RESEARCH PROJECTS

ACHIEVE MORE THROUGH RESEARCH & DEVELOPMENT

www.fh-ooe.at/research
Selected Research Projects
at the University of Applied Sciences
(FH Upper Austria)

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Achieve More
with Austria’s Leading University of Applied Sciences in R&D

Successful companies know from experience that every euro invested in research and development pays for itself many times over. Innovation is a decisive competitive advantage that strengthens businesses and secures jobs over the long term.

Upper Austria is in the fast lane as a centre of research, and the FH Upper Austria has developed into a reliable partner and driver of innovation. Austria’s strongest university of applied sciences in research has four schools with around 400 professors and research associates which it can offer innovative enterprises.

Currently, more than 300 projects in 16 specialist areas are being carried out. These thematic areas are oriented towards practical applications and range from IT (Hagenberg Campus), Medical Engineering and Applied Social Sciences (Linz Campus) and Management (Steyr Campus) to Engineering (Wels Campus).

The extensive networking of the FH Upper Austria’s schools makes it possible to achieve an optimum overall solution for every project.

The FH OÖ Forschungs & Entwicklungs GmbH is a strong and flexible partner that is ready to support businesses and institutions from industry and society so that they can take full advantage of the challenges of the future!

Mag. Thomas Stelzer
Governor of Upper Austria

Dr. Michael Strugl
Vice Governor
The FH Upper Austria is the clear leader among Austrian universities of applied science and is also among the strongest in research and development in German-speaking countries. In 2015, more than 400 researchers generated €14.28 million in R&D turnover, and six members of the research staff completed their doctoral theses. For businesses and institutions from industry and society, the FH Upper Austria is a flexible and reliable partner in research and development. The opportunities for cooperation are many:

- Applied R&D projects with collaboration partners
- Scientific research projects
- International R&D projects

The project period may extend from a few months to five years.

The FH Upper Austria’s R&D portfolio is aimed at businesses and institutions from industry and society. On the one hand, this includes businesses that lack personnel resources or have limited financial resources for their own research and development activities (e.g. small and medium-sized enterprises). On the other hand, solutions are also developed for companies that need support in specialist fields (e.g. in the form of specific devices). For the FH Upper Austria’s collaboration partners, joint projects are first and foremost a financially straightforward and efficient undertaking. Geared towards the needs of the client, innovative solutions are developed and can be put directly into practice.

Drawing from and in coordination with the strategic economic and research programme ‘Innovative Upper Austria 2020’, the FH Upper Austria has implemented five cross-faculty platforms that make a substantial contribution to achieving the programme’s objectives:

- Platform of the Institute for Smart Production
- Platform for Energy
- Platform for Medical Technology and Health
- Symposia and workshops
- Students’ bachelor’s and master’s theses

- Platform for Food and Nutrition
- Platform for Mobility and Logistics

This project brochure provides an overview of the more than 300 research projects at the four schools of the FH Upper Austria and aims to encourage new and interesting research collaborations.
A university of applied sciences is distinguished as an educational institution by factors such as international recognition and a hands-on academic education. Qualified graduates from a university of applied sciences strengthen business activities through their outstanding performance. Curricula are continually adjusted to the needs of businesses, and internships and research projects further strengthen cooperation with industry.

With **58 degree programmes** at the **four schools** in Hagenberg, Linz, Steyr and Wels, and over **5,600 students** in the academic year 2015/2016, the FH Upper Austria has evolved into a powerful driver of education and research in the State of Upper Austria. Its offerings range from engineering and industry to health and social sciences.

In its second field of competence, the FH Upper Austria is at the service of industry and society with the innovative results of its R&D activities. The FH Upper Austria’s research and development programmes converge in the FH OÖ Forschungs & Entwicklungs GmbH which was specifically founded to coordinate research projects. All R&D projects that have been commissioned or receive funding are administered by the Forschungs & Entwicklungs GmbH.

### Innovative Solutions for Industry & Society

In close consultation with the fields of competence at the FH Upper Austria, a total of **16 specialist areas of research** have been developed at the **four schools**.

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| Wels | |
|-------| |
| » Measuring and Testing Technology | » Materials and Production Engineering |
#INFORMATION AND COMMUNICATION SYSTEMS
#ELDERLY QUALITY OF LIFE
#MEDIA AND KNOWLEDGE TECHNOLOGIES
#SOFTWARE TECHNOLOGY AND APPLICATIONS
Research and development at the FH Upper Austria Hagenberg Campus is all about computer science, communications and media. Twelve research groups are working in four specialist areas of research on innovative solutions for the digital future.

**Specialist Areas of Research**

- Information and Communication Systems
- Elderly Quality of Life
- Media and Knowledge Technologies
- Software Technology and Applications

**Your Points of Contact for Research & Development at the Hagenberg Campus**

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michael.affenzeller@fh-hagenberg.at
Information and Communication Systems

**aDrive – The Automated Car**
In order to assess the added value of automated vehicles on the road in terms of traffic density or pollution, evidence-based comparisons must be made with the current state. To this end, the project carries out a detailed modeling of human driving behaviour.

- 3/2015 – 12/2017, €100,000 – 500,000;
- FFG Industrienähe Dissertationsen

**Embedded Systems**
Developing Embedded Systems with a Focus on Networking, Security and Energy Efficiency
Use of an embedded platform can help develop fast and optimised hardware and software systems with microprocessors and FPGAs. Applications have been implemented in areas such as home automation, audio systems and vital signs monitoring.

- 01/2014 – 12/2018, < €100,000;
- Contract research

**Broadband Concept BBI-2**
The project includes the development of a broadband strategy and the provision of scientific advice to the State of Upper Austria for universal coverage with ultra-fast broadband Internet, the development of support programmes and the assessment and evaluation of new technologies for the realisation of the project.

- 1/2011, €100,000 – 500,000;
- Contract research

**ComPLEXos**
Compliant Exoskeleton Demonstrator
The aim of this project is to develop a scientific basis for the complex issue of so-called compliant exoskeletons (flexible exoskeletons) as support systems in cooperation with FH Upper Austria Campuses in Linz and Wels. The embedded system for the demonstrator is being developed in Hagenberg.

- 9/2014 – 9/2016, €100,000 – 500,000;
- FH Upper Austria core financing

**Internet of Things**
Energy-saving Hardware for Networked Systems
Energy-saving hardware on a microcontroller basis with intelligent sensor and wireless technology to connect to the Internet.

- 1/2015 – 12/2016, < €100,000;
- Contract research

**Connected Vehicles**
This project aims to answer some of the fundamental questions raised by the operation of automated vehicles. The influence of methods for data security on road safety is one focus, as is the increase in efficiency through intelligent traffic management in real time.

- 1/2016 – 6/2019, > €500,000;
- EFRE IWB 2020

**JRC u’smile**
Josef Ressel Center for User-friendly Secure Mobile Environments
The Josef Ressel Center for User-friendly Secure Mobile Environments (u’smile) deals with the safety of current and future mobile applications. The project’s vision is the convergence of safety-related services in mobile devices.

- 10/2012 – 9/2017, > €500,000;
- CDG Josef Ressel Zentrum

**DVS-Info**
Dynamic Traffic Safety and Information System
Using a decision-making system that is to be developed, reports of traffic delays from different data sources (e.g. floating phone data, social media, etc.) will be merged with existing traffic data, checked for plausibility and, enriched with recommendations for action, forwarded to transport infrastructure operators.

