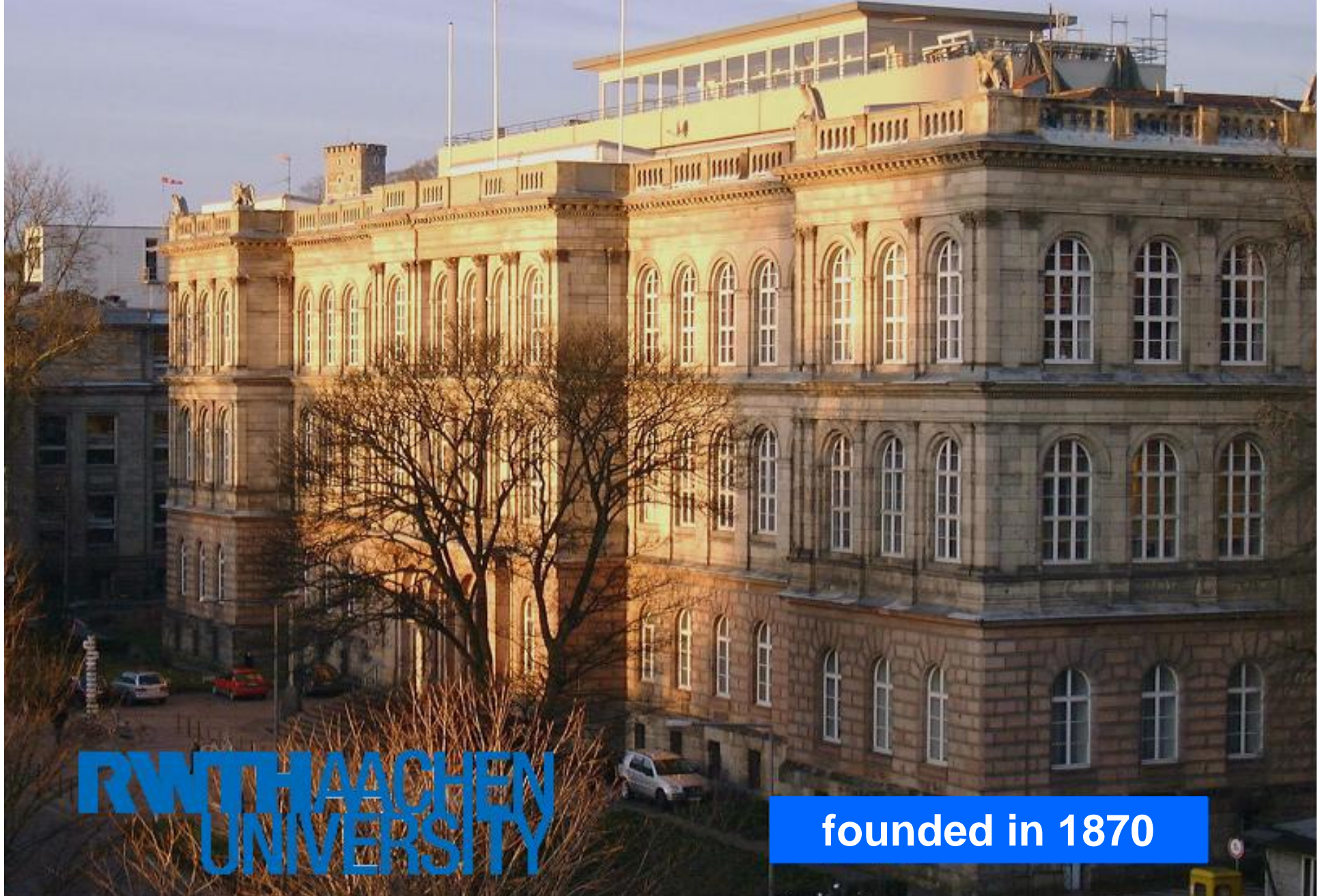


RWTH Aachen University

**RWTH**

**RWTHAACHEN  
UNIVERSITY**

**founded in 1870**





# Key Figures WT 07/08

**RWTH**



**30260 students**



**5169 international students**



**558 Mill. EUR budget**

**154 Mill. EUR external funding**



**260 institutes**



**400 professorships**



**2000 non-academic staff**



**2000 academic staff**

# Faculties and Departments



## **FB 1: Faculty of Mathematics, Computer Sciences & Natural Sciences**

Dept.: Mathematics  
Dept.: Computer Science  
Dept.: Physics  
Dept.: Chemistry  
Dept.: Biology

