

Excellence in science and applications

Scientists in Jena have created a variety of **major research projects, international research groups and application centres for the economy**. The activities in Jena range from basic research to specific industrial applications. The scientific creativity keeps developing new approaches for top level research.

Septomics: Innovation Centre "Theragnostics in Severe Infection?"



The Innovation Centre "Theragnostics in Severe Infection?" is a joint project of the Friedrich-Schiller-University and the Leibniz Institute for Natural Product Research and Infection Biology e.V. - Hans-Knöll-Institute in Jena. (-? [Septomics](#))

ultra optics

The Centre »ultra optics«® develops new concepts to control light and applies this capability in cooperation with partners from science and industry. Tapered fiber for mode field matching University institutes from the FSU Jena collaborate with the Fraunhofer Institute for Applied Optics and Precision Engineering (FhG-IOF) in order to master light in all its properties: generation and application of light - even under extreme conditions. The Centre contributes fundamentally to the explanation of the physical and technological possibilities of light and to the limits of controlling and steering its properties. (-? [ultra optics](#))

Centre for Advanced Micro- and Nano-Optics

The centre is a joint project of the Institute for Applied Physics of the Friedrich-Schiller-University. Photonic micro and nanostructures belong to the competence areas of this center, such as effective media, photonic crystals, metamaterials or refractive and diffractive elements. (-? [Centre for Advanced Micro- and Nano-Optics](#))

Jena School for Microbial Communication

The Jena School for Microbial Communication (JSMC) is funded by the German Excellence Initiative. It conceptionally combines different research areas (microbial communities, interactions with plant, animal and

human hosts and environmental interactions) to a comprehensive picture of microbial communication (-? [JSMC](#)).

CoOptics

The cluster "CoOPTICS - Cooperate in Optics?" combines all relevant networks of the region Thuringia aimed to further develop the optical technologies in such a way that the change to the "century of light" can be accomplished with Germany at the top. The cluster initiative CoOPTICS is aimed at supporting the region Thuringia to become both the innovation prime motor for optical technologies in Europe and as well the European centre for further education in the optical technologies. (-? [CoOptics](#)).

Jena International Graduate School of Molecular Medicine (JSMM)

The Jena International Graduate School of Molecular Medicine (JSMM) offers an international graduate program of interdisciplinary training opportunities in an attractive and inspiring research environment. Skillful University Graduates are invited to work towards a PhD in different fields of Molecular Medicine. The JSMM hosts about 120 PhD students from 20 countries. These students have a primary affiliation with one of the participating research groups and are enrolled as graduate students at the Friedrich Schiller University Jena. (-? [JSMM](#))

NanoReplica

NanoReplica - an economy-oriented junior researcher group within the scope of "[InnoProfile](#)" (nanoprecise mold insert construction and replication technologies).

The NanoReplica initiative is sponsored within the Federal Ministry of Education and Research program InnoProfile. This program aims at bolstering the innovation capability in the East German regions by cooperating with junior researchers and centres of excellence. (-? [NanoReplica](#))

Placenta Labs

The research lab section of obstetrics runs a wide range of topics around pregnancy within the scope of different research projects comprising issues of embryo implantation, immunological, allergological, pharmacological and nutritional-physiological issues. (-? [Placenta-Labor](#))

Jena BioChip Initiative (JBCI)

JBCI is a project sponsored by the Federal Ministry of Education and Research. It is aimed at developing and commercializing innovative biochip systems for diagnostics. To mark and analyze these biochips, novel marking technologies are planned to be used, which are particularly based on marking by using gold nano-particles and specific metal separation reactions. Different regional institutes and industry partners cooperate within the scope of this project to create smaller, more robust and more cost effective, chip based analytical systems. (-? [Jenaer BioChip-Initiative](#))

Application Centre Microoptical Systems (amos)

In Germany, amos belongs to the best equipped service providers for developing and prototyping optical and optoelectronic components and microsystems. Sponsors of this application centre are the CiS Institute for Microsensorics in Erfurt, and the Fraunhofer Institute for Applied Optics and Precision Mechanics IOF Jena.