- 8/2015 – 8/2017, < €100,000;
- FFG Mobilität der Zukunft

**Juggglow**
Intelligent Juggling Balls with Bluetooth
Juggglow combines the art of juggling with modern wireless technology to connect smartphones with juggling balls over Bluetooth. Using a smartphone, it will be possible to control, for example, various lighting effects on the balls and to analyse statistics such as the number of balls caught, throwing height or juggling time.

- 6/2014 – 12/2016, < €100,000;
- FH Upper Austria core financing
NanoCops
The FP7 Project nanoCOPS deals with the simulation of components and circuits for wireless communication. The aim is to optimise the components/circuits for electromagnetic compatibility, mechanical stress, aging, etc., which will require that novel simulation methods be developed. Engineers, mathematicians and physicists from four partner countries are working together on these tasks.
» 8/2013 – 6/2015, €500,000 – €1,000,000;
FFG Kiras

PI
PI-Personalized Interaction
The PI project deals with personalisation in the area of user interaction. On the basis of an analysis of the interaction process with various input methods, the system automatically configures the most appropriate method for the particular user.
» 11/2013 – 10/2016, €100,000 – 500,000;
EU FP7

RealtimeAnalyzer
The aim is to develop a real-time analysis system for cryptographic protocol environments as well as the extension of an existing HPC cluster framework to include functions such as checkpoint/restart.
» 1/2013 – 6/2015,
€500,000;
FFG Kiras

Themis – Manage Your Digital Legacy
Themis is dedicated to the personal digital identity of users and allows cross-platform searching of data files, optimised for various devices, as well as legally regulated bequests of data. The project will pursue long-term archiving of client data, indexes with spatial, temporal and legal references and an easily manageable home service as well as connectivity and data security of mobile devices.
» 11/2013 – 10/2015, €500,000;
FFG COIN K&N

Elderly Quality of Life

Accessibility
Wheel Chair and Baby Stroller Simulator
A wheelchair and stroller simulator that can be driven virtually through parts of the municipality of Gallneukirchen aims to raise awareness of the issue of accessibility in a playful manner.
» 7/2014 – 12/2016, < €100,000;
Contract research

KIMBO
Collaborative Interdisciplinary Medical Boards
For planning and implementation of interdisciplinary medical boards, a generalised solution will be developed which is intended to simplify the future establishment of special boards in various specialised fields.
» 12/2015 – 11/2017, €100,000 – 500,000;
FFG General Programme

SOCIAL CARE
A Social Care Network for Citizen Empowerment and Care Support in Local Communities
The platform developed by this project is intended to bring together people from their neighborhoods in order to exchange offers and requests for assistance and care services for people in old age and to coordinate volunteer work at the local level. Implementation will focus on mobile devices. Seven organisations from four countries are partners in this EU project.
» 5/2015 – 8/2017, €100,000 – 500,000;
AAL Joint Programme
Media and Knowledge Technologies

Bike’N’Play
Bike’N’Play – Compelling Concepts for Integration of Cycling Mobility Data into Computer Games of Various Genres

Bike’N’Play is developing approaches for the integration of cycling into popular computer games of various genres. By integrating mobility data into existing games, the target group of non-cyclists can be reached and motivated.

7/2015 – 6/2017, < €100,000;
FFG Mobilität der Zukunft

BLINDBITS
BLINDBITS – An Accessible Level Editor and Player for Creating Orientation Training Games for Blind Students

Orientation and mobility training aims to improve the ability of blind people to move from one place to another. Coordinated by the AIT and carried out in cooperation with the BBI and the FH Upper Austria, this project aims to support the orientation training of blind students with an educational game approach.

11/2014 – 10/2015, €100,000 – 500,000;
Contract research

CRAc
CRAc – CoopeRative Activities

The goal of CRAc is the development of a prototype framework for profile-based allocation of cooperative tasks to volunteers. By continuously adjusting the profile through task reviews, volunteers are motivated to cooperate further by matching them with suitable tasks.

11/2014 – 10/2017, €100,000 – 500,000;
FFG COIN Aufbau

ECOTOUCH
Energy & Cost-efficient Touch-based Appliances

ECOTOUCH demonstrates the applicability of the novel PyzoFlex technology for pressure-sensitive interaction in the context of flexible displays.

4/2012 – 3/2015, €100,000 – 500,000;
FFG Neue Energien

eGLASSES
The Interactive Eyeglasses for Mobile Perceptual Computing

Interaction with smart glasses like Google Glass is at the heart of eGLASSES. The goal of eGLASSES is to find the most fun and intuitive means of interaction for everyone.

1/2014 – 12/2016, €100,000 – 500,000;
FWF

FLASHED
Flexible Large Area Sensors for Highly Enhanced Displays

The EU project FLASHED researches the development of pressure-sensitive, bendable displays. The flexibility achieved makes completely new interactions possible, such as the bending of the screen for navigation.

10/2013 – 9/2016, > €500,000; EU FP7

GEMPLAY
Gendered Games Motivating Physical Activity

The GEMPLAY project aims to promote more physical activity through gender-appropriate and personalised game concepts so that different types of users can effectively benefit from the associated health effects.

7/2014 – 6/2016, €100,000 – 500,000;
FFG FEMtech

IDEAGARDEN
An Interactive Learning Environment Fostering Creativity

Idea Garden aims to create a modern environment to assist designers in developing and communicating new ideas and concepts.

11/2012 – 10/2015, > €500,000;
EU FP7

INTERPLAYCES
Intergenerational Co-located Play for Old and Young

The goal of the InterPlayces project is to create a comprehensive play and interaction concept for older and younger people to increase the well-being as well as the social and emotional bonds of the participants.

1/2016 – 12/2017, €100,000 – 500,000;
FFG benefit

PLAY!UC
Playing with Urban Complexity

Play!UC is exploring the use of game-based approaches in the context of participatory processes for the planning and development of urban projects.

11/2014 – 10/2017, €100,000 – 500,000;
JPI Europe

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11/2014 – 10/2017, €100,000 – 500,000;
JPI Europe
Software Technology and Applications

**ARISE**
**Advertisement Recommendation and Intelligent Scheduling for Elevators**

An emergency call system for elevators is being developed that provides special support to the hearing-impaired and allows elevator operators to recoup their costs through automatic scheduling of advertising.

» 2/2015 – 12/2016, < €100,000; 
FFG General Programme

**AEADA**
**AEDA – Advanced Engineering Design Automation**

The K-Project AEDA aims to provide a platform for the automation of engineering design tasks consisting of generative methods and algorithms as well as a software framework based on the implementation of those methods.

» 11/2014 – 10/2018, €100,000 – 500,000; 
FFG COMET – K-Projekt

**ALiToMAte**
**Automated Usability Testing of Mobile Applications**

In this project, a tool is being developed for the automated recording and analysis of user behaviour in mobile apps. With minimal resource overhead, problems and optimisation potential in apps can be recognised. The developed software has been used successfully by several corporate partners.

» 6/2013 – 5/2016, > €500,000; 
FFG COIN Aufbau

**DAMOPLAS**
**Data-based Modeling of Plasma Nitriding**

The aim of the project is the development of a new expert system to support the operation of plasma nitriding plants. Information about the processes is empirically derived from data and recommendations are made to the plant’s control system.

» 11/2013 – 10/2015, €100,000 – 500,000; 
Contract research

**DigiMont**
**Digital Assembly – A First Step to ‘Batch size 1’**

Together with BRP Powertrain, RISC Software GmbH, Hagberg Software GmbH and ABF Industrielle Automotion GmbH, concepts are being developed for the assembly of premium drive systems that enable production in ‘batch size 1’. Focus: virtual modeling, simulation and optimisation of the involved process.