## **FB 2: Faculty of Architecture**

## **FB 3: Faculty of Civil Engineering**

## **FB 4: Faculty of Mechanical Engineering**

## **FB 5: Faculty of Georesources & Materials Engineering**

Dept.: Mining & Waste Management  
Dept.: Metallurgy  
Dept.: Geoscience

## **FB 6: Faculty of Electrical Engineering & Information Technology**

**Engineering  
technology**

## **FB 7: Faculty of Arts**

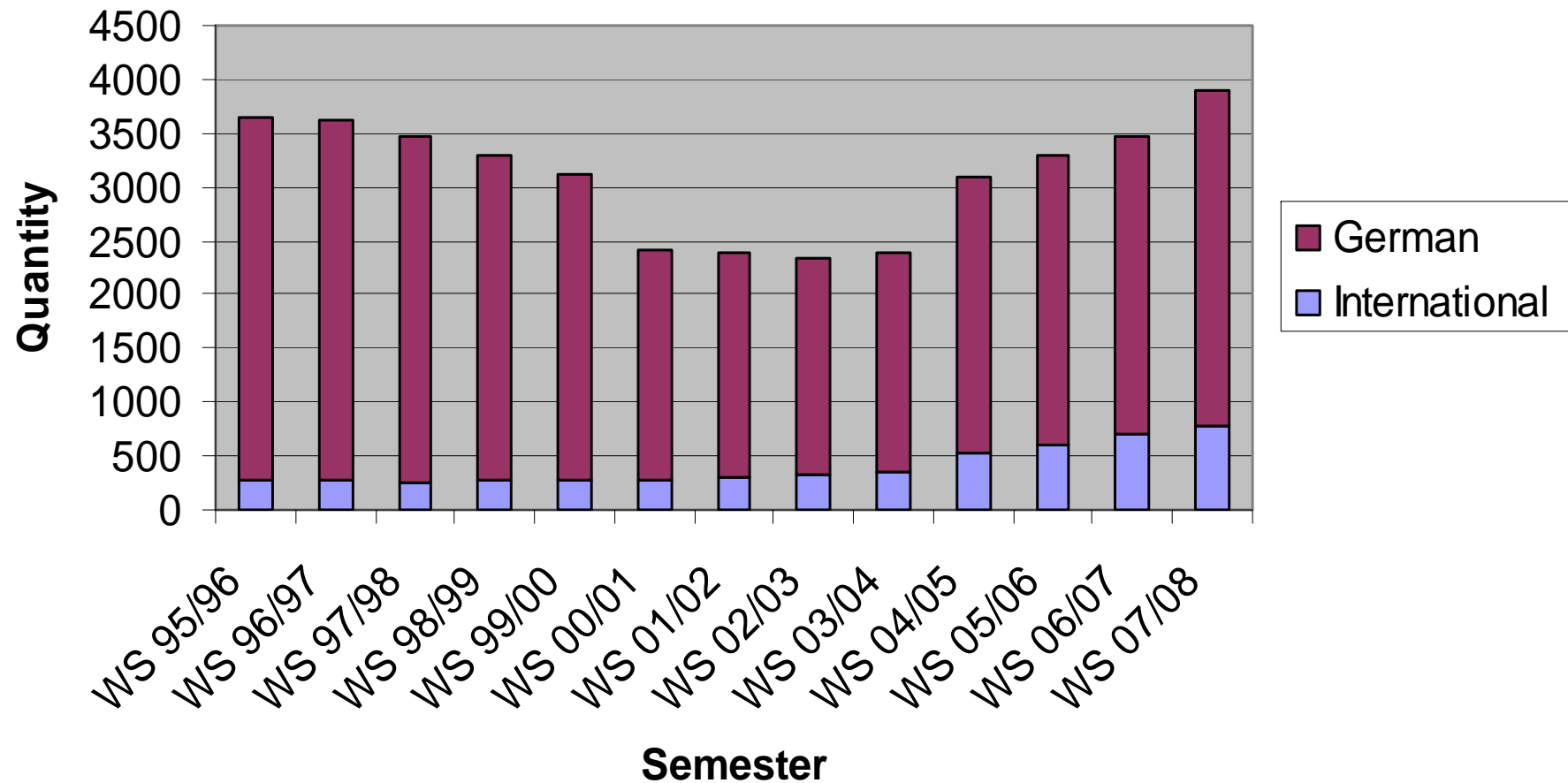
## **FB 8: Faculty of Business & Economics**

