

Technische Universität Berlin



FINAL PROGRAM

ANNUAL MEETING 2006



27th – 31st March

http://www3.math.tu-berlin.de/gamm_2006



**Gesellschaft für Angewandte
Mathematik und Mechanik e.V.**

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Message from the President of GAMM

Welcome to the GAMM Annual Meeting 2006 in Berlin.

The Gesellschaft für Angewandte Mathematik und Mechanik (International Association of the Applied Mathematics and Mechanics) aims to cultivate and foster scientific research in the field of Applied Mathematics and all branches of Mechanics and Physics which contribute to the foundations of engineering sciences. One of the major goals are to support international cooperation and the organization of scientific events. Clearly the „Jahrestagung“ (Annual Meeting), which is regularly held in Spring, is The Major Event.

To promote the international idea the Annual Meeting is hosted almost every second year by a city outside of Germany. However this year, I am extremely happy that GAMM could accept the offer from the Technical University Berlin to hold the conference in Berlin. It is the first time back in Berlin after more than a quarter of a century and the first time after the fall of the wall. Needless to say that Berlin has gone through a dramatic change in these years.

The Program Committee assisted by the Special Interest Groups (Fachausschüsse) and the local organizing committee under the leadership of Prof. Dr. Volker Mehrmann and Prof. Dr. Oliver C. Paschereit worked hard to create an excellent program: ten invited addresses, the 49th Ludwig Prandtl Memorial Lecture, presented by Rainer Friedrich of the Technical University München, and the Richard-von-Mises Prize lecture are substantial parts of the conference. In ten Minisymposia results in a hot topic will be presented. Again the Young Researchers' Minisymposia attracted excellent proposals. The bulk of research in our fields is presented in 21 sections and an embedded session. The public Lecture is intended to bring one of our fields closer to the interested layman. This years lecture carries the title „Mathematical Approaches to Complex Systems in Bio- and Nanotechnology“ and will be presented by Prof. Dr. Christof Schütte who is one of the executive members of the DFG Research Center Matheon.

At this point I would like to thank the local organizers and their team for the great work they have done.

All attendees are invited to the Opening Ceremony taking place on Monday, March 27th, 2006 at 13:00 a.m. At this event we celebrate the exceptional young talents in our Science by handing over the Richard-von-Mises Prize to the winner. Finally, I want to recall that the General Assembly (Mitgliederversammlung) of the GAMM-Association will be held on Wednesday, March 29th, 2006 at 11:00 a.m.

Enjoy now not only what the GAMM 2006 Annual Meeting can offer to you but also what this unique, culturally rich city of Berlin, where historic buildings contrast with modern complexes, presents to its visitors. Make use of the evenings to go to the opera, a concert or a play or simply relax with your friends with good food, a beer or a glass of wine. The world does not only exist of mathematics and mechanics and Berlin is an excellent place where one can experience this.

Rolf Jeltsch
The President of GAMM

GAMM Annual Meeting 2006
in Berlin, Technische Universität Berlin
March 27th – March 31st, 2006

Invitation

The *Gesellschaft für Angewandte Mathematik und Mechanik e.V. (GAMM)* invites you to attend its Annual Scientific Conference 2006 in Berlin on March 27th – March 31st, 2006.

The regular General Assembly of GAMM will be held on Wednesday, March 29th at 11:00 in the “Audimax” (H105) of Technische Universität Berlin.

On behalf of the *Deutsche Gesellschaft für Luft- und Raumfahrt (DGLR)* and the GAMM we also invite you to attend the 49th Ludwig Prandtl Memorial Lecture.

The President of GAMM
R. Jeltsch

The Secretary of GAMM
V. Ulbricht

Venue

The GAMM Annual Meeting 2006 in Berlin is taking place at Technische Universität Berlin. The sessions will be held in the main building and in the mathematics building.

The Opening Session including the Ludwig Prandtl lecture and the public lecture will be held in the Audimax in the main building.

Simultaneously to the conference an exhibition is taking place. The exhibition is located in the “Lichthof” of the main building. Please find a list of exhibitors in the back of this Program.

There will be a reception on Monday starting at 18:30 in the Lichthof, where the exhibition is located. After the public lecture on Wednesday, the 29th you will have the opportunity to participate in the conference dinner at the Mensa, starting at 20:00.

Please note that smoking is not allowed inside the buildings.

The roots of the Technische Universität Berlin: The history of Technische Universität Berlin goes back much further than the re-establishment under this name in 1946.

The roots in fact can be traced back to the 18th century. Friedrich der Große established the Bergakademie (Mining Academy) in Berlin in 1770, which was one of the three institutions that were the original predecessors to the TU Berlin. The two others were the Bauakademie (Building Academy) established in 1799, and the Gewerbeakademie (Vocational Academy (1821)). The latter two were merged in 1879 to form the Königlichen Technischen Hochschule zu Berlin (Royal Technical College of Berlin), located outside the city boundaries in Charlottenburg. In 1916 the Mining Academy also became a part of it.

Technische Universität Berlin, with approximately 31,500 students, is one of the largest German Institutes of Technology. In contrast to many other such institutions it offers a wide range of subjects. In addition to the core subjects in natural sciences and engineering, TU Berlin also has faculties and institutes specialising in planning, humanities, social sciences and economics. In the Berlin region it offers the widest range of engineering programs.

**Parking
and Public
Transportation**

Although the conference will take place during the semester break very limited parking places are at your disposal on the Straße des 17. Juni.

Berlin has a great public transportation system. Therefore we highly recommend to leave the car at the hotel and use the bus or the U-Bahn. A 7-Day ticket for Berlin ABC even enables you to make tours outside the city. For prices and more information please check the web-site <http://www.bvg.de>.

**Organizing
Committee**

Volker Mehrmann

Oliver C. Paschereit

Christian Mehl
Wolfgang H. Müller
Utz von Wagner

Organizational support is provided
by the TU Berlin Servicegesellschaft mbH.

Invitation to the General Assembly

On the occasion of the GAMM 2006 Annual Conference in Berlin, the General Assembly for GAMM members will be held on Wednesday 29th March 2006 at 10:30 in the Lecture Hall "Audimax"(H 105) of the Technical University Berlin.

Agenda

1. President's report
2. Treasurer's report
3. Cash auditor's report
4. Discharges of the Governing Council
5. New elections
 - R. Kreißig**, Chemnitz, 2. period of office, *not reeligible*
 - H.G. Roos**, Dresden, 2. period of office, *not reeligible*
 - H. Ulbrich**, München, 1. period of office, *reeligible*
6. Membership fees
7. Activity groups
8. Miscellaneous

All GAMM members are invited to take part in this meeting.

Volker Ulbricht
The Secretary of GAMM

German Branch of GAMM

After the General Assembly the German Branch of GAMM will hold its meeting at the same place.

Friedrich Pfeiffer
The Vice-President of GAMM

Einladung zur Mitgliederversammlung

Im Rahmen der GAMM-Jahrestagung 2006 in Berlin findet am Mittwoch, dem 29. März 2006, um 10.30 Uhr die Mitgliederversammlung der Gesellschaft für Angewandte Mathematik und Mechanik e.V. im Audimax (H 105) der Technischen Universität Berlin statt.

Tagesordnung

1. Bericht des Präsidenten
2. Bericht des Schatzmeisters
3. Bericht der Kassenprüfer
4. Entlastung des Vorstandes
5. Neuwahlen

R. Kreißig, Chemnitz, 2. Amtsperiode, *nicht wiederwählbar*

H.G. Roos, Dresden, 2. Amtsperiode, *nicht wiederwählbar*

H. Ulbrich, München, 1. Amtsperiode, *wiederwählbar*

6. Mitgliedsbeiträge
7. Fachausschüsse
8. Verschiedenes

Hiermit lade ich alle Mitglieder der GAMM zur Mitgliederversammlung ein.

Volker Ulbricht
Sekretär der GAMM

Deutsche Sektion der GAMM

Anschließend an die Mitgliederversammlung wird die Deutsche Sektion der GAMM am gleichen Ort tagen.

