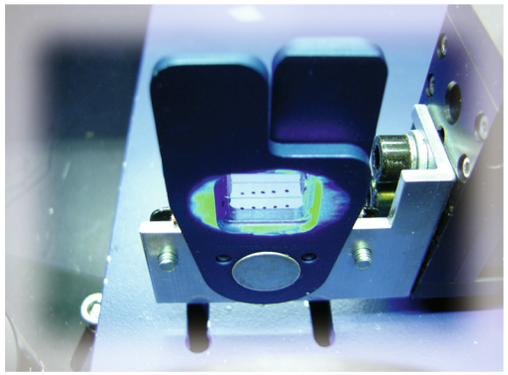
The Centre of Competence „Micro System Engineering in Life Sciences“ at the University of Applied Sciences Jena (UAS Jena) was established in 2006 with the overall intention to combine the experiences of different research groups involved and to profit from the variety of research disciplines at UAS Jena. Research efforts - often in collaboration with or commissioned by industrial partners - are concentrated on micro motor-, micro actuator- and micro sensor engineering, micro sensor based analytical chemistry, software development for micro system processes and bio-micro systems technology.



Spot array for fluorescence measurement

www.mst.fh-jena.de

Speaker

Prof. Dr. rer. nat. habil. Karl-Heinz Feller

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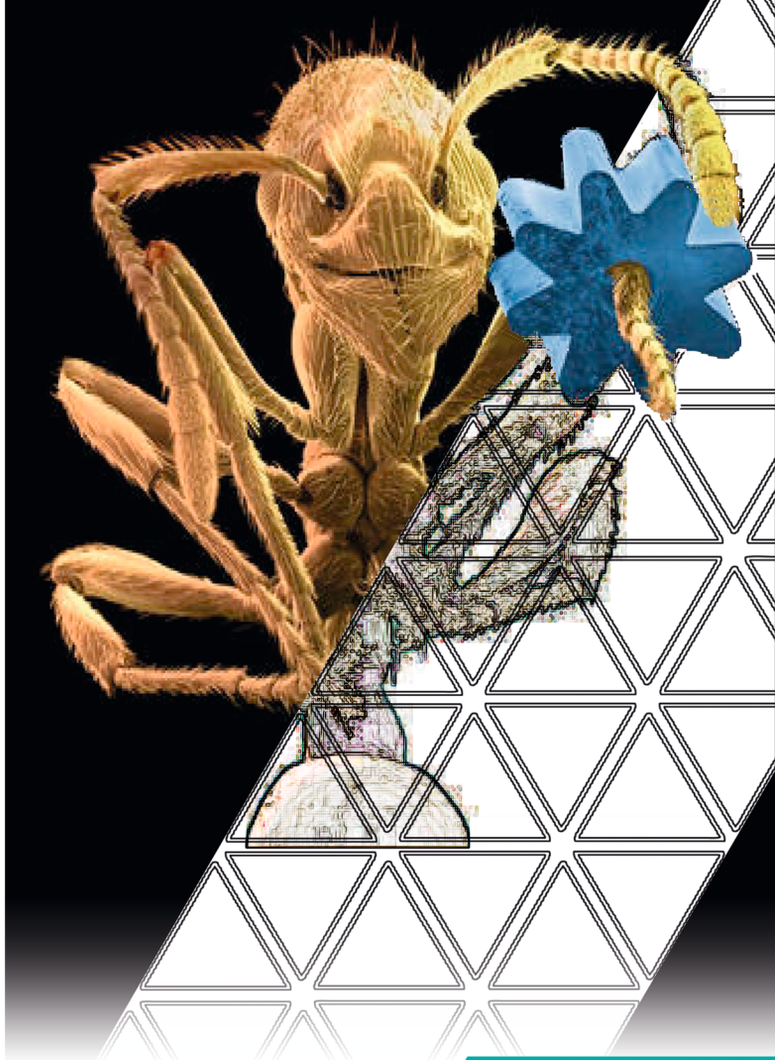
Cover: Ant with micro gear wheel (reference: kage-mikrofotografie)