## **FB 10: Faculty of Medicine**

# PhD Number of Students at RWTH

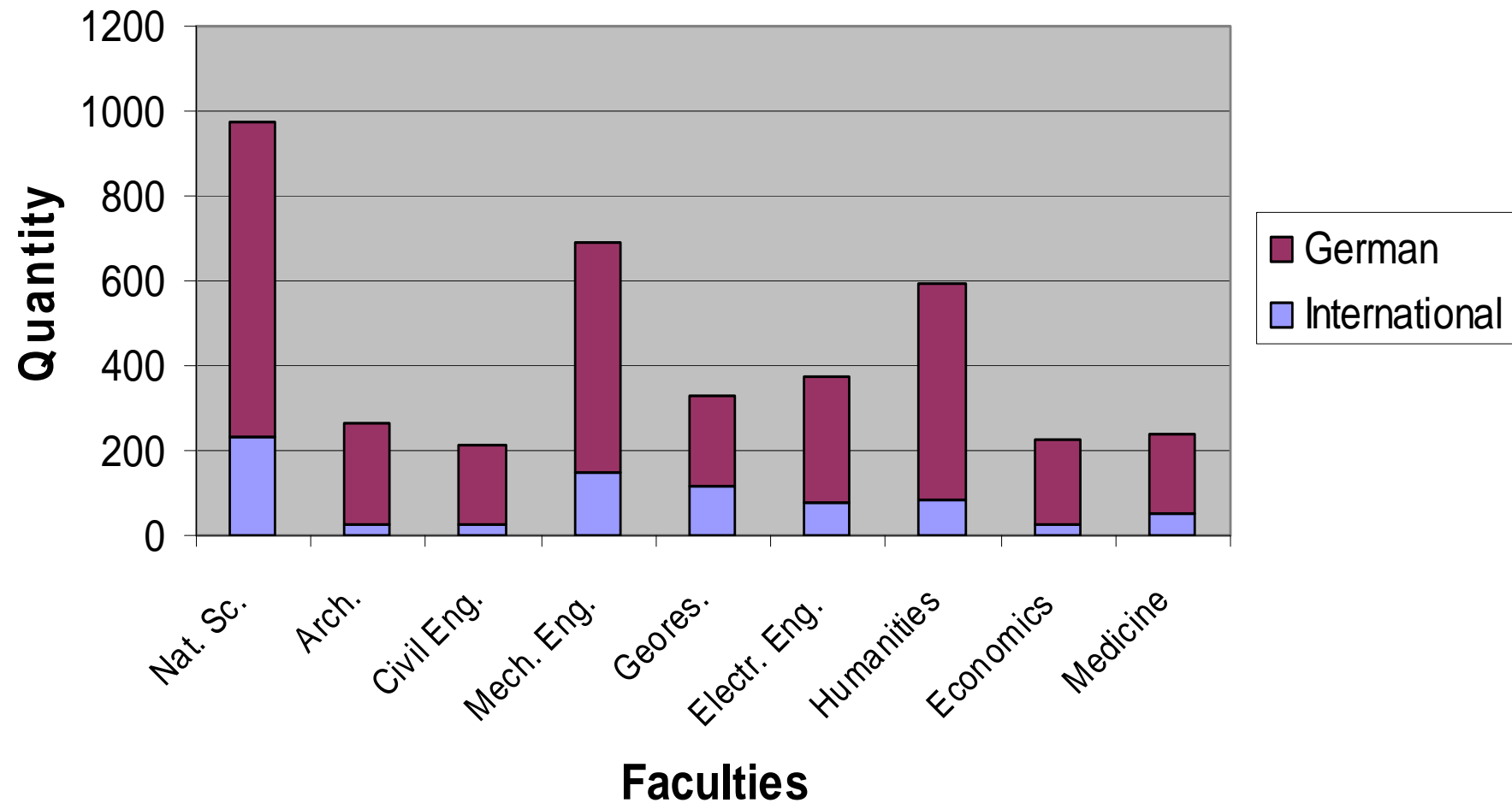


## German and International PhD Students

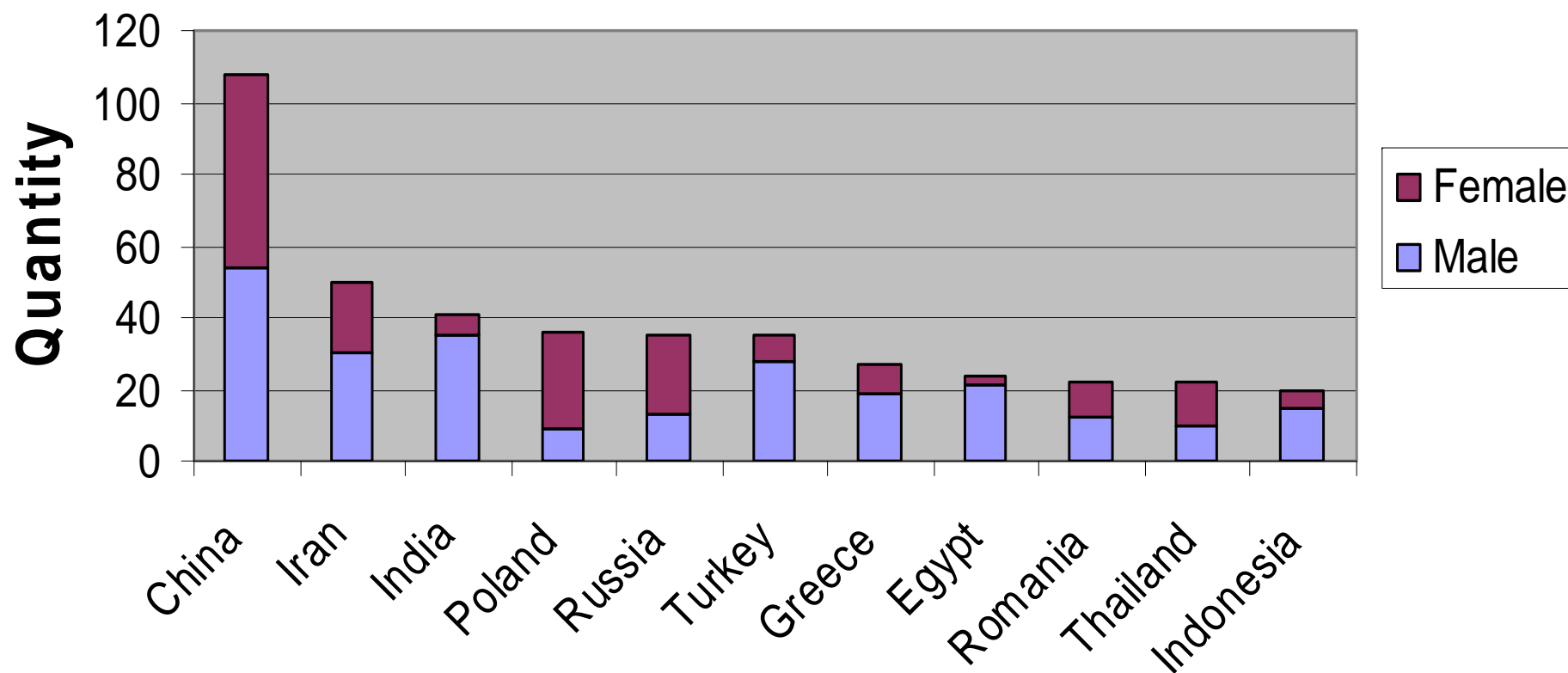


# Number of PhD Students by Faculties

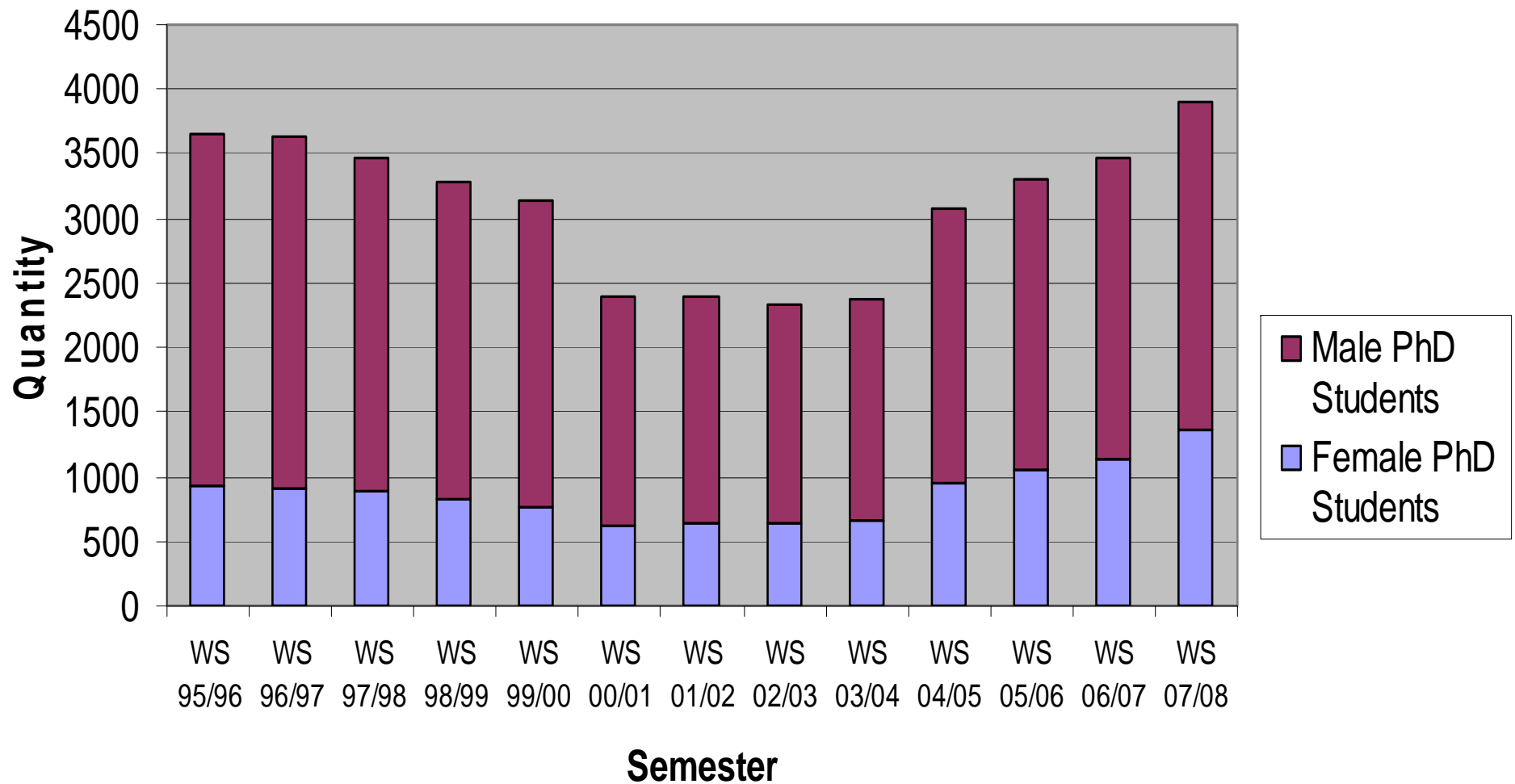
## International and German PhD Students