Friedrich Pfeiffer
Vizepräsident der GAMM

Scientific Program

Opening Session, Plenary Lectures and Public Lecture

All lectures will be held in the Audimax (H 105, Main Building)

Monday March 27th, 2006

- 13:00 Opening Session, Audimax (H 105, Main Building) of Technische Universität Berlin
- 13:30 **49th Ludwig Prandtl Memorial lecture**
R. Friedrich, Garching
Compressible Turbulent Flows: Aspects of Prediction and Analysis
- 14:30 **J.W. Demmel**, University of California at Berkeley
The future of LAPACK and ScaLAPACK

Tuesday March 28th, 2006

- 8:30 **J. McKenna**, University of Connecticut
Nonlinear Oscillations in Suspension Bridge Models

Wednesday March 29th, 2006

- 8:30 **J. Schröder**, Universität Duisburg-Essen
Recent advances in modeling of anisotropic materials
- 9:30 **V. Mises prize lecture**
- 18:30 **public lecture**
C. Schütte, Freie Universität Berlin
Mathematical Approaches to Complex Systems in Bio- and Nanotechnology

Thursday March 30th, 2006

- 8:30 **J. F. Golse**, ENS Paris
From the kinetic theory of gases to the Euler or Navier-Stokes equations
- 9:30 **D.H. van Campen**, Eindhoven University of Technology
Nonlinear Dynamics of Non-smooth Mechanical Systems
- 10:30 Coffee Break

11:00 **F. Bornemann**, Technische Universität München
Fast Variational Image Inpainting

Friday March 31st, 2006

8:30 **P. Hansbo**, Chalmers Univ. of Technology
Nitsche's method for interface problems

9:30 **M. Groves**, Loughborough University
Three-dimensional travelling gravity-capillary water waves

10:30 Coffee Break

11:00 **O. Sigmund**, Technical University of Denmark
Current developments in topology optimization and material design

12:00 **B. Wohlmuth**, Universität Stuttgart
Stable hybridization techniques in computational mechanics

Mini-symposia

Monday, March 27th, 2006, 16:00 – 18:00

Multigrid methods for optimal control of PDE's

Organizers: **A. Borzi**, Universität Graz
B. Vexler, Austrian Academy of Sciences Linz

Application and Theory of Stochastic Optimization Treatments

Organizers: **K. Marti**, Universität der Bundeswehr München
T. Vietor, Ford-Werke GmbH Köln

Discrete and continuous nonlinear variational problems

Organizers: **F. Otto**, Universität Bonn
M.A. Peletier, Technische Universiteit Eindhoven
W. Reichel, Universität Zürich

Mechanic of cells

Organizers: **J.P. Spatz**, Universität Heidelberg
U. Schwarz, IWR, Universität Heidelberg

Computational plasticity

Organizers: **D. Raabe**, Max-Planck-Institut für Eisenforschung
P. Gumbsch, Fraunhofer-Institut für Werkstoffmechanik Freiburg

Feedback flow control

Organizers: **R. King**, Technische Universität Berlin
B. Noack, Technische Universität Berlin

Young researchers' Mini-symposia

Tuesday, March 28th, 2006, 9:30 – 10:30, 11:00 – 12:00

Numerical Analysis of Partial Differential Equations

Organizers: **S. Bartels**, Humboldt-Universität zu Berlin
M. Verani, Politecnico di Milano

Multiscale Systems in Refined Network Modeling: Analysis and Numerical Simulation

Organizers: **A. Bartel**, Universität Wuppertal
M. Selva Soto, Humboldt-Universität zu Berlin

Iterative Methods for Large and Structured Matrix Computations

Organizers: **D. Kressner**, University of Zagreb
B. Plestenjak, University of Ljubljana

Nano-to-macro characterization of hard and soft biological tissues: the contribution of Applied Mechanics and Mathematics

Organizers: **C. Hellmich**, Technische Universität Wien
B. Markert, Universität Stuttgart

Sections of Short Communications

The short communications are scheduled on **Tuesday, Wednesday and Thursday afternoon from 13:30 to 15:30 and from 16:00 to 18:00**. Each talk is strictly limited to 20 minutes, including discussion.

1. *Mehrkörperdynamik – Multi body dynamics*
Organizers: **P. Betsch**, Universität Siegen
C. Wörnle, Universität Rostock
2. *Biomechanik - Biomechanics*
Organizers: **W. Ehlers**, Universität Stuttgart
E. Kuhl, Universität Kaiserslautern
3. *Schädigungs- und Bruchmechanik – Damage and fracture*
Organizers: **W. Brocks**, Research Centre Geesthacht
R. Müller, Technische Universität Darmstadt
4. *Strukturmechanik – Structural mechanics*
Organizers: **W. Becker**, Technische Universität Darmstadt
W. Wagner, Universität Karlsruhe

5. *Schwingungen - Oscillations*
Organizers: **P. Eberhardt**, Universität Stuttgart
W. Seemann, Universität Karlsruhe
6. *Materialmodelle für Festkörper – Material models in solids*
Organizers: **A. Bertram**, Universität Magdeburg
P. Steinmann, Technische Universität Kaiserslautern
7. *Gekoppelte Probleme – Coupled problems*
Organizers: **S. Diebels**, Universität des Saarlandes Saarbrücken
S. Reese, Ruhr-Universität Bochum
8. *Mehrskalen und Homogenisierung – Multiscales and homogenization*
Organizers: **C. Miehe**, Universität Stuttgart
A. Mielke, WIAS Berlin
9. *Turbulente und reaktive Strömungen - Turbulence and reactive flows*
Organizers: **C. Oliver Paschereit**, Technische Universität Berlin
D. Thevenin, Otto-von-Guericke-Universität Magdeburg
F. Thiele, Technische Universität Berlin
10. *Reibungsbehaftete Strömungen - Viscous flows*
Organizers: **N. Aksel**, Universität Bayreuth
G. Böhme, Universität der Bundeswehr Hamburg
D. Hänel, Gerhard-Mercator-Universität Duisburg
11. *Wellen und Akustik – Waves and Acoustics*
Organizers: **A. Kluwick**, Technische Universität Wien
F. Ziegler, Technische Universität Wien
12. *Angewandte Analysis – Applied Analysis*
Organizers: **A. Münch**, Humboldt-Universität zu Berlin
G. Schneider, Universität Karlsruhe
13. *Angewandte Stochastik – Applied Stochastics*
Organizers: **W. Römisch**, Humboldt-Universität zu Berlin
K. Sabelfeld, Weierstraß-Institut Berlin
14. *Computeralgebra und Analysis – Computer Algebra and Computer Analysis*
Organizers: **W.M Seiler**, Universität Heidelberg
B.Tibken, Bergische Universität Wuppertal
15. *Optimierung - Optimization*
Organizers: **M. Hintermüller**, Universität Graz
A. Martin, Technische Universität Darmstadt

- 16.** *Angewandte und Numerische Lineare Algebra – Applied and Numerical Linear Algebra*
Organizers: **R. Nabben**, Technische Universität Berlin
M. Tuma, Karls-Universität Prag
- 17.** *Numerik von Differentialgleichungen (ODE, DAE, PDE) – Numerical Methods for Differential Equations*
Organizers: **B. Simeon**, Technische Universität München
C. Wieners, Universität Karlsruhe
- 18.** *Optimierung von Differentialgleichungen (ODE, DAE, PDE) – Optimization of Differential Equations*
Organizers: **V. Heuveline**, Universität Karlsruhe
M. Hinze, Technische Universität Dresden
- 19.** *Dynamik und Regelung – Dynamics and Control*
Organizers: **B. Jacob**, Technische Universität Berlin
K. Schlacher, Universität Linz
- 20.** *Mathematische Bildverarbeitung – Mathematical Image Processing*
Organizers: **M. Hanke-Bourgois**, Johannes Gutenberg-Universität Mainz
J. Weickert, Universität des Saarlandes Saarbrücken

Embedded Session

*Theoretische Untersuchungen und Ingenieur Anwendungen von Wirbelflächen -
Theoretical studies and engineering applications of vortical flows*

Organizer: **E. Krause**, RWTH Aachen

Special Events

- Monday, March 27th, 2006 **9:00 – 18:00**
Registration
Main building of TU Berlin
- Monday, March 27th, 2006 **13:00 – 14:30**
**Opening Session including the Ludwig Prandtl
Memorial Lecture**
Main building of TU Berlin, Audimax
- Monday, March 27th, 2006 **18:30 – 19:00**
Reception in the „Lichthof“
Main building of TU Berlin
- Tuesday, March 28th, 2006 **18:00 – 19:00, 19:00 – 20:00**
Possibility to visit the „Reichstag“
- Tuesday, March 28th, 2006 **18:00 – 19:00**
Reception by the Governing Mayor of Berlin
Rotes Rathaus
- Tuesday, March 28th, 2006 **20:00 – 21:30**
Concert of the Artemis Quartett
Berliner Philharmonie, Kammermusiksaal
- Wednesday, March 29th, 2006 **18:30 – 19:30**
Public Lecture
Main building of TU Berlin, Audimax
- Wednesday, March 29th, 2006 **20:00 – 22:30**
Conference Dinner
TU Mensa
- Friday, March 31st, 2006 **17:00 – 18:00**
Possibility to visit the „Reichstag“

