

The Department of Mathematics

Institutes for Algebra and Geometry | Analysis | Applied and Numerical Mathematics | Institute of Stochastics



Algebra and Geometry

Prof. Maria Axenovich Ph. D.
Prof. Dr. Frank Herrlich
Prof. Dr. Andreas Kirsch
Prof. Dr. Enrico Leuzinger
Prof. Dr. Roman Sauer
Prof. Dr. Claus-Günther Schmidt
Prof. Dr. Wilderich Tuschmann
JProf. Dr. Gabriela Weitze-Schmithüsen

Analysis

Prof. Dr. Dirk Hundertmark
Prof. Dr. Tobias Lamm
Prof. Dr. Michael Plum
Prof. Dr. Wolfgang Reichel
JProf. Dr. Jens Rottmann-Matthes
Prof. Dr. Roland Schnaubelt
Prof. Dr. Lutz Weis

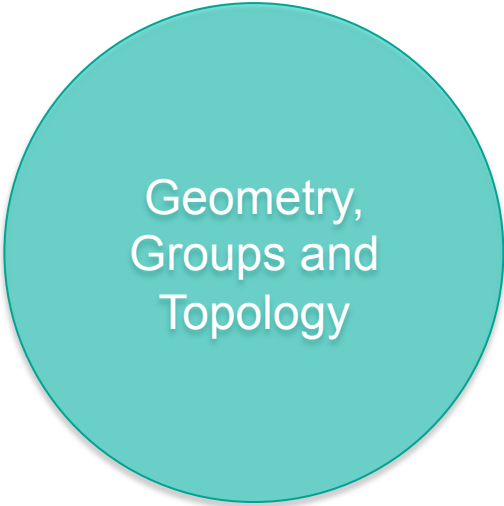
Applied and Numerical Mathematics

Prof. Dr. Willy Dörfler
Prof. Dr. Marlis Hochbruck
Prof. Dr. Tobias Jahnke
Prof. Dr. Andreas Rieder
JProf. Dr. Katharina Schratz
Prof. Dr. Christian Wieners

Stochastics

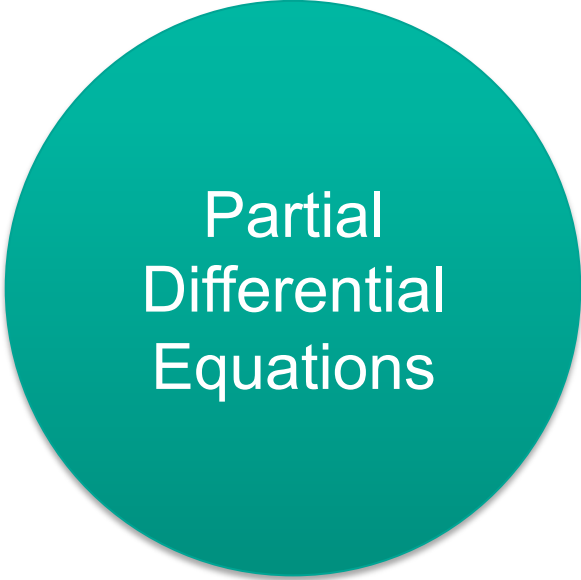
Prof. Dr. Nicole Bäuerle
Prof. Dr. Vicky Fasen
Prof. Dr. Tilmann Gneiting
Prof. Dr. Norbert Henze
Prof. Dr. Daniel Hug
JProf. Dr. Claudia Kirch
Prof. Dr. Günter Last

Numerical Analysis
Numerics of Partial Differential Equations
Scientific Computing
Inverse Problems



Geometry,
Groups and
Topology

Differential Geometry
Discrete Mathematics
Metric Geometry
Topology
Number Theory



Partial
Differential
Equations

Nonlinear Partial Differential
Equations
Functional Analysis
Mathematical Physics



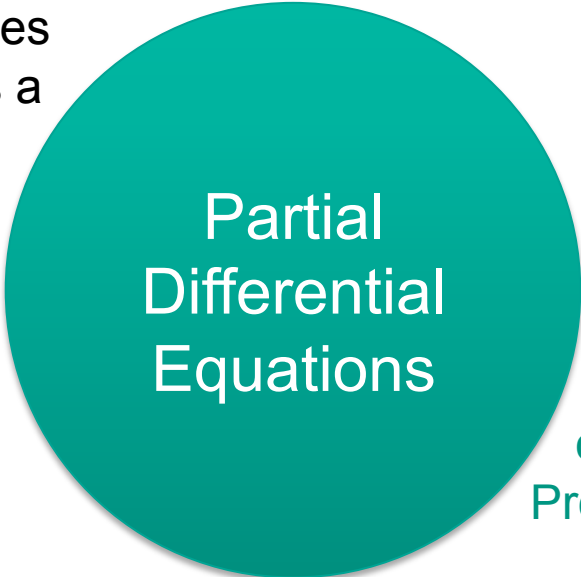
Stochastic
Models

Stochastic Geometry
Statistical Model Validation
Financial Mathematics

Research focus

Partial Differential Equations PDE

This focus works as well on foundations as on applications in sciences and engineering. This plays a central role for the research topics of KIT.