## International PhD Students WS 06/07 (>20 per Country)



# Male and Female PhD Students



# PhD in Science/Engineering



- topping-up qualification for highly qualified researchers and industrial managers
- research in co-operation with a scientific supervisor (*Doktorvater*) - no PhD programme
- candidates are often employed at the university (or in industry)
- scientific results worked up to a doctoral thesis (*Dissertation*)
- duration: 3 to 5 years
- no tuition fees for PhD students



- Acquisition of **key qualifications** and inter-disciplinary, intercultural and communication skills

- **Doctorate Supplement** as evidence for knowledge and soft skills acquired alongside the doctoral thesis

## Optimization of the qualification of doctoral candidates by ...

Vice-Rector for Structure, Research  
and Junior Academic Staff

Steering  
Committee

**RWTH** CENTER FOR  
DOCTORAL  
STUDIES

CDS Office

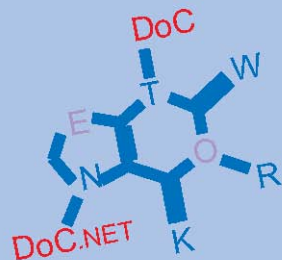
Faculties /  
Academic Supervisors

Doctoral  
Candidates

# Informal Network for Doctoral Students

- for **German and International** doctoral students
- in cooperation with the **International Office** and the **Center for Doctoral Studies**
- exchange beyond cultural and disciplinary boundaries

Contact via the International Office



Contact:

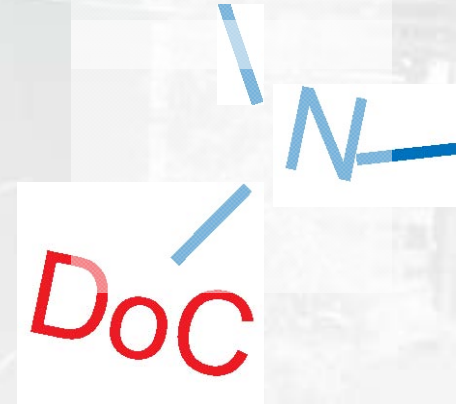
Dr. Ulrike Brands-Proharam Gonzalez  
ulrike.brands@zhv.rwth-aachen.de

## Doc.net - Programme



- non-technical mentoring of international doctoral candidates
- supported by the German Academic Exchange Service (DAAD)

Offerings are...



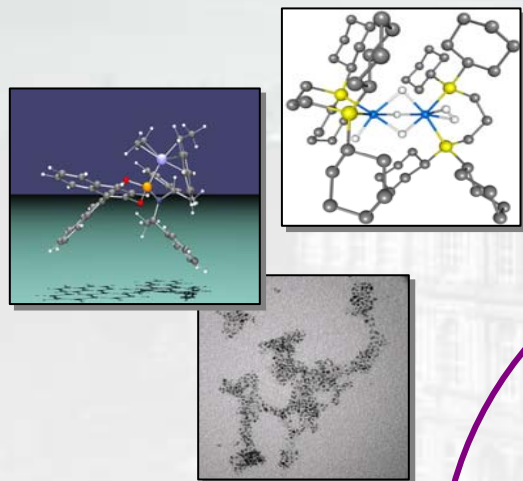
- Language qualification in German
  - Workshops in English
- Teaching Assistantships
  - informal network for doctoral students
  - RWTH Leisure & Pleasure

# **Faculty of Mathematics, Computer Science and Natural Sciences**

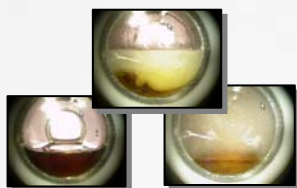
6040 Students

4 examples

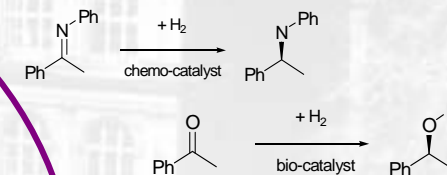




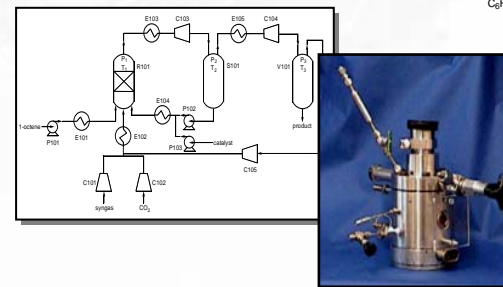
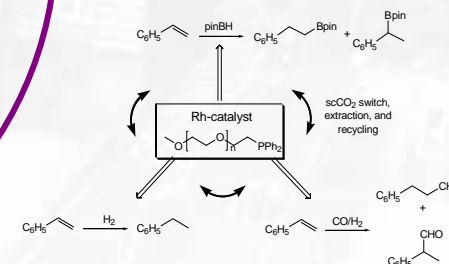
## Catalysis