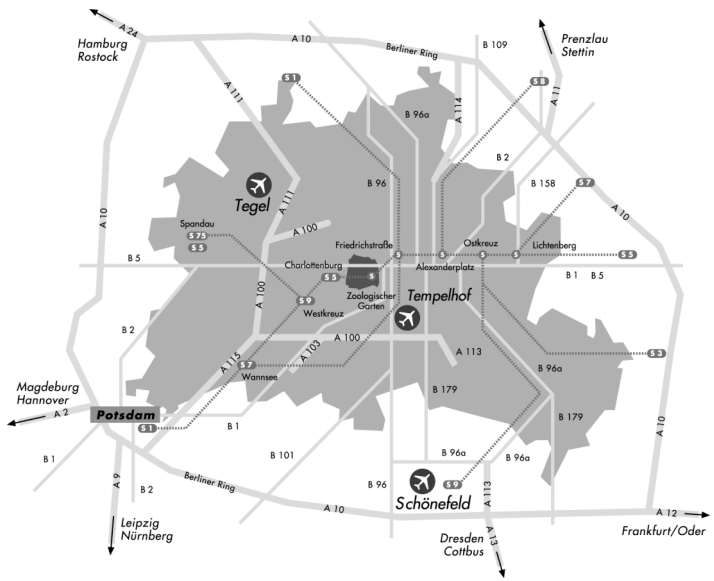
Sightseeing

Visiting the Reichstag is part of the conference Program. Two tours are offered on Tuesday, March 28th, 2006 at 18:00 and 19:00, and one on Friday, March 31st, 2006 at 17:00.

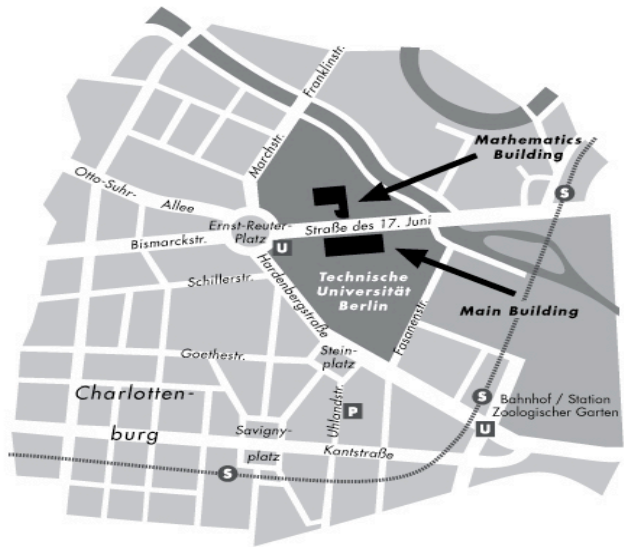
All participants who take part in one of the tours need to be at the Reichstag **one hour in advance**. Only persons who have send their birthdate in advance can participate in the tours. It is very important, that you bring your passport or your identification card. Meeting point is on the left side of the Reichstag, Westportal, Platz der Republik 1.

More sightseeing possibilities and more information is provided on our web-site, http://www3.math.tu-berlin.de/gamm_2006/ and on the conference site.

Berlin roadmap



Details Technische Universität Berlin



Registration

Registration On-site registration is possible.

Also, accompanying persons will have to register if they intend to participate in conference events, or the reception by the Governing Mayor.

Registration fee for participants includes

If you register on-site only cash and credit cards are accepted (VISA and EURO/Master).

- Access to the scientific sessions and the exhibition;
- Book of abstracts;
- Conference kit;
- Public lecture;
- Coffee breaks from Monday to Friday;
- Certificate of attendance;
- Reception in the “Lichthof”
- Reception by the Governing Mayor of Berlin;

Accompanying persons:

- Reception by the Governing Mayor of Berlin;
- Public lecture;
- Reception in the „Lichthof“
- Conference dinner

Scholarship

Participants who have been granted a scholarship can withdraw their allowance at the registration office during opening hours. Please make sure to bring your travelling documents and your ID/passport.

Confirmation

Upon receipt of the full registration, each participant will receive a confirmation of his registration and an invoice via email.

Bank transfer sometimes needs more time than expected. Therefore we kindly ask you to bring your transfer voucher to the conference site.

**On-site
Registration**

The Registration Desk will be opened for picking up the conference material and for on-site registrations at the following times:

- Monday, March 27th, from 9:00 to 18:00 at the main building
- Tuesday, March 28th, from 8:30 to 18:00 at the main building
- Wednesday, March 29th, from 8:30 to 18:00 at the main building
- Thursday, March 30th, from 8:30 to 18:00 at the main building
- Friday, March 31st, from 8:30 until 12:00 at the main building

**For contact af-
ter the confer-
ence**

TU Berlin Servicegesellschaft mbH
Hardenbergstrasse 19
10623 Berlin
Germany
Tel: +49-(0)30-447 202 66
Fax : +49-(0)30-447 202 88
E-mail: kongresse@tu-servicegmbh.de
URL: <http://www.tu-servicegmbh.de/>

Conference Fees

GAMM members	190,00 €
Non-members	265,00 €
Students	120,00 €
Conference dinner (participants)	25,00 €
Accompanying person (incl. dinner)	55,00 €
Tour Reichstag	--
Concert at the Philharmonie	25,00 - 40,00 €

Remarks:

- **We kindly ask you to wear your badge all the time.**
- Non-members are invited to become members of the GAMM. In this case the difference between the registration fee for non-members and members will be counted as GAMM membership for one year.

General Information

- Lunch: There is a variety of cafés, restaurants and cafeterias on and around the campus. Many restaurants around the university have special lunch offers. Our restaurant guide in your conference bag will give you more information about where, what and how much.

Coffee break: coffee breaks will give you the opportunity for refreshment.

- In the main building the coffee station is located in the Lichthof.
- In the mathematics building coffee is offered on the first floor near the elevators.
- In the morning coffee break will be from 10:30 – 11:00 (except on Monday), in the afternoon from 15:30 – 16:00 (except on Friday).
- Opening hours of shops: supermarkets are usually open from 8:00 to 20:00. Other shops and department stores are open from 10:00 am to 20:00
- Bank hours: opening hours of banks vary from branch to branch.
- Other facilities: you will find a tourist information centre at the “Europacenter”, Tauentzienstr. 9-12, Tel.: 250 025 or 0190 016316

Technical equipment in lecture halls

Every lecture hall is equipped with

- overhead projector
- video projector
- computer.

There are two central rooms for speakers who wish to use a video projector in Sections or Mini-Symposia for supply their contribution on CD, diskette or USB stick.

The rooms are: H 1036 for the Main building and MA 241 (Unix-Pool) for the Mathematics building.

Section speakers are kindly asked to supply their contribution on Tuesday, Wednesday or Thursday between 10:00 and 13:00.

Speakers for the Mini-Symposia on Monday afternoon and Tuesday morning are asked to supply their contribution on Monday between 13:00 and 15:30.

Internet access

Internet access is available for participants in room MA 241 (Mathematics building) during the periods

- Monday 13:00 - 18:30
- Tuesday, Wednesday, Thursday 10:00 - 18:30
- Friday: 10:00 - 13:30

Instructions will be available in room MA 241.

Exhibition

We kindly thank the following organisations and companies for their contributions and support.

Exhibitors

Birkhäuser Verlag AG

Cambridge University Press

Elsevier GmbH

EMS – European Mathematical Society
Publishing House

GAMM – Gesellschaft für Angewandte
Mathematik und Mechanik e.V.

GERB Schwingungsisolierungen GmbH &
Co. KG

MLP Finanzdienstleistungen AG

Oldenbourg Wissenschaftsverlag GmbH

Pearson Education Deutschland GmbH

SIAM - Society for Industrial and Ap-
plied Mathematics

Springer

Taylor & Francis

Teubner Verlag

Verlag Harri Deutsch GmbH

Vieweg Verlag

Walter De Gruyter GmbH & Co. KG

Wiley VCH

Location: Lichthof, 1st floor of the main building

Publication of Lectures

Invited lectures

Invited lectures will be published in the regular issues of ZAMM. Manuscripts up to a length that is equivalent to 25 pages in LaTeX files should be sent **until May 31st, 2006**, to the *Redaktion ZAMM*.