(-? [amos](#))

Jena Graduate School "Human Behaviour in Social and Economic Change" (GSBC)

The Jena Graduate School "Human Behaviour in Social and Economic Change" (GSBC), funded by the Federal Programme "ProExzellenz" of the Free State of Thuringia, is a interdisciplinary doctoral school within the Jena Graduate Academy, aiming at providing the best research environment for doctoral and post-doctoral candidates. (-? [GSBC](#))

Postgraduate school "The Enlightenment Lab"

Based on selected examples, the postgraduate school "The Enlightenment Lab" was designed to research the basics of the two transformation phases. Dissertation projects from the moral, social, legal and cultural sciences as well as the evangelic theology are focused on the research topics particularly based on the "long? eighteenth century or the present, or perform a problem oriented comparison of both phases. Desirable but not mandatory, the scientific papers concerning the eighteenth century are aimed at the contexts in Weimar, Jena and Halle.

(-? [The Enlightenment Lab](#))

European Union Research Project "FIBLYS"

FIBLYS (or FIB anaLYSis) is a European funded project where leading researches and industry collaborate to create a new apparatus for nanotechnology that will unite nano-structuring, nano-manipulation, nano-analytic and nano-vision capabilities in one unique ?multi-nano? tool. (-? [FIBLYS](#))

PHOTONICS 4 LIFE

PHOTONICS 4 LIFE is a consortium with a well-balanced pan-European dimension, self-sufficient in human resources and top-technology. PHOTONICS4LIFE shows the proper mass to span across the value chain from photonic components to applications and from fundamental to applied research, while progressing on a single but broad theme: "Biophotonics". (-? [PHOTONICS 4 LIFE](#))

CarboEurope

The Integrated Project Carbo Europe-IP assesses the European Terrestrial Carbon Balance. To advance our understanding in a multidisciplinary and integrated way, 61 research centres from 17 European countries have joined forces for a 5-year EU-funded research project started in January 2004. CarboEurope-IP addresses basic scientific questions of high political relevance. (-? [Carbo Europe](#))

LYCOCARD

Cardiovascular diseases and cancer are the main mortality causes in Europe and all developed territories. Lycopene is a plant pigment found among others in tomatoes, Europe?s second-most important agricultural crop. Strong supportive data from several epidemiological studies suggest that lycopene may provide important protection against cardiovascular diseases and cancer.

However, lycopene contents of tomatoes and processed tomato products and lycopene?s beneficial effects,

have not been sufficiently linked because research has lacked a "total food chain? approach. LYCOCARD, an Integrated Project (6th Research Framework Programme) that has started in April 2006, will investigate the role of lycopene in reducing the risk of cardiovascular diseases by addressing each link in a "farm to fork? approach. (-? [LYCOCARD](#))

NEMO/ micro optics

NEMO aims at providing Europe with a complete Micro-Optics food-chain by setting up durable service and technology centres for Optical Modelling and Design; Measurement and Instrumentation, Mastering, Prototyping and Replication; Hybrid Integration and Packaging; Reliability and Standardization.

The network is co-ordinated by Prof. Hugo Thienpont from the Vrije Universiteit Brussel, Belgium, by Prof. Malgorzata Kujawska from Warsaw University of Technology, Poland, and by Dr. Juergen Mohr from ForschungsZentrum Karlsruhe, Germany. The Department of Microoptics is based at the Fraunhofer Institute Applied Optics and Precision Engineering in Jena. (-? [NEMO](#))

NFGN National genome research network

The Medical Genome Research Program is a large-scale biomedical research program as an extension of the National Genome Research Network. Since the summer of 2008, this program has been funded by the Federal Ministry of Education and Research. Thus, the Federal Ministry of Education and Research makes it possible to gain a trend setting scope for steadiness and extension in medical genome research which is aimed at transfer to an even bigger extent in order to achieve a direct social bargain.

Projects of the National Genome Research Network are performed at the Leibniz Institute for Gerontology, Fritz Lipmann Institute in Jena. (-? [NGFN](#))

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