» 12/2014 – 11/2017, €100,000 – 500,000; 
OÖ 2020 Produktionsstandort 2050

**HOPL**
**K-Project Heuristic Optimisation in Production and Logistics (Hagenberg)**

An association of several university and non-university research partners are working in the K-Project HOPL to develop methods for cross-modeling and optimising ammeshed production and logistics processes for leading companies in Upper Austria such as voestalpine, Rosenbauer or MIBA.

» 5/2014 – 4/2016, > €500,000; 
FFG COMET – K-Projekt

**ImmuneProfiler**
**Display, Characterisation and Quantification of the Key Cells of the Immune System based on Sequencing**

The analysis of the human immune system is an important research area in medicine. The ImmuneProfiler project is studying algorithms that can analyse in detail the key cells of the immune system based on sequencing data.

» 9/2014 – 4/2016, €100,000 – 500,000; 
FH Upper Austria core financing
NanoDetect
A Bioinformatics Image Processing Framework for Automated Analysis of Cellular Macro and Nano Structures

Fluorescence microscopy is one of the most important technologies of biomedical research. Under this project, an innovative framework will be developed that combines new methods of image processing and machine learning to solve complex biomedical problems.

» 10/2013 – 9/2017, > €100,000 – 500,000; FFG Innovationslehrveranstaltungen

MoPS
Mobile Peer Support – Patient-centered Mobile Services for Chronic Disease Management

Chronic diseases greatly restrict the quality of life of affected persons. This project aims to develop a platform with a mobile coaching system for self-help strategies to significantly improve the long-term condition of affected persons.

» 10/2015 – 9/2016, €100,000 – 500,000; FFG benefit

ISP
Cross-Faculty Institute for Intelligent Production

The Institute for Intelligent Production conducts multidisciplinary research in Hagenberg, Steyr and Wels. It specialises in research, teaching and issues such as models for the use of distributed intelligence, developing new modeling and optimisation approaches or rapid prototyping.

> 7/2014 – 6/2019, €100,000 – 500,000; OÖ 2020

LEEFF
Low Emission Electric Freight Fleets

The overall objective of this project is to contribute to a viable solution for an electrically powered truck fleet. A mobile application supports routing, charging strategies and fleet management, taking into account drivability, unforeseen traffic disruptions or short-order changes.

> 4/2016 – 3/2019, €100,000 – 500,000; FFG Leuchttürme der Elektromobilität

MAVIS
Autonomous All-purpose Mowing Vehicles

To minimise security risks when mowing alongside highways and expressways, a prototype for an unmanned vehicle is being developed that can mow these areas on its own.

> 7/2015 – 11/2015, < €100,000; Land OÖ easy2innovate

McTronic
FFG Innovation Course for Applied Mechatronics

The innovation course ‘McTronic’ carries out training in the field of mechatronics. Courses especially prepared for corporate partners are meant to provide an understanding of the individual components of mechatronic systems.

> 10/2013 – 9/2017, > €100,000 – 500,000; FFG Innovationslehrveranstaltungen
### NPS
**Methods and Procedures for Sustainable Decision Support in Operative Production Control**

NPS is exploring new methods for priority rule-based management and control of flexible, volatile production processes at the operational shop floor level through variable strategies with metaheuristic optimisation techniques coupled with simulation-based process and evaluation models.

- 3/2014 – 6/2016, > €500,000; FFG Produktion der Zukunft
- Project Manager: Prof. Dr. Michael Affenzaller

### SOMOBIL
**Mobility-oriented Improvement of Public Transport Services**

User-friendly public transport planning will be conducted on the basis of floating phone data and supplementary mobility surveys. The resulting traffic model will be used to analyse new, individually tailored solutions for service improvement.

- 2/2014 – 1/2016, < €100,000; FFG Mobilität der Zukunft
- Project Manager: Dr. Stephan Winkler

### OMIS.Recognition
**Development of a Prototype for a Software-based Label Identifier for the Object Management Information System**

In this project, algorithms are developed to extract and then compare relevant information from label images. This enables automatic recognition under varying image-capturing conditions.

- 4/2015 – 12/2015, < €100,000; Contract research
- Project Manager: Dr. Stephan Winkler

### Screening 2.0
**Comprehensive, Innovative, Non-invasive, User-friendly Diabetes Screening**

In the project ‘Screening 2.0’, researchers in a multilateral consortium are pursuing development of a comprehensive approach to non-invasive diagnostic tools for individual, comprehensive and user-friendly screening for diabetes in connection with e-health applications.

- 9/2015 – 8/2017, < €100,000; OÖ 2020 Medizintechnik
- Project Manager: DI (FH) Viktoria Dorfer, MSc

### SESAM
**Self-learning Search Algorithms for High-resolution Mass Spectra**

Mass spectrometry is typically used for the identification of proteins in biological samples. In this interdisciplinary bioinformatics research project, a series of new identification algorithms will be developed that are specifically designed for the analysis of such mass spectra and incorporate information from various sources.

- 3/2013 – 2/2018, €100,000 – 500,000; FWF Translational Research
- Project Manager: Dr. Stephan Winkler

### TOMO3D
**Development of a High-resolution 3D Fluorescence Microscopy System for Biomedical Diagnostics**

This project is developing bioinformatics methods to undertake microscopic analyses of cartilage tissue in 3D in the context of regenerative medicine and tissue engineering. This is achieved through nanoscopic 3D examinations of tissue and protein density analysis of 3D tissue sections.

- 11/2014 – 12/2017, €100,000 – 500,000; FFG COIN Aufbau

### NPS
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- Project Manager: Prof. Dr. Michael Affenzaller

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School of Medical Engineering and Applied Social Sciences, Linz Campus

The FH Upper Austria Campus Linz puts people at the centre of its research and development work. Three specialist areas comprise the core themes in which it is working closely with institutions in the fields of health and social sciences.

Specialist Areas of Research

» Applied Social Sciences and Non-Profit Management
» Elderly Quality of Life
» Medical Technology

Your Points of Contact for Research & Development at the Linz Campus

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Applied Social Sciences and Non-Profit Management

Accompanying Research for the Project ‘School Social Work by the RESTART Association at the Reid Vocational School’

In this research project, services provided by the association ‘RESTART’ are evaluated, looking specifically at the effectiveness of its school social work at vocational schools. The results should demonstrate the achievement of objectives and potential for optimisation.

» 10/2014 – 3/2016, < €100,000; Contract research

Development and Evaluation of Public Services

With the help of relevant stakeholders and policy frameworks, public services and organisations are reviewed and (further) developed in an innovative manner with an emphasis on customer focus, increased effectiveness and efficiency.

» 4/2015 – 8/2015, < €100,000; Contract research

Europe 2038 – Voice of the Youth

This EU-funded project explores the visions young people from seven European countries have of the future. What do Europe’s young people see, what social challenges engage them? The results of the PAN-European Surveys are communicated via multiplier events.

» 1/2016 – 6/2016, < €100,000; Contract research

Evaluation of Social Work

The evaluation of social work-related services demonstrates their benefit and shows optimisation potential. Thanks to excellent social science methodological competence, collaborations with important social partner institutions have been successfully implemented.

» 10/2014 – 2/2016, < €100,000; Contract research

Focus on Local Services for Seniors

Scientific monitoring and evaluation of local services for senior citizens lead to optimisation of existing and development of new offerings. Excellent social science methodological expertise enables successful project collaborations.