Details are given at:

<http://www.wiley-vch.de/home/zamm/>

Mini-symposia Papers and Short Communications

Papers presented at mini-symposia and short communications may be published electronically on Wiley's Webserver Wiley-InterScience in the PAMM.

The papers need to be prepared in accordance with the Author's Instructions for Publication of Contributions to Mini-symposia and Short Communications given below. The papers are limited to:

- 4 pages for a contribution to a mini-symposium or a special topic lecture of a section;
- 2 pages for a short communication.

Longer papers cannot be accepted. The editors reserve the right to deny publication of a manuscript based on a referee's judgment.

The files have to be submitted **after the conference, but (latest) by May 31st, 2006**, via

https://www3.math.tu-berlin.de/gamm_2006/db/

Exceptionally, the papers can be sent directly to the Scientific Office on CD.

Author's Instructions for Publication

Lectures delivered at mini-symposia and short communications may be published electronically on Wiley's Webserver Wiley-InterScience. To facilitate and speed up the publication process, the following requirements are mandatory for all contributions.

- Manuscripts must be delivered in LaTeX using the sample file `proceed.tex` available in due time from the homepage http://www3.math.tu-berlin.de/gamm_2006/ with figures included as LaTeX source code, eps or tiff files. It will be impossible to process contributions that are not in LaTeX or for which the figures are not included electronically. An example of a contribution will be provided in a special file.
- Manuscripts are limited to the number of pages given above. Manuscripts comprising more pages will be rejected.

- Please submit your manuscript including all figures via the Internet to the Scientific Office. Details on how to prepare (authors instructions) will be given on the website http://www3.math.tu-berlin.de/gamm_2006/. The homepage will also contain detailed information on how to submit the files.
- Your manuscript will be reviewed and in case of acceptance forwarded to the publisher. It will then be published as is without modifications to text and style. Thus, it should be ready for publication both in terms of content and style.

Summary of Deadlines

Submission of papers of mini-symposium talks	31.05.2006
Submission of papers of contributed session talks	31.05.2006
Submission of papers of plenary lectures to ZAMM	31.05.2006

Schedule

	Monday	Tuesday	Wednesday	Thursday	Friday	
8						
9		Plenary lecture J. McKenna	Plenary lecture J. Schröder	Plenary lecture F. Golse	Plenary lecture P. Hansbo	
10		YR's Minisym- posia 7-10	V. Mises prize lecture	Plenary Lecture D.H. v. Campen	Plenary lecture M. Groves	
		Coffee break	Coffee break	Coffee break	Coffee break	
11		YR's Minisym- posia 7-10	General Assembly	Plenary lecture F. Bornemann	Plenary lecture O. Sigmund	
12		Lunch break	Lunch break	Lunch break	Plenary lecture B. Wohlmut	
13		Opening			Closing	
14		Prandtl lecture R. Friedrich	Sections	Sections	Sections	
		Plenary lecture J. Demmel				
15		Coffee break				
16	Minisymposia 1-6	Sections	Sections	Sections	Possibility to visit the Reichstag	
17						
18	Reception TU Lichthof	Possibility to visit the Reich- stag	Public lecture C. Schütte	Sections		
19		Reception by the Mayor of Berlin				
		Possibility to visit the Reichstag				
20		Possibility for concert	Conference dinner			

Minisymposia

Mini symposium Mathematics 1 - Multigrid methods for optimal control of PDEs

Organizer: A. Borzi, B. Vexler

Monday, March 27th 16:00-18:00

Room: H 2013

X. Tai: Domain decomposition and multigrid methods for Optimal Control

S. Ulbrich: Interior-point multigrid methods for PDE-constrained optimization

L. Grasedyck: Solution of large scale Riccati equations in $O(N \log^2 N)$

G. Biros: Multilevel and domain-decomposition solvers for inverse problems

V. Schulz: On multigrid abstracts in shape **optimization**

Mini symposium Mathematics 2 - Theory and Applications of Stochastic Optimization Methods

Organizer: K. Marti, T. Vietor

Monday, March 27th 16:00-18:00

Room: H 2032

F. Dabbene: Approximate Solutions to Convex Optimization Under Stochastic Unce

K. Marti: Multipoint First Order Reliability Methods (MFORM)

M. Kaminski: Stochastic finite element method by Taylor expansion approach

A. Schumacher: Robust Design considering highly non-linear structural behavior

H. Wenzel: Product Quality Improvement in the Simulation Driven Design-process

V. Kobelev: Fractional Tensor Analysis in Stochastic Optimization

Mini symposium Mathematics 3 - Discrete and continuous nonlinear variational problems

Organizer: F. Otto, M.A. Peletier, W. Reichel

Monday, March 27th 16:00-18:00

Room: MA 001

J. Horak: Numerical mountain pass and its applications

C. Melcher: Some dynamic problems in magnetism

M. Röger: Cell membranes, lipid bilayers and the elastica functional

F. Theil: Periodic mimimizers in atomistic systems

Mini symposium Mechanics 1 – Mechanics of cells

Organizer: U. Schwarz, J.P. Spatz

Monday, March 27th 16:00-18:00

Room: H 104

Title: **Modelling mechanical aspects of cell and tissue dynamics**

M. Bathe: F-actin bundle mechanical properties

U. Schwarz: Elastic interactions of cells with compliant environments

D. Drasdo: The role of biomechanics in the growth of multi-cellular systems

R. Weinkamer: Learning about mechanotransduction in bone from its microstructure

Mini symposium Mechanics 2 - Computational plasticity

Organizer: P. Gumbsch, D. Raabe

Monday, March 27th 16:00-18:00

Room: H 105

Title: **Polycrystal Mechanics and Anisotropy**

P. Van Houtte: Multiscale approach for texture-based anisotropic yield loci

H. Riedel: Texture in Mg and dual phase materials

G. Gottstein: Simulation of Texture and Anisotropy of Aluminum Alloys

T. Böhlke: Modeling of anisotropy

F. Roters: Crystal plasticity FEM at large scales and at small scales

C. Miehe: A Fast Multiscale Model for Texture-Induced Anisotropic Plasticity

Mini symposium Mechanics 3 - Feedback flow control

Organizer: R. King, B. Noack

Monday, March 27th 16:00-18:00

Room: H 1058

M. Schmidt: Low-dimensional input-output-modeling of distr. parameter systems

R. Becker: Separation Control on a Trailing Edge Flap using Extremum Seeking

D. Henningson: Control of instabilities in a cavity

M. Morzynski: Continuous Mode Interpolation for a priori Flow Models & Control

G. Tadmor: Interpolated Galerkin Models and their Use in Flow Control

L. Cordier: Control of the cylinder wake in the laminar regime by TRPOD

Mini symposium Young Researchers 1 - Numerical Analysis of Partial Differential Equations

Organizer: S. Bartels, M. Verani

Tuesday, March 28th 09:30-12:00

Room: H 104

M. Verani: A Finite Element Formulation for a Shape Optimization Problem.

M. Jensen: Discontinuous Galerkin Methods for First-Order Accretive Systems

A. Moura: Coupling 3D-1D fluid-structure interaction models in haemodynamics

C. Vergara: Defective Boundary Conditions in Haemodynamics

I. Cimrak: The Landau-Lifshitz model for shape optimization of MRAM memories

S. Bartels: Approximation of Landau-Lifshitz-Gilbert Equations

Mini symposium Young Researchers 2 - Multiscale Systems in Refined Network Modeling: Analysis and Numerical Simulation

Organizer: A. Bartel, M. Selva Soto

Tuesday, March 28th 09:30-12:00

Room: H 105

M. Bodstedt: Perturbation analysis of an integrated circuit PDAE

M. Selva Soto: A coupled system for electrical circuits. Numerical simulations.

M. Brunk: Coupling of Energy-Transport model with MNA-equations for circuits

T. Sickenberger: Efficient transient noise analysis in circuit simulation

A. Bartel: Analysis and Integration of Multirate PDAE Including Wavelets

Mini symposium Young Researchers 3 - Iterative Methods for Large and Structured Matrix Computations

Organizer: D. Kressner, B. Plestenjak

Tuesday, March 28th 09:30-12:00

Room: H 1058

M. Hochstenbach: Advances in the numerical solution of polynomial eigenproblems

B. Plestenjak: Numerical methods for the banded quadratic eigenvalue problem

E. Jarlebring: A Quadratic Eigenproblem in the Analysis of a Time Delay System

D. Kressner: Iterative Methods for Large Structured Eigenvalue Problems

L. Grubisic: On accuracy of hierarchical Rayleigh-Ritz methods

M. José Pelaez Montalvo: Structured
Condition Number of Multiple Eigen-

values

Mini symposium Young Researchers 4 - Nano-to-macro characterization of hard and soft biological tissues: The contribution of applied mechanics and mathematics