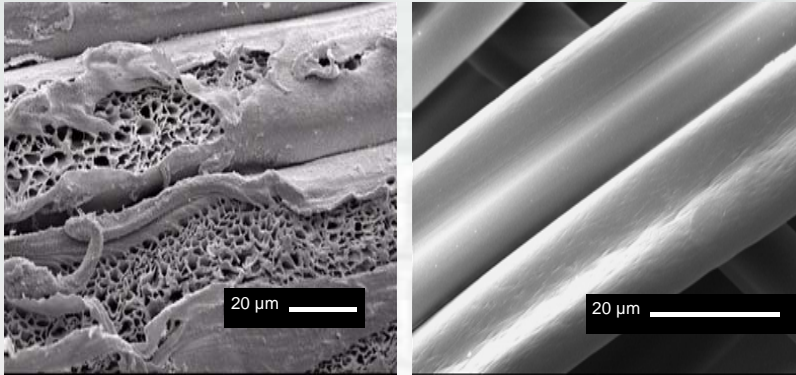
## Alternative Solvents



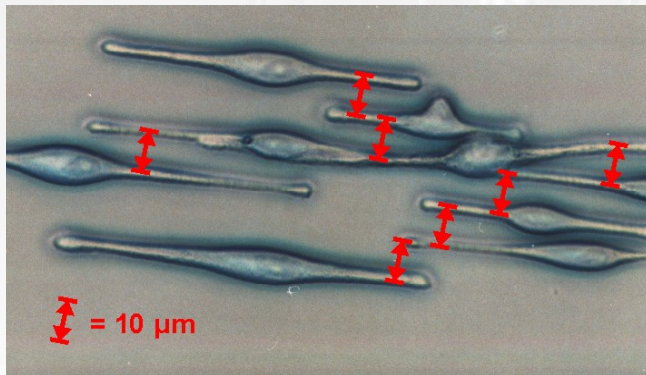
## Green Chemistry



**Prof. W. Leitner**  
 tc@itmc.rwth-aachen.de  
 www.itmc.rwth-aachen.de



*Surface modification of fibres for protection against chemicals*



*Directed growth of melanocytes on a functionalized hydrogel surface*

- Multifunctional / Multireactive Oligomers and Polymers for Surface Modification
- Functional Assembly of Supra- and Macromolecules at Interfaces
- Micro-/Nanoparticles and Hybrid Materials
- Surface Activation and Functionalization
- Biomaterials, Nano- and Microstructures at Biointerfaces

**Prof. Martin Möller**

[www.dwi.rwth-aachen.de](http://www.dwi.rwth-aachen.de)

[contact@dwi.rwth-aachen.de](mailto:contact@dwi.rwth-aachen.de)

**Lehrstuhl für  
Informatik 3**

**Department of  
Computer Science 3**



Application  
Areas in  
Engineering  
and  
Informatics

Programming  
Languages  
and Software  
Engineering

Software  
Architecture  
Modelling

Software  
Tools and  
Meta  
Environment

**Prof. Nagl**

[klaudia@i3.informatik.rwth-aachen.de](mailto:klaudia@i3.informatik.rwth-aachen.de)

[www.i3.informatik.rwth-aachen.de](http://www.i3.informatik.rwth-aachen.de)

**Prof. Joost-Pieter Katoen**

[www-i2.informatik.rwth-aachen.de](http://www-i2.informatik.rwth-aachen.de)

[info2sek@i2.informatik.rwth-aachen.de](mailto:info2sek@i2.informatik.rwth-aachen.de)

$$[\text{BITS}] \quad \frac{B \longrightarrow_B z}{\langle [B], \omega \rangle \longrightarrow_E \langle z, \omega \rangle}$$

$$[\text{OUT}_1] \quad \frac{\langle E, \omega \rangle \longrightarrow_E \langle E', \omega' \rangle}{\langle \text{out } E, \omega \rangle \longrightarrow_E \langle \text{out } E', \omega' \rangle}$$

$$[\text{PLUS}_1] \quad \frac{\langle E_0, \omega \rangle \longrightarrow_E \langle E'_0, \omega' \rangle}{\langle E_0 + E_1, \omega \rangle \longrightarrow_E \langle E'_0 + E_1, \omega' \rangle}$$

$$[\text{OUT}_2] \quad \frac{}{\langle \text{out } z, \omega \rangle \longrightarrow_E \langle z, z :: \omega \rangle}$$

$$[\text{PLUS}_2] \quad \frac{\langle E_1, \omega \rangle \longrightarrow_E \langle E'_1, \omega' \rangle}{\langle z_0 + E_1, \omega \rangle \longrightarrow_E \langle z_0 + E'_1, \omega' \rangle}$$

$$[\text{SEQ}_1] \quad \frac{\langle E_0, \omega \rangle \longrightarrow_E \langle E'_0, \omega' \rangle}{\langle (E_0, E_1), \omega \rangle \longrightarrow_E \langle (E'_0, E_1), \omega' \rangle}$$

$$[\text{PLUS}_3] \quad \frac{}{\langle z_0 + z_1, \omega \rangle \longrightarrow_E \langle z_0 + z_1, \omega \rangle}$$

$$[\text{SEQ}_2] \quad \frac{}{\langle (z, E_1), \omega \rangle \longrightarrow_E \langle E_1, \omega \rangle}$$

Concurrent Systems

Semantics

Model Checking



# **Faculty of Architecture**

1614 students

An example

Building Information Modelling  
Collaborative Design Platforms  
Intelligent Building Systems