Fachhochschule Jena
University of Applied Sciences Jena

Centre of Competence Micro System Engineering in Life Sciences



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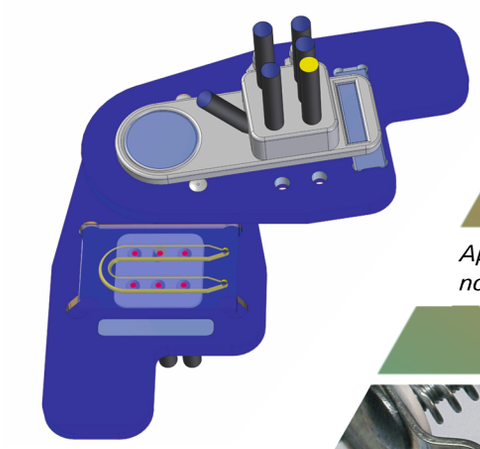
Research topics and intentions

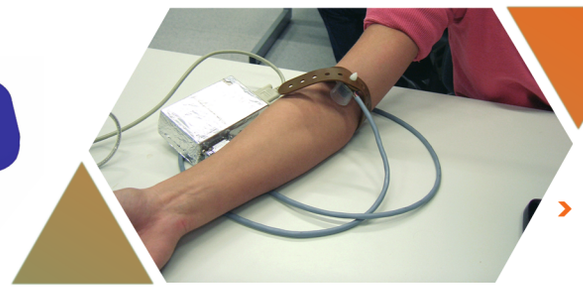
- *Development of components and comprehensive solutions in the field of micro analysis and micro sensors*
- *Recording and interpretation of micro system engineering data*

Intensive cooperation with regional, national and international partners (companies, research institutes)

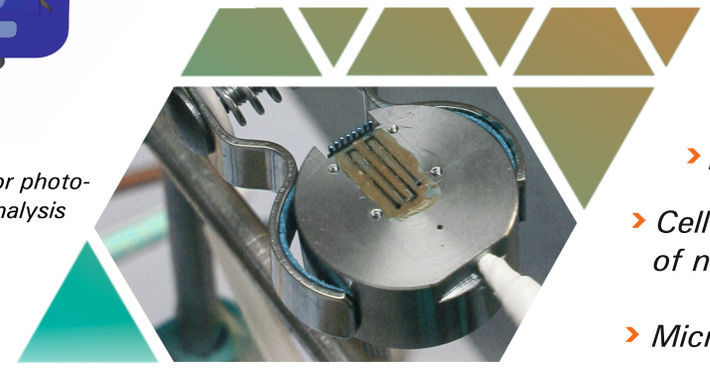
Research groups and fields of application



Measuring cell for photo-metrical micro analysis

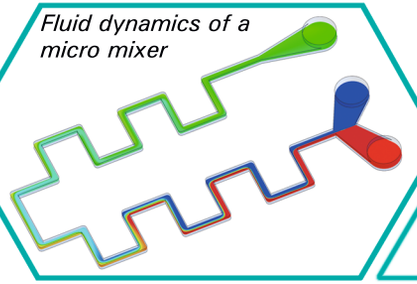


Application of the electronic nose to detect non-invasive diseases

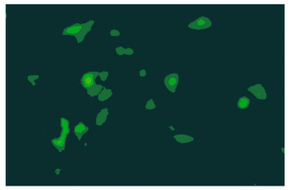


Micro technical gas sensor

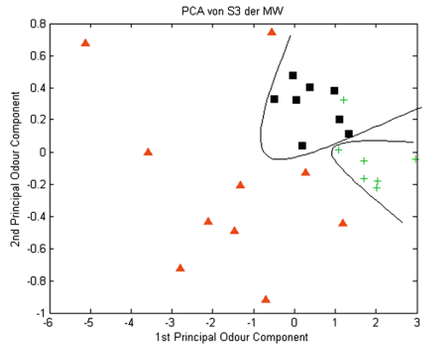
- *Instrumental Analysis*
- *Micro sensors, micro fluidics*
- *Micro systems, electronic senses*
- *Bio-micro systems engineering*
- *Cell-on-a-chip-systems (toxicity tests of nanoparticles, allergy tests)*
- *Micro technical sensors and intelligent measurement systems*
- *Micro systems of prevention, diagnostics and monitoring of cardiovascular diseases*



Fluid dynamics of a micro mixer



Fluorescence of GFP expressed skin cells



Diagnostics of cirrhosis of the liver using principal component analysis (PCA)

Interdisciplinary research fields of the centre of competence

- *Sensor development in chemical and process analysis*
- *Development of chip-based detection systems*
- *Software development for control and data evaluation of micro system engineering processes*
- *Design, engineering and application of micro-fluidic devices (micro mixer, micro pumps, micro reaction chambers, micro chips)*
- *Cell-based lab-on-a -chip-systems*

Publisher: rector of UAS Jena; design: service centre science and transfer