Organizer: C. Hellmich, B. Markert

Tuesday, March 28th 09:30-12:00

Room: H 2013

E. Rohan: Homogenization approach to multi-compartment model of perfusion

C. Hellmich: Bone (re)modeling: poro-micromechanical aspects

H. Steeb: Remodeling and adaptation processes of biological tissues

B. Markert: Coupled multi-field analysis of avascular tumor growth

K. Hofstetter: Continuum micromechanics estimation of wood strength

N. Götzen: Novel Phenotypic Characterization of the Mouse Skeleton

Sections

Section 1 - Multi body dynamics

Organizer: P. Betsch, C. Woernle

Tuesday, March 28th 13:30-15:30

Room: H 2013

Title: **Control, optimization and identification**

Chair: A. Kecskeméthy, K. Zimmermann

P. Eberhard: Controller Design for Parallel Kinematics Using Flexible MBS

K. Zimmermann: Modelling and Controlling of Worm-like Locomotion Systems

K. Stadlbauer: Autonomer Mobiler Roboter mit SCARA-Armeinheit

M. Tändl: Optimization of spatial tracks using a morphing approach

A. Meinicke: Eccentricity and Misalignment Correction of a Low-Cost IMU

Tuesday, March 28th 16:00-18:00

Room: H 2013

Title: **Elastic multibody systems**

Chair: H. Troger, P. Betsch

J. Gerstmayr: Improved convergence in the absolute nodal coordinate formulation

U. Jungnickel: Elastic Components in Multibody Dynamics and Order-N-Algorithm

S. Leyendecker: Efficient integration of flexible multibody dynamics

H. Troger: Rotational motion of a discretized buckled beam

M. Dibold: Simulation of a deformable MBS with hydraulics and control

Wednesday, March 29th 13:30-15:30

Room: H 2013

Title: **Numerical integration of ODE/DAE**

Chair: P. Betsch, H. Bremer

A. Steinbrecher: Numerical simulation of multibody systems via Runge-Kutta Methods

W. Höbarth: Methodenvergleich bei der Modellierung eines Mini Segway

P. Betsch: On the use of Euler parameters in multibody dynamics

S. Uhlar: Energy consistent integration of planar multibody systems

T. Engelhardt: A time-stepping algorithm for non-smooth mechatronical systems

F. Kahr: Set Valued Laws for the Efficient Simulation of Hydraulic Systems

Wednesday, March 29th 16:00-18:00

Room: H 2013

Title: **Contact formulations**

Chair: P. Eberhard, P. Betsch

M. Förg: Simulation of non-smooth multibody systems with tree structure

H. Gattringer: Effiziente Simulation von MKS mit Kontaktbedingungen (Ordnung n)

W. Stamm: Regularization of 2D frictional contacts for rigid body dynamics

Y. Jiang: An Experimental and Numerical Study of Deformable Bodies' Contact

C. Hesch: Application of the discrete null space method to contact problems

R. Zander: Rotating elastic disks with rigid body contacts in MBS

Thursday, March 30th 13:30-15:30

Room: H 2013

Title: **Granular materials, further topics**

Chair: J.F. Wagner, C. Woernle

H. Alkhalidi: Computation of Screening Phenomena in a Vertical Tumbling Cylinder

C. Lillie: Modelling of discrete particles by superellipsoids

F. Schiefer: Ein innovatives Sensorkonzept zur "Schmerzdetektierung"

A. Müller: Topological Analysis of the Configuration Space of Mechanisms

C. Mladenova: Presentations of the Rotations in the Space Movements

Thursday, March 30th 16:00-18:00

Room: H 2013

Title: **Miscellaneous**

Chair: S. Leyendecker

B. Vohar: Optimization of elastic systems using ANCF finite elements

M. Kazic: Stability of Mechanical Systems with General Types of Forces

M.V. Shamolin: Almost conservative systems in dynamics of a rigid body

M. Sek: Atypical dynamic problems of ferroconcrete slabe ceilings

B. Steffen: Modelling the Fundamental Diagram of Pedestrian Movement

Section 2 - Biomechanics

Organizer: Wolfgang Ehlers, Ellen Kuhl

Wednesday, March 29th 13:30-15:30

Room: H 2032

Title: **Arterial Wall and Blood Circuit Mechanics**

Chair: W. Ehlers

G.A. Holzapfel: Arterial models from uniaxial extension tests and histology

D. Balzani: Modeling of Residual Stresses and Damage in Arterial Walls

M. Triep: Numerical Simulation of the Flow in a Micro-Axial Blood Pump

C. Patraliski: Identification of the aortic leaflet valve material

Wednesday, March 29th 16:00-18:00

Room: H 2032

Title: **Soft Tissue Biomechanics**

Chair: E. Kuhl

U.-J. Görke: An anisotropic viscoelastic soft tissue model at large strains

A. Acartürk: Finite swelling with weakly fulfilled boundary conditions

T. Ricken: On the Description of Growth in Saturated Living Tissues

N. Karajan: Suitable initial conditions for multiphasic FE analyses of the IVD

K. Weinberg: Response of kidney tissue to dynamical loading

Thursday, March 30th 13:30-15:30

Room: H 2032

Title: **Bone Mechanics, Growth and Remodelling**

Chair: G. Holzapfel

W. Winter: Ein Beitrag zum plastischen Verhalten des zellularen Knochen

T. Ebinger: Optimization of hip femoral neck fracture surgery

G. Himpel: Fibre Reorientation in Transversely Isotropic Materials

M. Charlebois: An Elastic, Plastic and Damage Constitutive Model for Bone Tissue

J. Rosenberg: Contribution to the theory of growth and remodelling

Thursday, March 30th 16:00-18:00

Room: H 2032

Title: **Basic Modelling and Moving Biological Systems**

Chair: U. Nackenhorst

G. Stelzner: Kinematik und Dynamik aus experimentell ermittelten Bewegungen

S. Rues: Joint And Muscle Forces During Clenching

D. Strobach: An analysis of simplified muscle activation parameterization

M. Arghir: Study of the Human Body Vibrations for the Seated Vehicle Driver

A. Rezunenko: Study of partial differential equations with state-dependent delay

O. Sander: Efficient Simulation of Dynamic Stresses in the Human Knee

Section 3 - Damage and fracture

Organizer: W. Brocks, R. Müller

Tuesday, March 28th 13:30-15:30

Room: H 110

Title: **Analytical models and fracture criteria**

Chair: Wolfgang Brocks, Frederik Reusch

H. Schütte: On the elastic symmetries of growing mixed-mode cracks

B. Paluszynski: Isotropic softening model for high-cycle fatigue

K. M.-Abbasi: Evolution of elastic T-stresses of growing mixed-mode cracks

V. Loboda: On some relations between different interface crack models

I. Kostenko: Investigation of elastoplastic problem for cylindrical shells

V. Govorukha: Analytical-numerical analysis of an interface crack

Tuesday, March 28th 13:30-15:30

Room: H 111

Title: **Composite structures, microstructures, interfaces**

Chair: P. Steinmann, R. Müller

C. Balzani: Delamination Analysis of UD Composites Using Interface Elements

G. Ernst: Mikromechanische Festigkeitsberechnung von Faserverbunden

K. Kula: Modelling of composite plates including damage

M. Kühn: Modelling of Microstructures in Ceramics to simulate Crack Growth

R. Piat: Numerical modelling of brittle fracture in porous CFC-materials

J. Utzinger: Theory and Numerics of Laminar Welded Lightweight Structures

Tuesday, March 28th 16:00-18:00

Room: H 110

Title: **Analytical models and fracture criteria**

Chair: B. Fedelich, H. Schütte

E. Emmrich: The peridynamic equation of motion in non-local elasticity theory

F. Reusch: Non-local adaptive simulation of ductile damage in PRMMCs

C. Radeke: Statistical strength analysis of dense particle systems

J. R. Fernandez: Numerical analysis of an elastic contact problem with damage

A. Rusinov: To the construction of creep long-term fracture criterion

R. Iankov: Identification of material parameters in the Rousselier model

Tuesday, March 28th 16:00-18:00

Room: H 111

Title: **Composite structures, microstructures, interfaces**

Chair: G.A. Maugin, W. Brocks

C. Vallee: Construction of a bipotential for a multivalued constitutive law

M. Timmel: An Approach for Micromechanical Modelling of Damage Mechanisms

S. Ertürk: RVE and unit-cell simulations of damage and failure in PRMMCs

