and product-specific functions are adapted to the potential applications and become individual products through intelligent and digital production techniques.

You can find the video at the following address.
https://t1p.de/IndividualisierteMikrosysteme

Newsletter

Our free news service informs you around six times a year about current research and development topics and at which trade fairs and events you can experience our developments. Already subscribed?

You can subscribe to our newsletter using the following link.
https://www.hahn-schickard.de/newsletter

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Editorial office:
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Design:
Bytebetrieb Gmbh & Co. KG, Stuttgart

Printer:
Müller Offset Druck GmbH

Status:
April 2021
Alle Angaben ohne Gewähr

Cover page
The test system is easy and safe to use, time-saving and mobile. It is on the market as a CE-IVDD-compliant medical product from Spindiag GmbH, a Hahn-Schickard spin-off. The cover picture shows Dr. Daniel Mark, CEO of Spindiag GmbH, at the market launch of the "Rhonda" rapid PCR test system at Klinikum Stuttgart. Economics Minister Dr. Nicole Hoffmeister-Kraut got tested with it herself on the spot.
Source: Jonas Ratermann