**Professor Architekt  
Peter Russell M.**

[caad.arch.rwth-aachen.de](http://caad.arch.rwth-aachen.de)

[ilga@caad.arch.rwth-aachen.de](mailto:ilga@caad.arch.rwth-aachen.de)

# **Faculty of Civil Engineering**

1095 students

An example

**Prof. Wendler**  
**Prof. Reichmuth**  
via@via.rwth-aachen.de  
www.via.rwth-aachen.de

Dept.  
Railway  
operations  
Research

Dept.  
Transport  
Economics

Dept.  
Railway  
Signalling

Dept.  
Airport design  
and air traffic



Train protection  
demonstrator

Education in the  
railway signalling lab



# **Faculty of Mechanical Engineering**

6733 students

4 examples



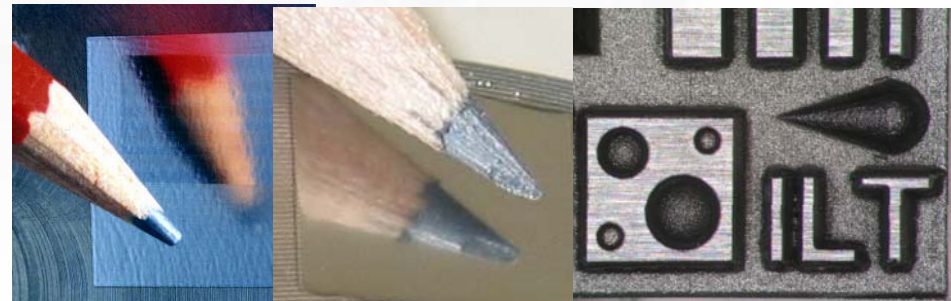
## Research Topics

- Solid State and Diode Laser Development
- Ultrafast high power Lasers
- Laser applications in production, Life Science/ Medical, Measurement

**Prof. Reinhart Poprawe**

[www.ilt.rwth-aachen.de](http://www.ilt.rwth-aachen.de)

[poprawe@ilt.fhg.de](mailto:poprawe@ilt.fhg.de)



**Professor Wolfgang Marquardt**

secretary.lpt@avt.rwth-aachen.de

www.avt.rwth-aachen.de



## **Research activities**

- Model-based process control
- Model-based experimental analysis
- Process synthesis





## Research Topics

- Active and Passive Safety
- Energy Efficiency
- Vehicle Dynamics/Driving Pleasure

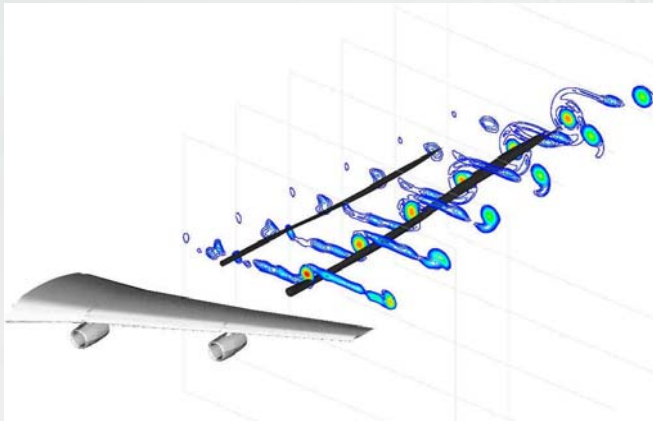
**Prof. Stefan Gies**

[www.ika.rwth-aachen.de](http://www.ika.rwth-aachen.de)

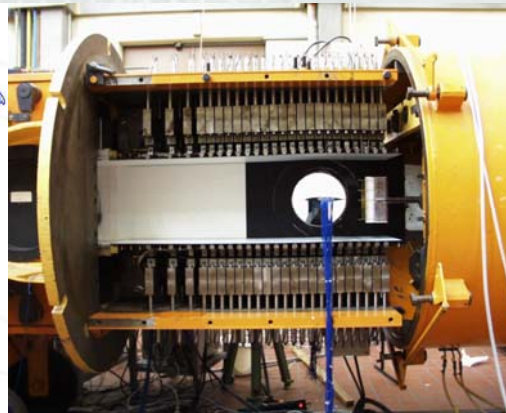
[office@ika.rwth-aachen.de](mailto:office@ika.rwth-aachen.de)



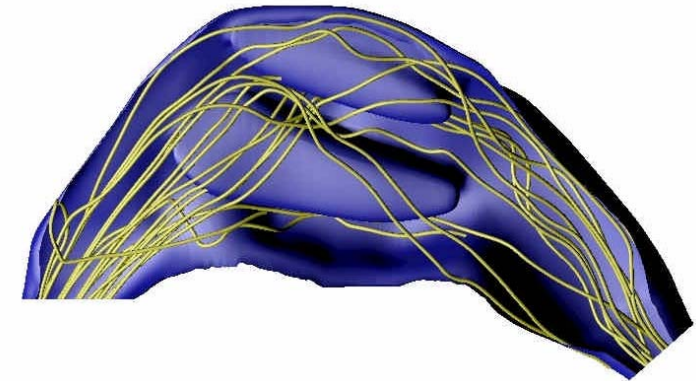




*Jet-vortex  
interaction in the  
wake of an airplane  
wing*



*Test section with  
adaptive walls of  
the transonic wind  
tunnel*



*CFD determined  
streamlines through a  
model of the human  
nose during  
inhalation.*

**Prof. Wolfgang Schröder**

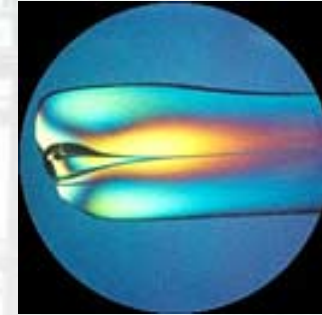
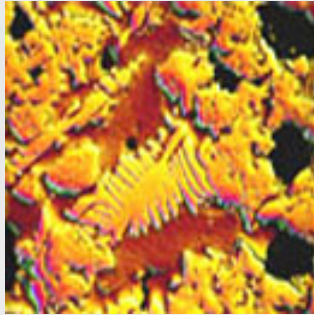
[www.aia.rwth-aachen.de](http://www.aia.rwth-aachen.de)