O. Menshykov: Analysis of critical strains and loads in layered composites

E.-M. Craciun: Interface crack in a pre-stressed orthotropic elastic composite

Y. Lapusta: Near-surface microbuckling in fiber composites

Wednesday, March 29th 13:30-15:30

Room: H 110

Title: **Numerics**

Chair: F. Reusch, P. Steinmann

J. Glaser: Propagating cracks with X-FEM and Material Force Method

M. Peters: Numerical aspects of the eX-tended Finite Element Method

G. Geißler: An Adaptive Finite Element Approach for Brittle Fracture

S. Holger Reese: One fragmentation procedure for brittle material cracking

J. Hebel: Modelling crack initiation by means of finite fracture mechanics

W. Weber: Efficient crack growth analyses by combining fast methods for BEM

Wednesday, March 29th 13:30-15:30

Room: H 111

Title: **Numerics**

Chair: H. Schütte, G.A. Maugin

O. Hilgert: Numerical Simulation of Crack Growth

M. Schmidt: Damage detection on crates of beverages by means of neuro-numerics

E. Gürses: Robust Algorithm for Brittle Fracture based on Energy Minimization

L. Stankovic: Numerical prediction of macroscopic material failure

M.O. Steinhauser: Numerical simulation of fracture and failure in brittle solids

Wednesday, March 29th 16:00-18:00

Room: H 110

Title: **Material forces**

Chair: Müller, Fedelich

G. Maugin: Open and recently answered questions in the configurational mechan

B. Näser: Formulation of Material Force Approach for Finite Inelasticity

R. Denzer: Advances in Material Forces of Inhomogeneous Materials

T. Horst: Configurational forces in the context of a kinked crack

P. Steinmann: Surface Potentials in Deformational and Configurational Mechanics

N. Apostolescu: A Visualization Platform for Landing Gear Retraction and Extension

Thursday, March 30th 13:30-15:30

Room: H 110

Title: **Cyclic and thermal loading, ferroelectrics**

Chair: R. Müller

B. Fedelich: Modelling of crack growth under cyclic loading at high temperature

F.-B. Gockel: Material Simulation and Damage Analysis at Thermal Shock Condition

P. Neumeister: On boundary conditions at non-conducting cracks in ferroelectrics

M. Enderlein: A ferroelectric micromechanical model for fatigue crack growth

K. Wippler: 3D BEM-analysis of cracks in piezoelectric structures

L. Shatlyo: Fatigue crack propagation in nonlinear material with microdefects

Section 4 - Structural mechanics

Organizer: W. Becker, W. Wagner

Tuesday, March 28th 13:30-15:30

Room: H 104

Title: **Elastic Systems**

Chair: Reinhold Kienzler, Jerzy Rakowski

J. Rakowski: Stiffness matrix of Timoshenko beam with nonlinear elastic support

R. Kienzler: On Hole-Growing Processes in Elastic Plates

J. Hornig: Analysis of load transfer in thermo-elastic membranes

V. Saurin: Variational Approaches in the Beam Theory

O. Marynets: The Stresses in Annular Lapped Plates

A. Grigorenko: Mechanical behavior of elastic cylinder with various cross-section

Tuesday, March 28th 13:30-15:30

Room: H 105

Title: **Contact**

Chair: U. Nackenhorst, B.W. Zastrau

M. Ziefle: On the treatment of frictional rolling contact

K. Willner: Contact of fractal surfaces - Experimental and numerical results

V. Pauk: Modelling of the frictional heat-generated in rolling contact

J. Nettingsmeier: Frictional Contact of Rubber on rough Surfaces

A. Konyukhov: High order FE and co-variant description for contact problems

M. Luege: Finite strain model for contact interface in forming processes

Tuesday, March 28th 16:00-18:00

Room: H 104

Title: **Viscoelastic / Elastoplastic Systems**

Chair: S. Reese, B. Eidel

J. Wang: Modeling and simulation of springback in sheet metal structures

H. Sparr: Numerical Simulation of Cold Ring Rolling

M. Vogler: A visco-plastic material law with applications to crash problems

M. Stoffel: Anisotropic damage of shock wave-loaded plates

Y. Lyashenko: The stress concentration in the components of the viscous-elastic

Tuesday, March 28th 16:00-18:00

Room: H 105

Title: **Stability**

Chair: K. Schweizerhof, Y. Kyosev

M. Mackiewicz: Elastic Buckling of an Open Cylindrical Shell Under Pure Bending

Z. Laszczyk: Critical load of an axially compressed sandwich cylindrical panel

M. Haßler: Stability Analysis of Fluid Loaded or Supported Shell Structures

D. Debowski: Dynamic stability of a porous rectangular plate

T. Belica: Dynamic stability of a porous cylindrical shell

Y. Kyosev: Stability problems of the textile wound structures

Wednesday, March 29th 13:30-15:30

Room: H 104

Title: **Finite Element Methods**

Chair: P. Wriggers, J. Schröder

N. Sänger: A comparison of nonlinear beam finite element formulations

J. Mosler: A novel h-adaptive finite element method for standard dissipative

E. Friederike Boerner: A finite element formulation based on the Cosserat point theory

A. Schwarz: Remarks on a Least Square Mixed Finite Element for Elasticity

M. Fleischer: Anwendungsaspekte der Submodelltechnik der FEM

A. Bucher: Mapping algorithms of field variables in nonlinear adaptive FEM

Wednesday, March 29th 13:30-15:30

Room: H 105

Title: **Applications**

Chair: L. Panning, P. Ruge

J. Wranik: Schiefwinklige verbundene Stahlbetonplatten im Brückenbau

C. Birk: Longitudinal track-structure interaction on railway bridges

G. Brys: Biegesteife Rahmenknoten in Verbundkonstruktionen Stahl-Beton

R. Wille: Zum Übergang von der inneren zur äußeren Reifenmechanik

A. Schmidt-Fellner: Experimental analysis of shrouded blades with friction contact

L. Panning: Symmetric and asymmetric underplatform dampers for turbine blades

Room: H 104

Title: **Composites**

Chair: E. Schnack, B. Kuczma

H. M. Wigger: Size Effects at Corners of Anisotropic Material Discontinuities

R. Tsootsova: Inverse Identification of Delaminations in Layered CFRP-Composites

J. Artel: Analysis of free-edge effects by boundary finite-element method

M. Kuczma: Partially connected composite beams

G. Timchenko: Free vibration analysis of composite plates and shells with complex

V. Shevchuk: Determining mechanical state of the body-multilayer coating system

Wednesday, March 29th 16:00-18:00

Room: H 105

Title: **Miscellaneous**

Chair: R. Lammering, W. Seemann

A. Vishnevsky: Study on the thermo-mechanical behavior of superelastic NiTi wires

R. Lammering: A Piezoelectric Finite Shell Element in Convective Coordinates

F. Koenemann: Elasticity as a change of state in the sense of the First Law

B. Delibas: Simulation of rate dependent properties of piezoelectric materials

V. Ispas: Geometrical modeling of TRT2 modular robot

V. Ispas: Kinematics modeling of TRT2 modular robot

Thursday, March 30th 13:30-15:30

Room: H 104

Title: **Optimization**

Chair: F.-J. Barthold, Klaus Hackl

D. Materna: Coherence of Structural Optimization and Configurational Mechanics

G. Kotucha: Numerical instabilities in Structural Optimization

M. Rodak: Bicriterion optimization of cold-formed thin-walled beams

M. Hyca: Optimization of Initial Deflection of Beam-Columns

T. Walczak: Mechanism synthesis with the use of neural network

R. Starosta: On some application of genetic algorithm in mechanism synthesis

Thursday, March 30th 13:30-15:30

Room: H 105

Title: **Numerical Methods 1**

Chair: R. Krause, S. Reese

J. Bitzenbauer: Mehrskalenerrechnungen bei inhomogenen Körpern

U. Hoppe: Numerical Simulation of Crack-Propagation in Shells

B. Helldörfer: Coupling of 3D boundary elements and curved finite shell elements

R. Krause: A New Stabilized Implicit Newmark Scheme for Dynamic Contact

C. Rickelt: An efficient strategy for life-time calculation of large structures

L. Abdelhakim: An H-matrix type preconditioner for Contact Problems

Thursday, March 30th 16:00-18:00

Room: H 104

Title: **Dynamics / Oscillations**

Chair: Becker, Wilfried