Partial
Differential
Equations

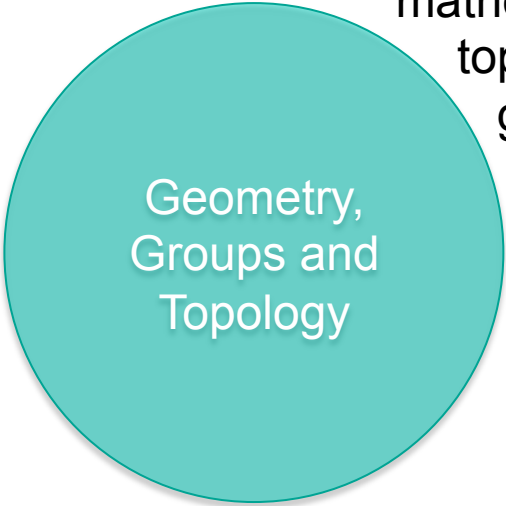
DFG Research training group **Analysis, Simulation and Design of nanotechnological Processes.**

W. Dörfler // M. Hochbruck // D. Hundertmark // T. Jahnke // A. Kirsch // T. Lamm // M. Plum // W. Reichel // A. Rieder // J. Rottmann-Matthes // R. Schnaubelt // K. Schratz // C. Wieners // L. Weis

Research focus

Geometry, Groups and Topology

This research focus covers a broad spectrum in mathematical fundamental research in geometry, topology, algebraic geometry, and geometric group theory.



Geometry,
Groups and
Topology

Overriding issue is the interaction of Algebra and Geometry.

M. Axenovich // F. Herrlich // E. Leuzinger // R. Sauer // C.-G. Schmidt // W. Tuschmann // G. Weitze-Schmithüsen

Research focus

Stochastic Models

One research topic is Spatial Stochastics and Stochastic Geometry (with the DFG research group Geometry and Physics of Spatial Random Systems).

Further topics: Stochastic Processes
in Finance, Actuarial Mathematics
and Engineering.



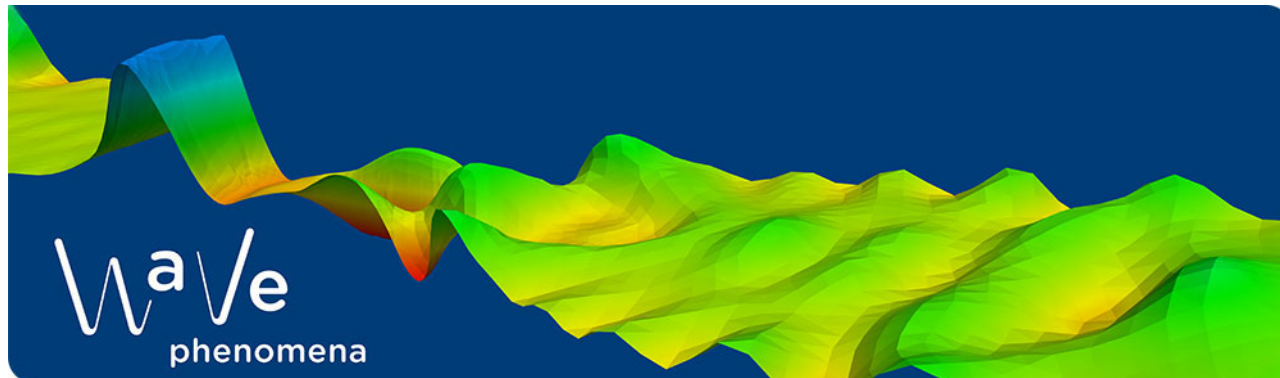
Stochastic
Models

N. Bäuerle // V. Fasen // T. Gneiting // N. Henze // D. Hug // C. Kirch // G. Last

DFG research
training group

Spokesperson:
Marlis Hochbruck

The research training group **Analysis, Simulation and Design of nanotechnological Processes** aims to investigate physical models in nanotechnology (in particular in optics and photonics) with the means of modern mathematics, to analyze the resulting equations, and to devise novel methods for their numerical simulation.



Highlights

DFG Research Group



The set up of the Research Unit entitled **Geometry and Physics of Random Spatial Systems** by the German Research Foundation provides a bridge between mathematics and physics.

Its object of research is the study of the geometry and physics of random structures in space.



Around the department

Math Lab for School Kids (Schülerlabor)



The Math Lab for School Kids with over 70 experimental mathematical exhibits and workshops on various mathematical topics is a special attraction.