[office@aia.rwth-aachen.de](mailto:office@aia.rwth-aachen.de)

# **Faculty of Georesources and Materials Engineering**

2754 students

3 examples



**Prof. Heike Emmerich**

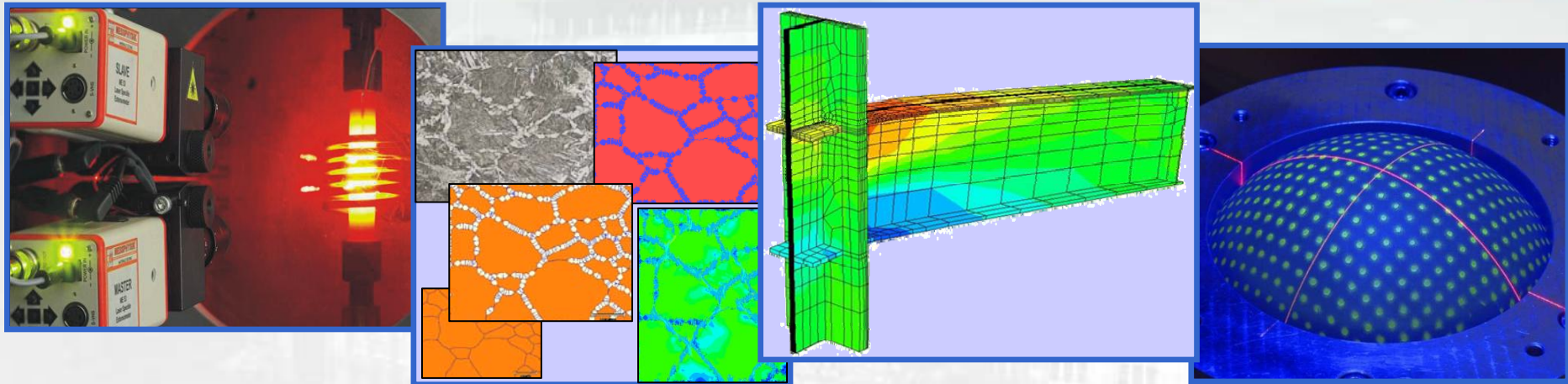
[www.ghi.rwth-aachen.de](http://www.ghi.rwth-aachen.de)

[sekretariat-cme@ghi.rwth-aachen.de](mailto:sekretariat-cme@ghi.rwth-aachen.de)

Microstructure Simulation

Multiscale Simulation

Process Optimization



The focus of the **Materials Processing** group lies on the investigation of processes and properties of the solid state at medium to high temperatures.

The focus of the **Advanced Materials Simulation** group is the numerical modeling of microstructures and properties.

The **Materials Mechanics** group investigates the structural integrity.

The activities of the **Materials Characterization** group cover the description of material properties, the determination of forming, crash and corrosion-behaviour, and the development of new measuring techniques.

**Prof. Wolfgang Bleck**  
[info@iehk.rwth-aachen.de](mailto:info@iehk.rwth-aachen.de)  
[www.iehk.rwth-aachen.de](http://www.iehk.rwth-aachen.de)





**Prof. Günter Gottstein**

[www.imm.rwth-aachen.de](http://www.imm.rwth-aachen.de)

[imm@imm.rwth-aachen.de](mailto:imm@imm.rwth-aachen.de)

- Interfaces
- Crystall Plasticity
  - Texture
  - Simulation
- Nano Structures
- Poster IMM



# **Faculty of Electrical Engineering and Information Technology**

2756 students

3 examples



**Digital factory**



**Geo Data**



**Space robotics**

**Prof. Jürgen Rossmann**

[www.mmi.rwth-aachen.de](http://www.mmi.rwth-aachen.de)

[sekretariat@mmi.rwth-aachen.de](mailto:sekretariat@mmi.rwth-aachen.de)



Asset  
Management  
and Regulation



Power  
Generation and  
Trading



Power  
Quality

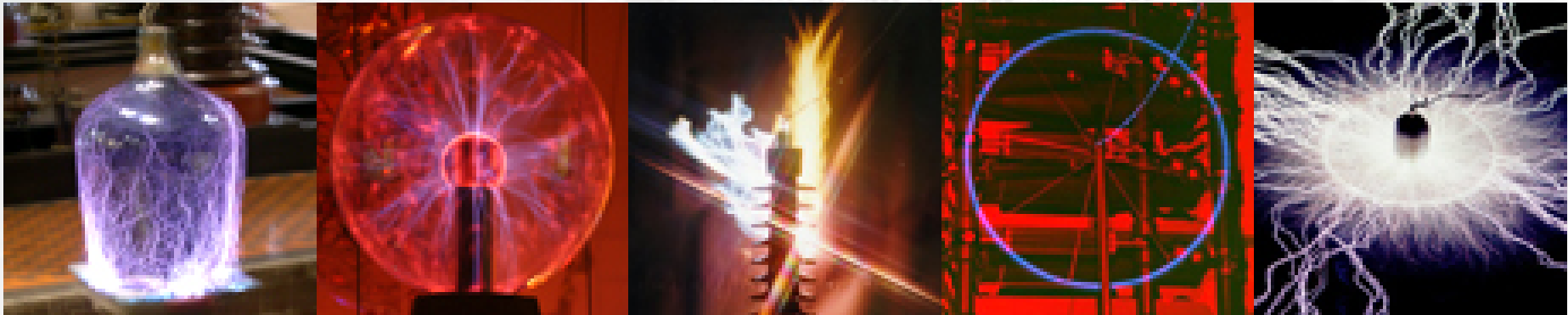
Electricity and  
Natural Gas  
Networks

**Prof. Hans-Jürgen Haubrich**

[ri@iaew.rwth-aachen.de](mailto:ri@iaew.rwth-aachen.de)

[www.iaew.rwth-aachen.de](http://www.iaew.rwth-aachen.de)

[www.ifht.rwth-aachen.de](http://www.ifht.rwth-aachen.de)  
[post@ifht.rwth-aachen.de](mailto:post@ifht.rwth-aachen.de)