E. Magnucka-Blandzi: Vibration of a circular porous-cellular plate

P. Koszela: Chaotic vibration in nonlinear problems of bar structures

K. Avramov: Free and forced nonlinear oscillations of cylindrical shells

G. Pilgun: Nonlinear free vibrations of shallow shells of arbitrary shape

Thursday, March 30th 16:00-18:00

Room: H 105

Title: **Numerical Methods 2**

Chair: R. Kutylowski, T. Kozbial

M. Mazza: Galerkin BE formulation of stress based finite elements

K. Ziopaja: Damage detection and estimation using wavelet transform

G. Wasniewski: Symmetric Galerkin BEM for shallow spherical shell

T. Kozbial: Application of Daubechies wavelets approximation to plate bending

J. Buskiewicz: Synthesis of workspace by using angle derivative function (ADF)

Section 5 - Oscillations

Organizer: P. Eberhard, W. Seemann

Tuesday, March 28th 13:30-15:30

Room: H 2033

Title: **Bremsen**

Chair: P. Eberhard, W. Seemann

M. Kröger: Modellierung der Reibkraft-verläufe einer Bremse

G. Spelsberg-Korspeter: Moving Continua and Brake Squeal - Part 1: Euler-Bernoulli Beam

D. Hochlenert: Moving Continua and Brake Squeal - Part 2: Kirchhoff Plate

S. Schlagner: Quietschen von Kfz-Scheibenbremsen

H. Hetzler: Investigations on low-frequency noise of disc-brakes

A. Steindl: Bifurcations of slip-stick travelling waves in a breake-like syste

Tuesday, March 28th 13:30-15:30

Room: H 2032

Title: **Schwingungsdaempfung und Pendel**

Chair: A. Fidlin, F. Ziegler

F. Ziegler: A novel, vertically acting tuned liquid column damper

P. Barthels: Freie Zielfahrt

Y. Mikhlin: Vibration Absorption by using the essentially nonlinear subsystem

M. Stangl: Dynamics of an Elastic Pendulum with Internal Flow of Fluid

A. Fidlin: Low frequency effects in bi-harmonically excited pendulum

M. Borowiec: Vibration of Pendulum with Oscillating Support and Extra Torque

Tuesday, March 28th 16:00-18:00

Room: H 2033

Title: **Kontakt**

Chair: R. Seifried, A. Bockstedte

R. Seifried: Multiple impacts of transversely struck aluminum beams

D. Schwarzer: Bifurcation behavior of a 1DOF sliding friction oscillator

H. Keitzel: Influence of the contact model on the onset of sprag-slip

N. Hoffmann: Nonconservative beatings in systems with sliding friction

M. Brinkmeier: Simulation and Measurements of Rolling Tire Dynamics

P. Glösmann: Fahrwegmonitoring von Rad-Schiene-Systemen

Tuesday, March 28th 16:00-18:00

Room: H 2032

Title: **Seile und Schwingungsanalyse**

Chair: N. Wagner, A. Heinen

H. C. Renezeder: Three-Dimensional Simulation of a Circulating Monocable Ropeway

U. Aps: Wirkung von Störungen auf die Stabilität von Seilschwingungen

A. Heinen: Neufassung und Anwendung einer nichtlinearen Seiltheorie

N. Wagner: Inverse eigenvalue problems in structural dynamics

L. Reicke: Vibration Analysis in Mechanical and Medical Engineering

A. Abramyan: Stability of a SDOFO with a time varying mass

Wednesday, March 29th 13:30-15:30

Room: H 2033

Title: **Technische Anwendungen I**

Chair: J. Wojnarowski, N. Hoffmann

O. Rott: A comparison of analytical cutting force models

J. Wojnarowski: Influence of the Tension of Band Saw on the Critical Working Speed

M. Byrtus: On modelling and analysis of gear drives with nonlinear couplings

C. Wetzel: On the crosswind stability of high speed railway vehicles

A. Bockstedte: Hoisting Manipulation for Flying Cranes

M.-A. Pick: Analysis of critical motions of floating structures

Wednesday, March 29th 16:00-18:00

Room: H 2033

Title: **Technische Anwendungen II**

Chair: T. Kletschkowski, L. Popa

P. Moldenhauer: Efficient Calculation of Tread Block Vibrations

U. Strehlau: Simulation von Pyroschocks

T. Kletschkowski: Electro-vibro-acoustical simulation of linear vibrations in ducts

R. Oleskiewicz: Losses in Negative Capacitance Circuit for Piezo Vibration Control

N. Neumann: Periodic&Chaotic Attractor Detection of a Vibro-Impact Oscillator

L. Popa: Contributions to the Study of Torsional Vibrations of Crankshaft

Thursday, March 30th 13:30-15:30

Room: H 2033

Title: **Diskrete und nichtlineare Schwinger**

Chair: E. Brommundt, P.C. Mueller

P. C. Müller: Natural frequencies of a multi-degree-of-freedom vibration system

U. Zwiers: Vibration Analysis of Gyroscopic Systems

F. Weichert: Optimization of multi body systems with integrated measuring data

E. Brommundt: Tilting Angles for Cylinder Coordinates

G. Manucharyan: Determination of the chaos onset in nonlinear systems

A. Manevich: Subharmonic resonance in 2dof cubic systems with closes eige

Thursday, March 30th 13:30-15:30

Room: H 2033

Title: **Div. Anwendungen**

Chair: A. Khentov, A. Bobylov

A. Bobylov: Numerical modelling of forced vibrations of viscoelastic solids ..

A. Chistilina: Research of layered shells with complex form by R-function method

A. Khentov: On the dynamics of pendulum with vibrating fastener's point

A. Myslinski: Rolling contact problem with slip rate dependent friction

L. Yuan: On Paper Machine Roll Contact with Beating Vibrations

Thursday, March 30th 16:00-18:00

Room: H 2033

Title: **Kontinuierliche Schwingersysteme**

Chair: R. Heuer, C. Adam

C. Adam: Nonlinear flexural vibrations of composite shallow open shells

H. J. Holl: Efficient Series Solutions for Vibrating Thin Rectangular Plates

L. Yan-Zhu: On formulation and analysis in dynamics of Kirchhoff's rod

G. Machina: Spatial Random Material Property Model for Vibration of Composites

A. Buchacz: New branched vibration systems as result of synthesis of mobility

R. Heuer: Vibrations of linear structures with spatial local nonlinearities

Section 6 - Material models in solids

Organizer: A. Bertram, P. Steinmann

Tuesday, March 28th 13:30-15:30

Room: H 107

Title: **Plasticity I**

Chair: A. Bertram

R. Mahnken: Simulation of asymmetric effects in plasticity

K. Chau Le: Dislocation nucleation and workhardening in anti-plane constrained

M. Schurig: A Model for the Vertex Effect in Polycrystal Plasticity

A. Eklakov: Molecular dynamics model of the texture formation in CFC

V. Shneider: Complex cyclic loading in the micro deformation plasticity theory

Tuesday, March 28th 13:30-15:30

Room: H 106

Title: **Phase Transitions I**

Chair: W. Müller

E. Kuhl: Simulation of Mineral Growth with the Cahn-Hilliard Equation

D. Christ: On the necessity of modelling SMA in range of large deformations

C. Grabe: Multidimensional isothermal tests of superelastic NiTi

O. Lyeshchuk: Computer-Aided Modeling of Diamond Crystallization Zones in HPA

O. Kokoshyn: Microstructure Approach to the Description of Shape Memory Effect

Tuesday, March 28th 16:00-18:00

Room: H 107

Title: **Granular Media and Non-Standard Continua**

Chair: P. Steinmann

O. Avci: Modelling of granular materials applied to localization problems

H. Meier: Failure of granular materials at different scales

P. Grammenoudis: Classical limits of a micropolar plasticity model

C. B. Hirschberger: Computational Material Forces in Micromorphic Continua

J. A. Gawinecki: Global solution of Cauchy problem in nonlinear non-simple material

M. Svanadze: Boundary value problems in the theory of micromorphic elastic \mathbb{A}

Tuesday, March 28th 16:00-18:00

Room: H 106

Title: **Phase Transitions II**

Chair: E. Kuhl

M. Böl: Simulation of shape memory polymers by means of the finite element (40 min.)

M. Wolff: Transformation-induced plasticity: Modelling and analysis in 3-d

W. H. Müller: Modelling phase separation and coarsening in Ag-Cu

A. Berezovski: Velocity of moving phase-transition front in solids

Wednesday, March 29th 13:30-15:30

Room: H 107

Title: **Identification, Fractional Derivatives**

Chair: R. Mahnken

C. Hohl: Identifikation von Materialparametern anhand inhomogener Versuche

