INSTRUCTORS

Group 1 — **Room Z03.07**

"Data-based modeling of road networks in new markets"
Dr. Sascha Feth/Department "Mathematical Methods in Dynamics and Durability"

Group 2 — **Room 1.27**

"Location planning for ambulance cars"
Dr. Michael Schröder, Neil Jami/Department "Optimization"

Group 3 — **Room Z03.08**

"Optimization of mesh filters"
Dr. Ralf Kirsch, Sebastian Osterroth/Department "Flow and Material Simulation"

Group 4 — **Room 2.27**

"Supply reliability in power systems under the presence of transmission line outages"
Dr. Andreas Wirsen, Tjorben Groß/Department "System Analysis, Prognosis and Control"

Group 5 — **Room Z14.04**

"The design of aspheric lenses"
Dr. Norbert Siedow, Jaroslaw Wlazlo/Department "Transport Processes"

INFORMATION AND CONTACT

Organized by

Felix Klein Center of Mathematics

Local Organizing Committee

Prof. Helmut Neunzert
Prof. Klaus Ritter

Venue

All events in the modeling week will take place at Fraunhofer ITWM, Fraunhofer-Platz 1, Kaiserslautern.

Facilities

Plenary events take place in a large auditory, the project groups will have seminar rooms on their own.

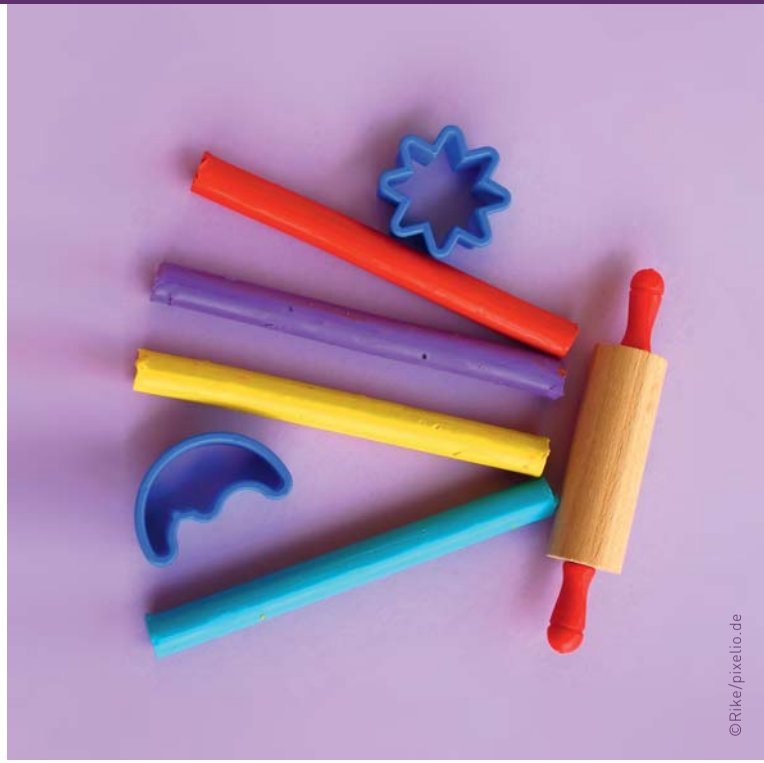
If you are in possession of a laptop, we warmly encourage you to bring it with you, as this may be very practical for the work.

More detailed information will be available during the Felix Klein Modeling Week.

For further information please contact:
sylvia.gerwalin@itwm.fraunhofer.de

www.felix-klein-zentrum.de

FELIX KLEIN AUTUMN SCHOOL



Modeling Week and Lectures on Compressed Sensing

October 20th – 24th, 2014

FELIX KLEIN
ZENTRUM FÜR
MATHEMATIK

MODELING WEEK AND LECTURES

The purpose of the Modeling Week is to train students in using mathematical modeling in development of technical systems. Project work will be done in groups of 6–8 students on industrial mathematics problems posed by scientists from ITWM. After the assignment of the problems, the teams start to work. First, they have to understand the problem. In this phase, the instructor will answer questions. Then, mathematical descriptions and solutions have to be found with the help of computers. An iteration process is carried out until the results satisfy both team and instructor. At the end of the week, each team presents its results to the other participants.

"Compressed Sensing: Theory and Applications"

Compressed sensing is a novel research area, which was introduced in 2006, and since then has already become a key concept in various areas of applied mathematics, computer science, and electrical engineering. It surprisingly predicts that high-dimensionalsignals, which allow a sparse representation by a suitable basis or, more generally, a frame, can be recovered from what was previously considered highly incomplete linear measurements by using efficient algorithms. In this talk, we will first give an introduction into this vivid research area, and in a second part discuss several applications such as Magnetic Resonance Imaging and Disease Fingerprints in Mass Spectrometry Data.

SCHEDULE

Monday, October 20th

9.00 Welcome and overview of the week and of Felix Klein Center of Mathematics

Project presentations by instructors and group/project assignment

Group work (approx. until 18.00)

Tuesday, October 21st

9.00 Group work (approx. until 18.00)

Wednesday, October 22nd

9.00 Group work

16.00 "Compressed Sensing: Theory and Applications I"
Prof. Gitta Kutyniok, TU Berlin
(approx. until 17.00)

18.00 Knight's Dinner, Castle Spangenberg
(approx. until 22.00)

Thursday, October 23rd

9.00 "Compressed Sensing: Theory and Applications II"
Prof. Gitta Kutyniok, TU Berlin

10.00 Group work (approx. until 18.00)

Friday, October 24th

9.00 Student presentations
(approx. until 16.00)

Breaks (recommendation)

10.45 – 11.00	Coffee break
12.30 – 13.15	Lunch
15.45 – 16.00	Coffee break

The coffee breaks and the Knight's Dinner are offered to all students and instructors free of charge. Lunches are at your own expense (except our Polish guests).