



Aims and Activities

- Initiation of common research projects
- Expansion of knowledge and technology transfer
- Optimization of conditions for micro system technology in the Rhine-Main area
- Strengthening the scientific and technological competence
- Implementation of a platform for information exchange and education
- Enforcing international cooperations

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Micro-Nano-Integration

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networking for innovation

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mst - Netzwerk Rhein-Main

Competence Cluster Micro System Technology

Research – Technology – Application

www.mst-netzwerk.de

The German mst-Netzwerk Rhein-Main e.V. is a young initiative, founded in 2004, with more than 30 members in the Rhine-Main area. It comprises manufacturers, users and suppliers of micro system technological products as well as several excellent research organisations and universities. The aim is to promote science and research, to intensify basic research and support projects involving knowledge transfer to industry.

The Rhine-Main area has an excellent industrial scene and research laboratories renowned for their micro- and nanotechnological excellence. The area is known for a strong representation of industrial sectors such as automotive, machine building, electronic engineering, chemistry and life sciences. The region has a high innovation potential and an annual R&D investment of more than 4 billion €.

As such, the Rhine-Main area has the potential to become the leading area in Germany for micro system technology. The mst-Network promotes cooperative projects and assists each member to gain access to the excellent competences of other members. Our long term vision is to establish a large-scale cluster with more than 100 industrial and academic members in a closely linked network of competences in the area of micro- and nanotechnology.

H. Schlaak

Prof. Dr. Helmut F. Schlaak
Chairman mst-Netzwerk Rhein-Main e.V.

Projects initiated by the Network

Micro-Nano-Integration

Technical developments in micro system technology are leading to further miniaturisation of micro structured elements and products and to the utilisation of different nanomaterials. These developments lead to new and improved products, in particular in the area of gas sensors. The project INANOMIK, currently being supported by the German BMBF, investigates the application of metallic nano wires for gas sensors.

Project partners: TU Darmstadt (project leader)
GSI Gesellschaft für Schwerionenforschung
University of Applied Sciences Wiesbaden (IMtech)
arteos GmbH

Optical Distance Sensors and Systems

In this project diffractive optical elements (DOE) are fabricated and integrated into sensors for the determination of distance, which are based on the confocal chromatic measurement principle (CHRocodile distance sensors). These innovative diffractive optical systems lead to a large increase in the performance of the sensors allowing for a wider range of measurement and increased resolution.

Project partners: University of Applied Sciences Wiesbaden (IMtech)
Precitec Optronik GmbH
SCHOTT AG

Thermopile Sensors

Thermopile sensors allow for the determination of surface temperatures and – in combination with optical filters – for the measurement of gas concentrations. The aim of this cooperative project was the miniaturization of the sensor chip, and the assembly in a small package using micro system technological methods. A specific simulation tool has been developed for the optimum design of the micro-thermopiles. Furthermore, the consequent use of novel technologies led to a reduction in chip dimensions and to user friendly packaging presenting a significant improvement over previous solutions available on the world market. Today, these miniaturized sensors are used worldwide in large quantities.

Project partners: University of Applied Sciences Wiesbaden (IMtech)
Heimann Sensor GmbH

International Cooperation

Example Romania

As a young member of the European Union, Romania is an interesting partner for industry and scientific institutions. Therefore, the mst-Network will intensify contacts to related scientific institutions and companies by exchange of information and mutual visits. These activities are being supported by the BMBF.

Project partners: TU Darmstadt, arteos GmbH, sgt Sensorberatung, universities and companies in Bucharest, Cluj, Craiova, and the IMT Institute for Micro Technology in Bucharest