» 6/2014 – 8/2015, < €100,000; Contract research

Intercultural Competencies in Educational Institutions

The prevention programme WISK is implemented at over 100 schools at Austria, Romania, Cyprus and Turkey and scientifically tested. Various internationalisation activities are reviewed for effectiveness in order to establish theory- and evidence-based practices to promote intercultural competence.

» 1/2012 – 12/2016, €100,000 – 500,000; Contract research

Mobbing in Multicultural Schools from a Social Network Perspective

This project, funded by the Jubilee Fund of the Austrian National Bank, analyses dyadic cross-sectional and longitudinal data from 3,000 students. The results have great practical relevance for the development of evidence-based bullying prevention at schools.

» 1/2016 – 12/2017, €100,000 – 500,000; Jubiläumsfonds ÖNB

Elderly Quality of Life

DALIA – Assistant for Daily Life Activities at Home

The project aims to support older people in their home environment by developing a virtual assistant (avatar). A viable business model for the product is to be developed in parallel.

» 3/2013 – 2/2016, €100,000 – 500,000; AAL Joint Programme

PenAAL – Key Performance Measurement Index for AAL-Solutions

The project goal is the development of an AAL-maturity index which can be applied conceptually, both for internal evaluation and results monitoring as well as for the overall analysis and support of AAL developments.

» 11/2014 – 12/2015, < €100,000; FH Upper Austria core financing

SOWE 2030 – Social Planning in Wels 2030

The objective is to provide the empirical basis for the strategic social planning of the city of Wels in order to outline possible scenarios and trends for individual fields of action as well as to make available examples of good practice.

» 10/2015 – 11/2016, < €100,000; Contract research
Medical Technology

Dynagate – Dynamical Gate Analysis
Dynagate

The aim of the project is the technology-based improvement of patient prosthetic care. A more natural sense of movement of the prosthesis is achieved through the use of an innovative sensor technology system.

> 3/2015 – 7/2015, < €100,000;
> Contract research
Project Manager:
Prof. PD Dr. Thomas Haslwanter

MoPro-Lab
Intelligent Motion and Prosthetics Lab

The aim of the project is to build a gait and motion analysis laboratory, the ‘Intelligent Motion and Prosthetics Lab’ (‘MoPro-Lab’). Existing expertise and laboratory infrastructure are made available to cooperation partners from the industrial and health sectors.

> 10/2014 – 9/2016, < €100,000;
> FH Upper Austria core financing
Project Manager:
Prof. PD Dr. Thomas Haslwanter

NeedleTutor
Surgical Simulator for Neuraxial Needle Insertions

A hybrid simulator for neuraxial needle insertions is being developed and evaluated with partner clinical institutions. A phantom patient with simulated imaging allows for interdisciplinary use of the simulator in medical training.

> 10/2015 – 9/2017, €100,000 – 500,000;
> OÖ 2020 Medizintechnik
Project Manager:
Prof. DI Dr. Andreas Schrempf

PatientSim
Medical Patient Simulator

The development of artificial anatomical structures provides for realistic haptic feedback in hybrid surgical simulators. Here artificial vertebral bodies are being developed and biomechanically validated for use in a vertebral cement augmentation simulator.

> 10/2013 – 12/2014, €100,000 – 500,000;
> Interreg Bayern-Österreich 2014-2020
Project Manager:
Prof. DI Dr. Andreas Schrempf

ReSSL
Research Group for Surgical Simulators Linz

The R&D group ReSSL is working on the development and advancement of hybrid surgical simulators. In doing so, it will concentrate on the following priorities:

a) artificial anatomical structures,
b) smart surgical instruments,
c) simulated imaging and
d) simulator validation.

> 11/2014 – 10/2018, > €500,000;
> FFG COIN Aufbau
Project Manager:
Prof. DI Dr. Andreas Schrempf
http://ressl.fh-linz.at

SLIQ
Supplier Qualification

The project aims at qualifying suppliers of medical technology according to the necessary standards and guidelines in the model region of Lower Bavaria – Upper Austria. The joint competence network ensures the appropriate sustainability.

> 1/2013 – 12/2014, €100,000 – 500,000;
> Interreg Bayern-Österreich 2014-2020
Project Manager:
Prof. DI Dr. Martin Zauner, MSc

Thrombotherm
Temperature-dependent Platelet Activation in Plasma Concentrates

The aim of this project is to extend the storage life of blood reserves as well as to assess the current platelet state using high-resolution microscopy techniques and to determine the quality of platelets using ‘real-time’ analysis.

> 10/2015 – 9/2017, €100,000 – 500,000;
> OÖ 2020 Medizintechnik
Project Manager:
DI Dr. Birgit Plochberger
#ACCOUNTING, CONTROLLING AND FINANCIAL MANAGEMENT
#DIGITAL BUSINESS
#LOGISTIKUM
#PRODUCTION AND OPERATIONS MANAGEMENT
#MANAGEMENT EXPERTISE
In Steyr, research and development at the FH Upper Austria is all about management. The thematic diversity of management applications is covered by four specialist areas of research and two additional fields of management expertise.

**Specialist Areas of Research**

- Accounting, Controlling and Financial Management
- Digital Business
- Logistikum Steyr – Logistics and Business Networks
- Production and Operations Management
- Fields of Management Expertise
  - Global Business Management
  - Support of Core Clinical Processes

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**Your Points of Contact for Research & Development at the Steyr Campus**

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**Vice Dean for R&D, Steyr Campus**

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+43 5 0804 33714  
othmar.lehner@fh-steyr.at
**BE_AB-Index**

*Development of a Model for Measuring Brand Equity*

The BE_AB-Index is an entirely new measurement model for determining brand value that is being developed and validated.  
» 10/2013 – 6/2016, €100,000 – 500,000;  
Contract research  
**Project Manager:** Prof. Mag. Dr. Harald Kindermann

**GSMS**

*Sample Management System*

Development of a software package to support the process from the laboratory request through the sample extraction to laboratory submission. The software modules include laboratory requests, blood samples, sample information, statistics, etc.  
» 4/2013 – 6/2016, €100,000 – 500,000;  
Contract research  
**Project Manager:** Prof. Mag. Dr. Gerald Petz

**InnoStrategy 2.0**

*Strategically Consistent Processes at the Front End of Innovation*

Design and development of a web-based innovation management and corporate foresight platform to support the strategically relevant early stages of the innovation process in a more efficient, structured and effective manner.  
» 9/2013 – 8/2016, €100,000 – 500,000;  
FFG Bridge  
**Project Manager:** Prof. Dr. Christoph Eisl

**kNOw-LINE**

*Understanding the Customer Journey for No-Line Commerce*

When purchasing products, customers are increasingly using more touch points. The project kNOw-LINE examines how this customer behaviour over multiple channels and devices can be captured and analysed.  
» 8/2015 – 8/2016, €100,000 – 500,000;  
FFG IKT der Zukunft  
**Project Manager:** Mag. Werner Wetzlinger

**NEL**

*Named Entity Linking System*

Terminology of a text is correctly linked to an existing knowledge base (such as Wikipedia), which is expected to help the reader and to simplify and speed up processing. In addition, real-time capability is facilitated with a big data platform.  
» 1/2015 – 9/2016, < €100,000;  
Contract research  
**Project Manager:** Prof. Mag. Dr. Gerald Petz