Mathe-Kids at KIT
Junior studies in Mathematics
Participation in Girls' Day,
Science Day and
Kids University Day



Around the department

Science podcasts



The Modellansatz podcast provides first-hand information by scientists, graduates and lecturers.

www.modellansatz.de

Every month a new issue:
Chromatographie
Ad-hoc Netzwerke
Computerunterstütztes Beweisen
Windsimulation
Migräne



Around the department

Gauß lecture



The 24th Gauß lecture will be organised by the department in cooperation with DMV and the ZKM | Center for Art and Media.

Lecture by Robert Ghrist (Pennsylvania)
Mathematical cabaret with Vince Ebert
Award of Kaven Prize



Further activities

Courses for other faculties



Probability Theory and Statistics
for Civil Engineering

**Mathematics for
Information Technology**

Probability and Statistics for Resources Engineering

Numerics for Computer Sciences and Engineering Sciences

**Mathematics for Civil Engineering,
Mechanical, Electrical, Chemical
Process Engineering**

Statistics for Biology

**Linear Algebra for
Computer Science**

Higher Mathematics (Analysis)
for Computer Science

Further activities

Teaching degree in Mathematics



The department prepares prospective teachers at secondary school for the university exam.

The education in didactics is broad and practical. In addition, there are cooperations with schools and teacher seminars. Regularly offered colloquiums provide students for mathematical education the chance to learn new concepts of education.

Mathematics Studies in Karlsruhe



Bachelor Program (3 years)

Master Program (2 years)
Courses in German or English

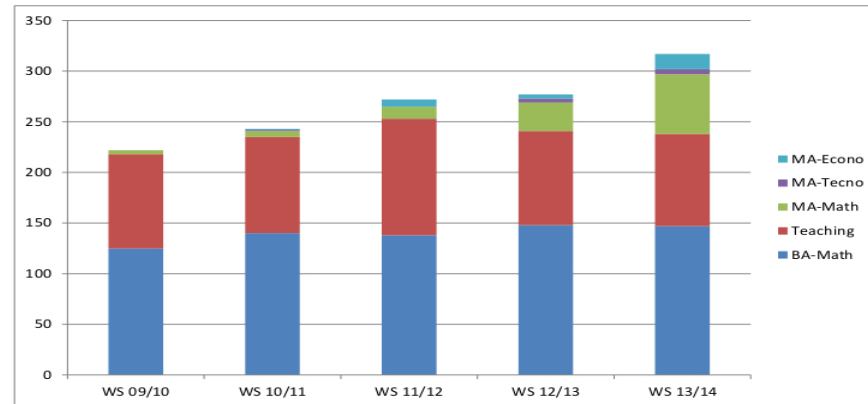
PhD Program

For information / contact:
Prof. Dr. Wolfgang Reichel
wolfgang.reichel@kit.edu

Number of Students

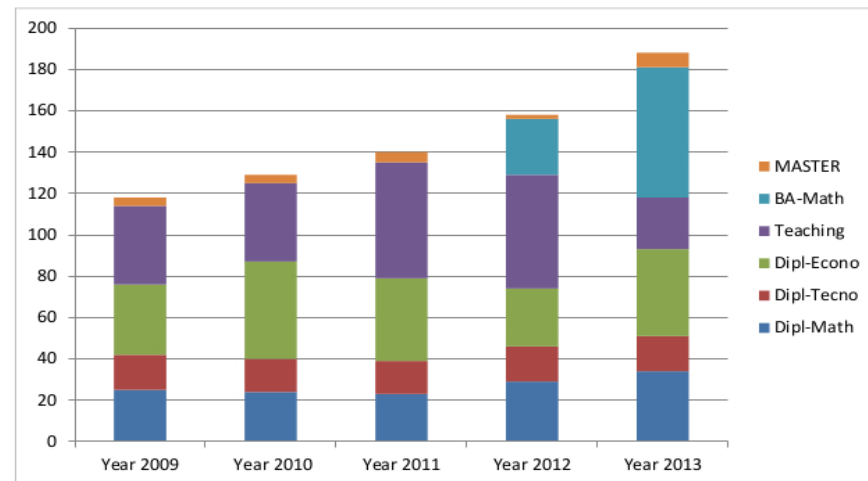
Students at KIT

19.000 from Germany
2.000 from Europe
1.259 from Asia
342 from Amerika
9 from Australia



Students in Mathematics

1.100 overall
204 1st year students
108 foreign students



Master Program for International Students



Courses in German

Courses in English

(degree can be completed in English)

Application deadlines:

for winter semester: July 15th

for summer semester: January 15th

International Students

Special attention is given to our international students:

Welcome party

Individual advice and coaching

Cultural events (once every semester)



Social Events



Welcome party (2009)

Visiting a Mercedes-Benz factory
(spring 2010)



Cultural Excursions

Visiting “Favorite”-palace spring 2012



International Cooperations

Our Erasmus partners in mathematics:



Barcelona, Bydgoszcz, Cardiff,
Debrecen, Dublin, Grenoble,
Linköping, Oslo, Palaiseau, Rennes,
Reykjavik, Sofia, Stockholm, Trento,
Torino, Thesaloniki, Sofia, Valencia,
Vilnius, Zurich

The new building

