HOCHSCHULE FURTWANGEN UNIVERSITY | HFU
Institute for Microsystems Technology

Annual review of 2025 - iMST

In 2025, our research institute experienced a year marked by intensive scientific activity, strategic progress, and strong national and international collaboration. A wide range of research projects, key milestones, conference contributions, successful funding acquisitions, and targeted investments in research infrastructure highlighted the institute's vitality, performance, and future-oriented development.

The year began with a clear focus on strengthening international engagement. Supported by a DAAD research scholarship, Sonja Müller spent the first half of the year at the University of British Columbia in Canada, where she advanced her doctoral research and gained valuable international experience.

In February, collaboration with industry partners took center stage. A project partner visit to Vascular Systems in Berlin within the Diakat+ project enabled close alignment between research and application. This exchange was further deepened in March during a status meeting with the VDI. At the same time, Berat Taskin joined the institute through the ProProf program. His position is intentionally shared between HFU and Karl Storz, reinforcing the long-term integration of academic research and industrial practice.

A highlight of the spring semester was the large number of laboratory tours hosted at the Technology Laboratory for Nano- and Microsystems. These tours, including events held as part of the 60th anniversary celebrations of the Precision Engineering alumni, offered a broad professional audience valuable insights into the institute's research infrastructure, ongoing projects, and current technological developments.

In April, the institute hosted the third consortium meeting of the EU-funded project "HelpMeWalk" at the Rottweil Research Center. Beyond advancing project work, the meeting provided an excellent platform to showcase the university, its research institutes, and their close collaboration with industrial partners.

The institute's strong scientific presence became particularly visible in May at the 20th anniversary conference of the MicroTEC Südwest Cluster in Baden-Baden. With eight participants and four poster presentations, many of them contributed by early-career researchers, the institute made a notable contribution to the regional innovation ecosystem.

Throughout the year, the institute was actively represented at numerous national and international conferences. These included the BMT Conference in Muttenz/Basel, the Eurosensors Conference in Wrocław with two scientific contributions, the IEEE Sensors Congress in Vancouver featuring a

presentation on crack formation in strain sensors, the MST Congress in Duisburg, and the 18th International Conference on Sensing Technology in Japan.

Strengthening international cooperation remained a key priority, particularly with partners in Poland and France. Several project meetings of the international research initiative MagMetaSurf were held in Szczecin and Furtwangen. In October, the institute welcomed a Polish delegation in conjunction with the celebrations marking the 175th anniversary of Furtwangen University.

October also saw the kick-off meeting of the HAW-EuropaNetzwerke project, involving partner universities from Strasbourg and Szczecin. The subsequent approval of the project marked an important milestone in the institute's strategic European networking efforts. Another major success was the approval of the bilateral ANR–DFG project "Wa2MOS," conducted in cooperation with the University of Strasbourg.

In 2025, the Institute of Microsystems Engineering secured several significant third-party funded projects. These included a DFG–ANR project focused on developing a portable nuclear-magnetic-resonance-based wastewater monitoring system, the iTHzMED project under the HAW-EuropaNetzwerke program aimed at creating a terahertz-based microfluidic sensor platform for medical diagnostics, and the INTERREG project "VitiSense," which addresses the development of connected sensor systems for precision viticulture in the Upper Rhine region.

Continued investment in research infrastructure was another important focus. The launch of the cleanroom construction in Rottweil, a FIB-SEM imaging campaign, and the acquisition of a Raman spectroscopy system with glovebox capabilities established essential foundations for future high-level research.

The institute's scientific output in 2025 comprised a total of 17 publications. Particular emphasis was placed on supporting early-career researchers, who played an active and visible role in both conference presentations and scientific publications.

With several new research projects underway, ongoing expansion of laboratory infrastructure, and further strengthening of international partner-ships, the institute enters the coming year well positioned for continued growth. Students, doctoral candidates, and project partners can look forward to engaging research challenges, emerging tech-nologies, and numerous opportunities for active collaboration and contribution.