**Doctoral Programme: Digital Business International**

Upper Austria’s economic and educational sectors will be strengthened through an innovative synergetic training programme in digital business at the doctoral level in cooperation with the FH Upper Austria and JKU.  
» 8/2015 – 4/2019, €100,000 – 500,000;  
OÖ 2020  
**Project Manager:** Prof. Mag. Dr. Andreas Auinger

**Accounting, Controlling and Financial Management**

**Perceptually-optimised Reporting Design**

Development of guidelines for a perceptually-optimised design of management reports independent of the medium (paper, information cockpit, websites, tablet or smartphone). Many companies are already making use of the implemented testbed.  
» 9/2011 – ongoing, < €100,000;  
Contract research  
**Project Manager:** Prof. Dr. Christoph Eisl

**Smart Visualization 4.0**

Based on the results of the ‘Perceptually-optimised Reporting Design’, differences in perception in various non-European cultures are analysed in cooperation with foreign partner universities.  
» 10/2014 – 9/2016, €100,000 – 500,000;  
FH Upper Austria core financing  
**Project Manager:** Prof. Dr. Christoph Eisl
Logistikum Steyr

ATROPINE FAsT TrAck TO the Physical InterNEt
The Physical Internet (PI) model is a systemic view of the entire value chain from different perspectives in the logistics discipline. The project focuses on the evaluation of the application of a PI concept to Upper Austrian enterprises and the creation of a PI model region. 
> 1/2016 – 11/2017, > €500,000; OÖ 2020

Logistikum Steyr

Go2PI Implementation Paths for the Physical Internet
Technical, informational and procedural guidelines for a neutral and open business model of distribution logistics are being developed based on assumptions about the use of future loading and transport as well as information and communication technologies of the Physical Internet in order to conceptualise the development path to new services. 
> 7/2015 – 6/2016, < €100,000; FFG Mobilität der Zukunft

Trade Logistics & Last Mile
Investigation of different supply channels and general economic trends and behaviours that lead to a shift of purchasing preferences between the supply channels. Collaboration with experts from B2C marketing (e-commerce, m-commerce). 
> 4/2015 – 3/2017, < €100,000; Contract research

HOPL Heuristic Optimisation in Production and Logistics
The aim is to develop innovative optimisation algorithms in order to generate additional optimisation potential in logistics and production processes through holistic modeling and optimisation of interdependent subprocesses. The research team of the Steyr Campus is collaborating in this project. 
> 5/2014 – 4/2018, < €100,000; FFG COMET – K-Projekt

LogLab Logistics Lab in Grafenau (D) and Steyr (A)
‘LogLab’ is developing and implementing a simulation laboratory for the data-driven improvement of logistical planning processes in the value chain. 

NODE Network On Demand Execution
Development of a generic data model for the representation of nodes, edges and flows of a logistics network. Short-term adaptations of these parameters provide for an individual material flow, which is essential for the Physical Internet, a key issue of the future. 
> 9/2014 – 4/2016, €100,000 – 500,000; FH Upper Austria core financing

SmartBOX Parcel Mobility 2.0
Technologies already used internally by the private sector are being translated for the public transport sector. A system is being developed for intelligent parcel and baggage logistics, especially for the last mile and for urban areas, and for inter-regional transport. 
> 9/2014 – 8/2016, €100,000 – 500,000; FFG Mobilität der Zukunft
Logistikum Steyr
Supply Chain Management

E-commerce for Austrian Post
Analysis of e-commerce flows regarding parcel and postal transport between Asia and Europe. The Asian and European market, potential customers/senders in Asia, European customers/recipients and their needs are being studied in order to develop new business opportunities.

> 01/2016 – ongoing, < €100,000; Int. Förderschiene A*Star Singapore

Finca: Forecasting Indicators
Early Recognition and Targeted Response to Relevant Trends in the Supply Chain
It is essential for all companies interested in substantiated and robust planning to engage with possible future developments and indentify influencing factors relevant to their business.

> 10/2014 – 9/2017, €100,000 – 500,000; FFG Bridge

Industrial Projects QSAM – Internationalisation
The QuickScan audit method is a tool for diagnosis and identification of current problems, major obstacles as well as opportunities and potential for success along the entire company-specific supply chain.

> 1/2014 – ongoing, < €100,000; Contract research

Logistics Location Indicators
SCM, Industry 4.0, Internet of Things, value added networks etc. affect business location, enterprise sustainability and the flow of goods. This project determines relationships and transfers these into a monitoring system for exploring these mechanisms in an integrated manner.

> 1/2015 – ongoing, < €100,000; FTT-Struktur Land OÖ

ReSCUE
Resilience for Supply Chain and Business Success
The aim is to identify the individual and organisational skills in a volatile market environment that enhance resilience and to extrapolate enterprise-specific recommendations for development of these skills.

> 10/2013 – 3/2016, €100,000 – 500,000; FFG Bridge

Sempermed Risk Management
Together with the National University of Singapore (NUS), an innovative method in dealing with supply chain risks is being developed for the company Sempermed.

> 05/2016 – 10/2017, €100,000 – 500,000; Int. Förderschiene A*Star Singapore

Supply Chain-Innovation
Service Dominant Logic and Horizontal Collaboration are catchwords with current entrepreneurial relevance. Businesses need help in translating them into routine operations, e.g. by developing new business models or innovative forms of cooperation.

> 10/2014 – ongoing, < €100,000; FTT-Struktur Land OÖ

Supply Chain Management in Health Care
Expertise of manufacturing companies in supply chain management is transferred to the health sector. Necessary financial savings are achieved with the same or increased quality of service and sustainable healthcare is ensured.

> 01/2016 – ongoing, < €100,000 – 500,000; FTT-Struktur Land OÖ und Auftragsforschung

Logistikum Steyr
Transport Logistics and Mobility

CEE Riverbridge along the Rhine-Danube Corridor
A new concept is being explored that supports a freight modal shift from road to inland waterways. A barge system, for example, is integrated into this concept, which allows various loading units (e.g. containers or trailers) to be stacked.