**Prof. Armin Schnettler**  
and the

**Institute for High Voltage Technology**  
invite you to join one of the following research groups:

**Insulation Systems and Diagnosis**

**Sustainable Power Systems**



# **Faculty of Business and Economics**

1818 students

An example





**Prof. Kai Reimers**

Recker@wi.rwth-aachen.de

[www.wi.rwth-aachen.de](http://www.wi.rwth-aachen.de)

Interorganisational information systems,  
their structure and evolution as seen from  
an institutional perspective

Implementation of large-scale information  
systems (ERP systems) in international  
companies

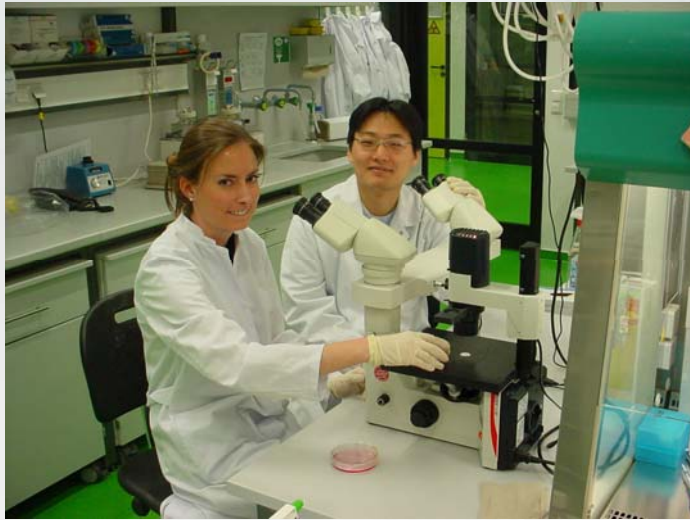
Development of IT standards (IT  
standardisation)



# **Faculty of Medicine**

2720 students

2 examples



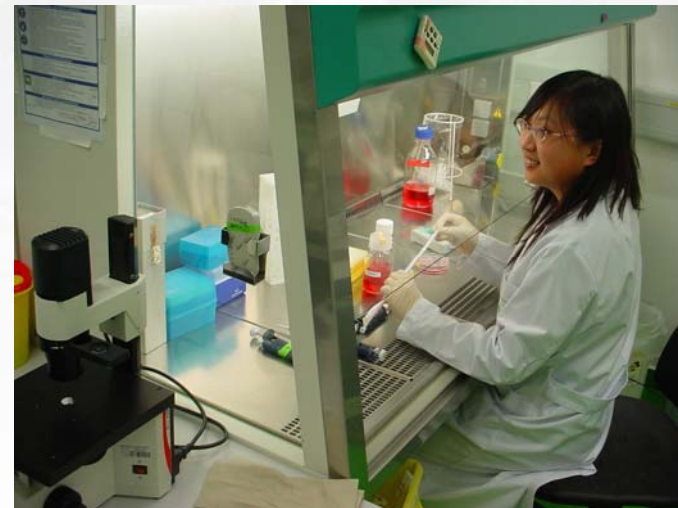
**Prof. Martin Zenke**

[www.molcell.rwth-aachen.de](http://www.molcell.rwth-aachen.de)

[martin.zenke@rwth-aachen.de](mailto:martin.zenke@rwth-aachen.de)

## Research fields

- Programming and reprogramming of stem cells
- Biomaterials und cells in biohybrid systems
- Nanoparticles for monitoring cell position and function



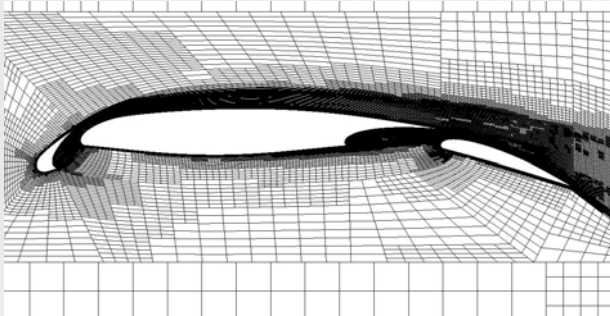
# AICES

## The graduate school

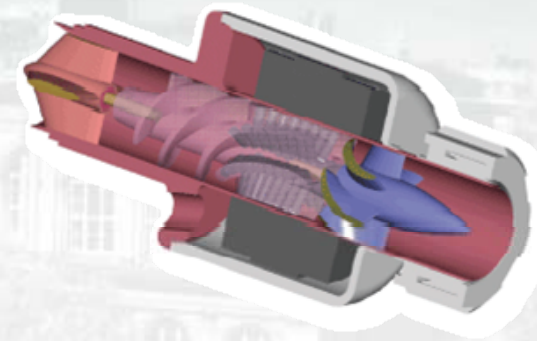




# AICES- The graduate school



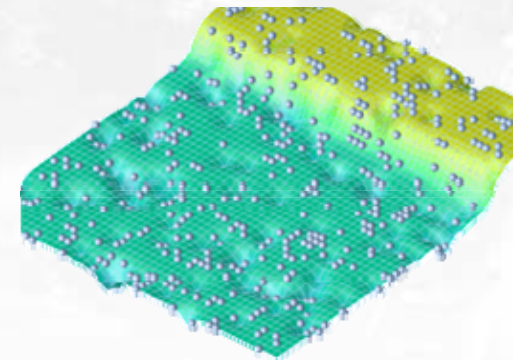
**Department of  
Mathematics**



**Faculty of Mechanical  
Engineering**



**Department of Computer  
Science**



**Faculty of  
Georesources and  
Material Engineering**



# AICES- The graduate school



Scientific Director

**Prof. Marek Behr**

[behr@cats.rwth-aachen.de](mailto:behr@cats.rwth-aachen.de)

Managing Director

**Dr. Nicole Faber**

[faber@aices.rwth-aachen.de](mailto:faber@aices.rwth-aachen.de)

AICES is spearheaded by 15 RWTH institutes from 4 departments, and it includes participation from the Research Centre Jülich and the Max Planck Institute for Iron Research in Düsseldorf.

[www.aices.rwth-aachen.de](http://www.aices.rwth-aachen.de)