> 4/2015 – 9/2016, < €100,000, MARTEC

Project Manager:
PD Mag. Dr. Horst Treiblmaier

Project Manager:
Prof. DI (FH) Dr. Markus Gerschberger

Project Manager:
PD Mag. Dr. Horst Treiblmaier
<table>
<thead>
<tr>
<th>Project Name</th>
<th>Description</th>
<th>Duration</th>
<th>Funding</th>
<th>Project Manager</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Good(s) on Foot</strong></td>
<td>Transporting Small Loads Using Active and Sustainable Forms of Mobility</td>
<td>1/2016 – 3/2018, €100,000 – 500,000;</td>
<td>FFG Mobilität der Zukunft</td>
<td>Andreas Pell, BA MA</td>
</tr>
<tr>
<td><strong>iSTRADA</strong></td>
<td>Intelligent System for Traffic and Road-infrastructure related Data</td>
<td>7/2015 – 8/2016, &lt; €100,000; FFG Mobilität der Zukunft</td>
<td>Project Manager: Christian Haider, BA MA</td>
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<tr>
<td><strong>EVIS AT</strong></td>
<td>Real-time Road Traffic Information – Austria</td>
<td>11/2015 – 10/2016, &gt; €100,000, &lt; €500,000;</td>
<td>FFG Mobilität der Zukunft</td>
<td>Project Manager: Andreas Pell, BA MA</td>
</tr>
<tr>
<td><strong>ITS Upper Austria</strong></td>
<td>Interim Operations (Subproject EVIS AT)</td>
<td>4/2015 – 3/2016, €100,000 – 500,000;</td>
<td>FFG Mobilität der Zukunft</td>
<td>Project Manager: Andreas Pell, BA MA</td>
</tr>
<tr>
<td><strong>NaLaBISa</strong></td>
<td>Sustainability Map for Commercial and Industrial Sites for Sustainable Freight Mobility</td>
<td>10/2015 – 9/2016, &lt; €100,000; FFG Mobilität der Zukunft</td>
<td>Project Manager: Mag. Sarah Pfoser</td>
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<tr>
<td><strong>LOC-LiQID</strong></td>
<td>Identifying the Market Potential of Liquefied Natural Gas in Austria</td>
<td>11/2015 – 10/2016, €100,000 – 500,000;</td>
<td>FFG Mobilität der Zukunft</td>
<td>Project Manager: Christian Haider, BA MA</td>
</tr>
<tr>
<td><strong>MobiLab</strong></td>
<td>Industrial Mobility Lab in Central Upper Austria</td>
<td>1/2016 – 10/2016, &gt; €100,000, &gt; €500,000;</td>
<td>FFG Mobilität der Zukunft</td>
<td>Project Manager: Andreas Pell, BA MA</td>
</tr>
<tr>
<td><strong>PlanBiSS</strong></td>
<td>Site Planning for Bike Sharing Systems, including Demand, Redistribution and Maintenance</td>
<td>5/2015 – 4/2017, &lt; €100,000; FFG Mobilität der Zukunft</td>
<td>Project Manager: DI Markus Pajones</td>
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</tr>
<tr>
<td><strong>PROMONENT</strong></td>
<td>Promoting Innovation in the Inland Waterway Transport Sector</td>
<td>5/2015 – 4/2018, €100,000 – 500,000;</td>
<td>EU H2020</td>
<td>Project Manager: Lisa-Maria Putz, BSc MA</td>
</tr>
</tbody>
</table>
Model Region Industry 4.0
Development of a basic concept within working groups to prepare a project proposal for an Industry 4.0 model region in Upper Austria.
» 10/2015 – 9/2016, < €100,000;
Contract research
Project Manager: Prof. DI Dr. Herbert Jodlbauer

Maturity Model Industry 4.0
Development of a maturity model for determining the actual state and the target status of a company with respect to Industry 4.0 readiness, including measures to achieve the desired state.
» 10/2015 – 9/2016, < €100,000;
Contract research
Project Manager: Prof. DI Dr. Herbert Jodlbauer

SimGenOpt
Robust and Stable Optimisation of Automatically-generated Simulation Models in Production Planning and Control
The existing simulation generator will be further developed and combined with methods of the Heuristic Lab to optimise parameters in production planning and control.
» 10/2015 – 4/2016, < €100,000;
Contract research
Project Manager: Prof. DI Dr. Herbert Jodlbauer

Triumph II
Trimodal Transshipment Port II: Efficient Flow through Digital Networking
An intelligent communication hub is being conceptualised which digitally networks all stakeholders of the multimodal transport chain. In addition, data from intelligent traffic systems are integrated. The hub detects discrepancies and proactively communicates to the partners.
» 9/2013 – 10/2016, €100,000 – 500,000;
FFG Mobilität der Zukunft
Project Manager: Andreas Pell, BA MA
http://www.viadonau.org/06Unternehmen/Dokumente/2015/Projektseiten/Projektinfo/055_TriumphII_TRIUMPH_II_v4.pdf

ISP
Cross-faculty Institute for Intelligent Production
The Institute for Intelligent Production conducts multidisciplinary research across faculties in Hagenberg, Steyr and Wels. It specialises in research, teaching and topics such as models for the use of distributed intelligence, development of new modeling and optimisation approaches or rapid prototyping.
» 7/2014 – 6/2019, €100,000 – 500,000;
OÖ 2020
Project Manager: Prof. DI Dr. Herbert Jodlbauer
Kliniksucher.at
Novel Transparency in Health Care

Analysis and provision of general information regarding the performance of Austrian hospitals (KH-parameters) for the general population in need of clinical services. This data is provided as a neutral source of information.

» 10/2015 – 3/2016, < €100,000;
Contract research

LeiVMed
Benchmarking Medicine

A systematised, risk-adjusted comparison of the quality of medical results, processes and costs using selected indicators is being developed with the new Kepler University Hospital and Klinikum Weis-Grieskirchen.

» 4/2015 – 3/2018, €100,000 – 500,000;
Contract research

ReSSL
Research Group for Surgical Simulators Linz

The R&D group ReSSL deals with development and advancement of hybrid surgical simulators. Priorities for development are a) artificial anatomical structures, b) smart surgical instruments, c) simulated imaging and d) simulator validation. The Steyr Campus research team is collaborating in this project.

» 11/2014 – 10/2018, > €500,000;
Contract research

Management Expertise
Support of Core Clinical Processes

CCMEC
Cross-Cultural Management and Emerging Markets Centre

Research in Intercultural Management, parts of the SIMM model (Steyr Intercultural Management Model), preparation of expatriates, longitudinal study on export trends of Austrian companies, development of intercultural competence within businesses.

» 9/2011 – 8/2016, €100,000 – 500,00;
Contract research

ISEM
Industrial Service Excellence Monitor

Development of an Industrial Service Excellence Monitor (ISEM) which allows businesses in Upper Austria and Lower Bavaria to determine their current status in defined disciplines of Industrial Service Excellence, compare best practices and receive recommendations for action.

» 3/2016 – 2/2019, €100,000 – 500,000;
Interreg Bayern-Österreich 2014-2020

ServPrice
Industrial Services – Pricing Concepts

Industrial services are surveyed, documented and evaluated. A price structure per service package is developed using a benefit analysis from the perspective of customers and the sales / service personnel.

» 10/2015 – 12/2016, < €100,000;
Land OÖ Clusterprojekt

ServTrain
Industrial Services – Training Concepts

Training concepts for service employees or retail partners are developed, adapted in terms of intercultural challenges in defined international markets and implemented and evaluated on a trial basis.

» 10/2015 – 3/2017, < €100,000;
Land OÖ Clusterprojekt
# AUTOMATED CONTROL ENGINEERING AND SIMULATION
# ENERGY AND ENVIRONMENT
# INNOVATION AND TECHNOLOGY MANAGEMENT
# FOOD TECHNOLOGY AND NUTRITION
# MEASURING AND TESTING TECHNOLOGY
# MATERIALS AND PRODUCTION ENGINEERING
School of Engineering
Campus Wels

The FH Upper Austria Wels Campus puts engineering and applied sciences at the centre of its research and development work. In each of the six specialist areas forming the core of its thematic cluster, the School of Engineering is numbered amongst the best and best-equipped research schools in Europe.

Specialist Areas of Research

- Automation Engineering and Simulation
- Energy and Environment
- Innovation and Technology Management
- Food Technology and Nutrition
- Measuring and Testing Technology
- Materials and Production Engineering

Your Points of Contact for Research & Development at the Wels Campus

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AutoBAHN 2020
Research on Safe and Reliable Autonomous Regional Trains on Free-access Routes
Requirements for certification as well as algorithms and workflows for obstacle detection and operation are to be defined and tested for the use of driverless regional trains on free-access railway lines.
> 9/2015 – 8/2018, > €500,000; FFG Energieforschung

Innovative Consideration of Local Deformations for Extension of Multi-body Simulation to Multi-physical Problems
The calculation of local deformations of elastic bodies in joints is critical for assessing component service life. A new method is being developed that can solve this problem much more efficiently than before.
> 1/2015 – 12/2015, < €100,000; FH Upper Austria core financing

ComPlexos
Compliant Exoskeleton Demonstrator
Introduction into the complex issue of so-called compliant exoskeletons as support systems. In the field of robotics, compliant systems are expected to provide a completely new approach to the human-machine interface and, in the case of exoskeletons, an inherent protection for ligaments, tendons and joints.
> 7/2014 – 6/2016, €100,000 – 500,000; FH Upper Austria core financing

ProtoFrame
Open platform for largely automated comparison of mechatronic system models using parameter identification as a condition for e.g. model-based control design methods and any kind of realistic simulation of complex structures (lifetime optimisation, lightweight design).
> 6/2013 – 8/2016, > €500,000; FFG COIN Aufbau

Bulk Solids & Soils
Simulation of Cohesive Bulk Solids and Soils
Research is being conducted on the internal cohesion of bulk solids and soils. The mathematical description of the bonding mechanisms should allow simulation of the behaviour of bulk solids and soils in numerical simulations.
> 2/2016 – 1/2019, €100,000 – 500,000; FFG Bridge

SIAM
Seamless Interoperability of Assistive Modules in the Digital Factory
- Shorter start-up time of machine tools
- Efficient offline verification and validation of control codes
- Utilisation of expertise for new employees
- Development of complex tools to promptly and reliably perform machine capability studies.
> 7/2015 – 6/2017, > €500,000; FFG Produktion der Zukunft

ecopowerdrive 2
The focus of this project is small internal combustion engines for use in motorcycles and recreational vehicles as well as small implements with a combustion engine. The reduction of fuel consumption and emissions under realistic conditions of use is paramount.
> 7/2014 – 6/2018, €100,000 – 500,000; FFG COMET – K-Projekt
Energy and Environment

Combined Agro-Forest Biorefinery CAFB
The Combined Agro-Forest Biorefinery project produces fuels such as butanol and ethanol as well as other recoverables such as vanillin from agro-industrial wastes from the paper and pulp industry and agriculture.
> 1/2016 – 12/2020, > €500,000; EFRE IWB 2020

CompStor
The CompStor project deals with the large-scale implementation of high-voltage battery storage for the electric power supply with a special focus on protection, monitoring and diagnosis.
> 10/2015 – 9/2018, > €500,000; Interreg Bayern-Österreich 2014–2020

(co)Operation SKD
This project is developing an economical end-to-end process for the production of valuable products (antibiotics, anticancer agents, anti-inflammatories) from microalgae. Bioreactors are being designed and algae genetically enhanced.
> 10/2014 – 9/2018, > €500,000; FFG COIN Aufbau

K1-Meh: 2015-2019
Collaboration at K1-MET (Competence Center for Excellent Technologies in Advanced Metallurgical and Environmental Process Development) in three subprojects: optimisation of the sintering process, dust treatment and gas-cleaning solutions.
> 7/2015 – 6/2019, €100,000 – 500,000; FFG COMET K1-Zentrum

MOFNUG
Modular Questionnaire for User Satisfaction in Buildings
This FFG cooperation project systematically investigates the full range of user satisfaction in buildings. The outcome will be, inter alia, a modular online questionnaire with standardised evaluation methods.
> 6/2013 – 5/2016, €100,000 – 500,000; FFG COIN Aufbau

SOLEX
The new process heat technology testbed can now test components for food and product drying processes, cleaning, steam generation and solar cooling, and the interaction with solar-generated process heat up to 200 °C can be studied.
> 7/2014 – 6/2017, €100,000 – 500,000; FFG COIN Aufbau

InnoGrid
On the basis of a distributed smart grid demonstrator, an overall concept from the consumer level to the medium voltage level is implemented and a test environment created in which smart grid concepts can be simulated.
> 9/2014 – 8/2017, €100,000 – 500,000; FFG e!Mission

K-CSI Plastics Engineering
K-CSI Plastics Cradle to Cradle with Schools and Institutes
K-CSI is an initiative for and with children as well as young people, parents and educators. The project uses workshops to explain the plastic life cycle in a hands-on manner. Laboratory experiments and field trips are also on the agenda.
> 4/2015 – 6/2016, < €100,000; FFG Talente Regional

Innovation and Technology Management

Client Integration in Radical Innovation Projects
Client Integration in the Early Phases of the Development of Radical Product Innovations
The aim of this research project is to find out what skills and competencies clients need to have and which customer integration methods should be used in order to obtain meaningful contributions to radical innovations.
> 9/2013 – 8/2016, €100,000 – 500,000; FWF Elise Richter
Food Technology and Nutrition

**GlucoSTAR**
High-content Screening Platform for Identification and Characterisation of Insulin-mimetic Substances


> 1/2015 – 12/2016, < €100,000;
> FH Upper Austria core financing

**KuRR**
Caries and Beetroot

Functional, caries-preventive drinks are being developed from beetroot and tested in a clinical trial in cooperation with the company Voglsam GmbH.

> 1/2015 – 12/2015, < €100,000;
> Contract research

**PhytoSTAR**
Identification and Characterization of Herbal Compounds with Antidiabetic Properties

Identification and characterisation of plant anti-diabetic agents for the prevention and treatment of diabetes. FFG project together with the Center for Advanced Bioanalysis (CBL), TSC Food Products GmbH and PM-International AG.

> 10/2015 – 9/2018, €100,000 – 500,000;
> FFG Bridge

**StarPATT**
Micro patterning-based Protein-Protein-Interaction Detection Platform

Development of a high-throughput platform suitable for the analysis of protein-protein interactions. FFG project together with the Vienna University of Technology and EV Group.

> 1/2014 – 6/2016, €100,000 – 500,000;
> FFG Bridge

Elderly Quality of Life

**ArthroKnee**
Interactive Gonarthrose Database of 3D Microstructure, Geometry and Biomechanics

ArthroKnee combines micro-CT and X-ray images of osteoarthritis patients to generate individualised 3D knee models.

> 10/2015 – 9/2017, €100,000 – 500,000;
> OÖ 2020 Medizintechnik

**Measuring and Testing Technology**

**ADAM**
Advanced Multimodal Data Analysis and Visualization of Composites Based on Grating Interferometer Micro-CT Data

ADAM investigates and implements new multimodal data analysis and visualisation techniques to harness the great potential of innovative 3D Talbot-Lau grating interferometer computed tomography for non-destructive testing of composite materials.

> 3/2016 – 2/2019, €100,000 – 500,000;
> FFG Bridge Frühphase

**ANDISIA**
Automated Non-Destructive Inspection and Structural Integrity Assessment of Hybrid Structural Composites

The goal is the automated and non-destructive testing of novel 3D wattled winding technology components with active thermography to predict fatigue strength and service life as a function of the defect rate.

> 6/2015 – 5/2017, €100,000 – 500,000;
> OÖ 2020 Produktionsstandort 2050

**Effect of Defect**
3D Thermographic Reconstruction of Damaged Aerospace Structures for Mechanical Analysis

The aim of the project is the development of thermographic methods for 3D reconstruction of flaws. The availability of a quantitative and non-destructive test method can create an interface for mechanical analysis.

> 9/2014 – 8/2017, > €500,000;
> FFG Take Off
INTERAQCT
International Network for the Training of Early Stage Researchers on Advanced Quality Control by Computed Tomography

INTERAQCT trains young scientists in the fields of computed tomography hardware and software, non-destructive testing and dimensional metrology, generative production and manufacturing of microstructures and composites.

> 10/2013 – 9/2017, €100,000 – 500,000;
> EU FP 7

Project Manager: DI (FH) Dr. Christoph Heinzl
http://www.interaqct.eu

ZPT+
K-Project for Non-destructive Testing and Tomography Plus

The thematic priorities are evaluating the data from X-ray computed tomography and laser ultrasonic testing, in sit NDT methods, combining NDT with material simulation and ascertaining quantitative material data from NDT measurements.

> 9/2014 – 8/2018, > €500,000;
> FFG COMET – K-Projekt

Project Manager: Prof. PD DI Dr. Johann Kastner
http://www.3dct.at

Materials and Production Engineering

BliKoPla
Biocidal Plastic Surfaces Using Plasma Deposition

The aim of the COIN project BIKOPLA is the development of plant and process technology for the production of antibacterial plastic surfaces using metal oxides and hydrophobic films in a plasma coating technique.

> 4/2013 – 3/2017, > €500,000;
> FFG COIN Aufbau

Project Manager: DI (FH) Dr. Gerald Zauner
http://www.bikopla.at

Biocidal APS
Biocidal Coatings Using the Air Plasma Spray Process

With an atmospheric plasma spray process, layers are applied to plastic and textile surfaces that kill off microorganisms such as bacteria or fungi. The aim is thus to generate long-term stable surfaces as well as to demonstrate and analyse their germicidal effect.

> 7/2015 – 6/2018, €100,000 – 500,000;
> Contract research

Project Manager: Prof. DI Dr. Daniel Heim
K1met-2 Variation of Non-metallic Inclusions by ESR

The focus of this project is the influence of remelting parameters and slag during the ESR process on the formation of non-metallic inclusions and material properties. It is carried out in the FH Upper Austria’s stainless steel plant laboratory with partners Böhler Steel and voestalpine Stahl Donawitz.

» 7/2015 – 6/2019, > €500,000; FFG K1-Zentrum

Project Manager:
Prof. DI Dr. Reinhold Schneider

Medium-Mn Steel Alloys

In the context of a dissertation, this project is concerned with the comprehensive characterisation of the constitution and properties of alloy systems with medium-Mn content. The project is being carried out in cooperation with voestalpine Stahl and the Technical University of Graz.

» 1/2013 – 12/2017, €100,000 – 500,000; Contract research

Project Manager:
Prof. DI Dr. Reinhold Schneider

Development of Medium-Mn Steel Alloys

In the context of a dissertation, this project is concerned with the comprehensive characterisation of the constitution and properties of alloy systems with medium-Mn content. The project is being carried out in cooperation with voestalpine Stahl and the Technical University of Graz.

» 1/2013 – 12/2017, €100,000 – 500,000; Contract research

Project Manager:
Prof. DI Dr. Reinhold Schneider

MicI Multimodal and In Situ Characterisation Methods for Inhomogeneous Materials

This project is implementing non-destructive testing methods in a multimodal testbed for in situ characterisation of inhomogeneous materials. A new 3D X-ray microscope is used for further characterisation.

» 1/2016 – 12/2021, > €500,000; EFRE IWB 2020

Project Manager:
DI Christian Gusenbauer

Innovative Lightweight Steels for Automotive Applications

The focus of this project is the characterisation of new, reduced-density lightweight steels with average Al content. New alloys are tested for their microstructure and mechanical properties.

» 10/2015 – 6/2017, €100,000 – 500,000; Contract research

Project Manager:
DI Dr. Ludovic Samek, MSc

Cross-Faculty Institute for Intelligent Production – Wels

The aim of this specialist area of research is the development of expertise and infrastructure in the field of additive manufacturing (3D metal printing) by means of a competence centre at the FH Upper Austria Wels Campus.

» 7/2014 – 6/2019, > €500,000; OÖ 2020

Project Manager:
Prof. Dr. Ing. Aziz Huskic

HarTec Tribo-Agriculture – HarTec

In the framework of this multi-company project of the K2 Centre AC²T, and incorporating research for a master’s thesis, the usability of different alloy systems and welding procedures for the application of wear-resistant coatings on tools for agricultural machinery is being investigated.

» 4/2015 – 3/2018, < €100,000; FFG K2-Zentrum

Project Manager:
Prof. DI Dr. Reinhold Schneider

DLC Coating Development

Deposition processes for diamond-like carbon coatings on various steels are being developed using glow discharge plasma and carbon-containing gases. These coatings are characterised by very high hardness, chemical resistance and low friction.

» 6/2013 – 5/2016, €100,000 – 500,000; Contract research

Project Manager:
Prof. DI Dr. Daniel Heim

School of Engineering | Wels Campus
Plastsurf
Interactions between Polymer Materials and System Components in Plastic Processing

Friction and wear are a major challenge for the plastics industry. This FFG-funded cooperation project with TCKT GmbH is developing new testing methods and researching tribological relationships in polymer engineering processes.

> 1/2011 – 12/2015, > €500,000;
FFG COIN Aufbau

Polymers in Upper Austria 2018

Under this project, seminar programmes in plastics are designed and offered to students and international students. This project is conducted in cooperation with the JKU and the FH Upper Austria and funded by the State of Upper Austria’s Campusland initiative.

> 9/2015 – 8/2018, < €100,000;
Land OÖ Campusland

Super Bainite Steels

The aim of this project is the evaluation of new alloy systems and the influence of different heat treatment cycles, and the microstructure and property development of high strength steels.

> 3/2016 – 8/2018, < €100,000;
Contract research

SLS – Materials with 0.4% C
Influence of Process Parameters on the Processability of Powder Materials with a Higher Carbon Content (C> 0.3 wt%) by Means of Laser Melting

A basic understanding of laser melting processing of materials with a carbon content of > 0.3 wt% will be developed to ensure a reliable additive manufacturing process using these materials.

> 11/2015 – 12/2020, €100,000 – 500,000;
Contract research

SLS Press Hardening Tools

The aim of this project is the production of experimental press hardening tools through laser melting of metal powder CR7V-L, QRO® 90 and HTCS, performance of wear tests under conditions similar to production and comparisons with conventionally-produced tools of the same material.

> 10/2015 – 3/2016, < €100,000;
Contract research

UPCIM
Upcycle Inline Monitoring

The processing of plastics is often accompanied by changes in molecular structure. In this FFG-funded cooperation project with Next Generation Analytics GmbH, a method is being developed to allow online detection of property changes in plastics.

> 4/2015 – 3/2016, €100,000 – 500,000;
Contract research

VPSIM Deep Drawing

The overall objective of the project is to implement both a tribological-thermal modeling of multistage deep-drawing processes under realistic industrial conditions at testing facilities that simplify reality as well as a non-linear finite element simulation program.

> 6/2013 – 5/2016, €100,000 – 500,000;
Contract research

Heat Treatment Optimisation of Al Casting Alloys – 2

In cooperation with Nemak Linz, the project focuses on the influence of solidification and successive heat treatment conditions on microstructure development and selected mechanical properties of new aluminum casting alloys.

> 10/2014 – 9/2017, < €100,000;
Contract research

Heat Treatment Optimisation of Al Casting Alloys – 3

In cooperation with Nemak Linz, the project focuses on the influence of solidification and successive heat treatment conditions on microstructure development and selected mechanical properties of new aluminum casting alloys.

> 10/2014 – 9/2017, < €100,000;
Contract research

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> 10/2015 – 3/2016, < €100,000;
Contract research
We sincerely thank the following funding agencies for their support:

Much appreciation is also due to our more than 600 corporate and scientific partners!
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