B. Kleuter: Parameter identification for the FE analysis of elastomers

M. Lindner: Different methods of sensitivity analysis in parameter estimation

H. Johansson: Error Computation for Parameter Identification problems

T. Pfitzenreiter: Thermodynamic models for fractional derivatives

I. Schäfer: Uniqueness of solutions of linear fractional partial differential

Wednesday, March 29th 13:30-15:30

Room: H 106

Title: **Polymers**

Chair: D. Helm

H. Dal: Approaches to the Modelling of Physical Ageing in Rubbery Polymers

J. Méndez: Experiments and Identifications for Finite Polymer Inelasticity

A. Shaban: Simulation of Rate Dependent Plasticity of Polymers

M. Itskov: A constitutive model for the anisotropic Mullins effect in rubber

A. Ehret: A generalized polyconvex hyperelastic model for anisotropic solids

Wednesday, March 29th 16:00-18:00

Room: H 107

Title: **Plasticity II**

Chair: C. Le

T. Kayser: Modeling and simulation of aluminum alloys during extrusion

A. Kainz: Inconsistencies in plane-strain elasto-plastic rolling simulations

I. Vladimirov: Modelling the Springback of Sheet Metals at Large Deformations

S. Alexandrov: Maximum friction law in plasticity

T. Czyz: Boundary element method for dynamic inelastic analysis

E. Lyamina: Flow of pressure-dependent plastic materials between two cones

Wednesday, March 29th 16:00-18:00

Room: H 106

Title: **Instabilities, Numerics**

Chair: K. Weinberg

C. Brüggemann: Modeling and Simulation of the Portevin-Le Chatelier Effect

A. Flatten: Non-local modeling of thermomechanical localization in metals

M. Ban: On separately convex potentials and their applications

D. Rosato: Non-Isothermal Shear Band Localization in Crystal Plasticity

P. Jäger: Modelling and Computation of 3D Discontinuities in Solids

D. Zimmermann: Material-Force-Based Refinement Indicators in Adaptive Strategies

Thursday, March 30th 13:30-15:30

Room: H 107

Title: **Coupled Problems, Numerics**

Chair: T. Böhlke

D. Helm: Modellierung und Simulation thermomechanischer Kopplungsphänomene (40 min.)

K. Linnemann: A Constitutive Model for Magnetostrictive Materials

N. Pop: Approximation of the Contact Problems in Elasticity with Mixed Fin

M. Vesenjak: Homogenisation of cellular structures in dynamic FE analyses

G. Dziatkiewicz: Dual reciprocity BEM for dynamic piezoelectricity

Thursday, March 30th 16:00-18:00

Room: H 106

Title: **Composites**

Chair: M. Böl

M. Szczesniak: Numerical modelling of a heterogeneous composite material

L. Nazarenko: Nonlinear Deformation of Three-Component Composites

J. Jedrysiak: The elastic response for microlayered functionally graded media

J. Rychlewska: On the modelling of functionally graded laminates with microcracks

J. Szymczyk: Successive approximations in dynamics of laminated media

V. Burlayenko: Creep damage analysis of plates using an anisotropic damage model

Thursday, March 30th 16:00-18:00

Room: H 106

Title: **Miscellaneous**

Chair: M. Schurig

V. Chiroiu: On the solitonic behavior of carbon nanotubes fracture

L. Munteanu: The pseudospherical reduction of the uniaxial deformation of carbo

P. Teodorescu: On the solitonic mechanism of bending for carbon nanotubes

T. Böhme: Cavities in an elasto-plastic material: A mesoscopic concept

N. Bontcheva: Simulation of strain induced austenite - martensite transformation

L. Malag: Analysis of stress and strain in spread cylindrical sample

Thursday, March 30th 18:00-20:00

Room: H 107

Title: **Thermal Problems**

Chair: M. Itskov

Y. Zhuk: Vibrations and heating of inelastic solids under harmonic loading

L. Lacinski: Heat conduction in laminates with a weak transversal inhomogeneity

C. Wozniak: Heat conduction in certain functionally graded material

M. Svanadze: On the problems of heat propagation in a binary mixture

Section 7 - Coupled problems

Organizer: S. Diebels, S. Reese

Tuesday, March 28th 13:30-15:30

Room: H 2036

Title: **Electromechanical coupling**

Chair: T. Ricken

H. Romanowski: Aspects of the simulation of electro-mechanical coupling effects

I. Kurzhöfer: A hybrid finite element formulation for electromechanical problems

D. Schrade: Phase field simulations of ferroelectric materials

J. Unger: On the influence of electric currents on plastic deformation

B. Svendsen: ALE-based 3D FE simulation of electromagnetic forming

Tuesday, March 28th 16:00-18:00

Room: H 2036

Title: **Piezo ceramics and ferro electrics**

Chair: R. Müller

F. Dienerowitz: Pretwisted Beam with Piezoelectric Structures

S. Klinkel: A 1D constitutive law for hysteresis effects in piezoceramics

H. Bossong: Characterisation and Modelling of Piezoceramic Actuator Hystereses

O. Goy: 3D Simulation of Point Defect Migration in Ferroelectrics

V. Mehling: Consistent modeling of ferroelectric material behavior

O. Dashko: An Analytical Solution of a 3D Problem of Magnetoelasticity

Wednesday, March 29th 13:30-15:30

Room: H 2036

Title: **Thermomechanical coupling**

Chair: P. Steinmann

S. Bargmann: Modeling of non-classical thermoelasticity

M. Gross: Stable time integration of non-linear thermomechanical problems

X. Feng: Experimental and theoretical investigation of PLC deformation band

S. Göktepe: Coupled Finite Thermovisco-plasticity of Glassy Polymers

V. Chekurin: Inverse problems for tensor fields optical tomography

Wednesday, March 29th 16:00-18:00

Room: H 2036

Title: **Multiphase continua**

Chair: B. Markert, M. Böl

T. Graf: Phase transition processes of pore fluids in porous materials

J. Bluhm: Modeling of phase interfaces during freezing and thawing processes

Z. Chen: Wave propagation in fluid-saturated porous media

M. Johlitz: Size Effects due to the Formation of Interphases in Polymer Joints

Thursday, March 30th 13:30-15:30

Room: H 2036

Title: **Surface coupling**

Chair: S. Diebels

R. Niekamp: A Framework for the Coupling of Simulations

M. Müller: Beschreibung der Zeitskalen-problematik bei Bremsvorgängen

T. Helmich: Numerical Simulation of Surface Scanning in an AFM Environment

H. Altenbach: Ausrichtung von Partikeln in stationären Strömungsfeldern

S. Schrape: FSI of a Simplified Aero Engine Compressor Cascade Configuration

Section 8 - Multiscales and homogenization

Organizer: C. Miehe, A. Mielke

Tuesday, March 28th 13:30-15:30

Room: H 112

Title: **Energy Minimization and Relaxation**

Chair: A. Mielke

S. Conti: Energy scaling and microstructure formation in paper crumpling

P. Hornung: Asymptotic analysis of thin martensitic films

A. Orlando: On the numerical relaxation of single-slip plasticity

K. Kühn: Analysis of magnetic nanowires

I. Münch: Constitutive modeling and FEM for a nonlinear Cosserat continuum

P. Neff: Local minimization on $SO(3)$ and relaxation

Tuesday, March 28th 16:00-18:00

Room: H 112

Title: **Multiscale Modeling**

Chair: J. Giannoulis

H. Uecker: A model problem for inclined film flow over wavy bottoms

T. Koprucki: Upscaling of quantum calculations to macroscopic state equations

H.-C. Kaiser: Coupled models H. semiconductor device simulation

A. Chatzouridou: From microscopic investigations to macroscopic models of foams

S. Demiray: Homogenization of elasto-plastic open-celled foams

S. Ilic: Multiscale FEM in modelling of solution-precipitation creep

Wednesday, March 29th 13:30-15:30

Room: H 112

Title: **Multiple Scales in Phase Transformations and Transitions**

Chair: K. Hackl

T. Bartel: Energy-barriers due to nucleation in solid/solid phase-transitions

R. Heinen: A Lamination Upper Bound to the Free Energy of Shape Memory Alloys

T.-A. Langhoff: Energetic modelling of multiphase materials with microstructure

A. Schlömerkemper: About phase transformations in polycrystalline shape-memory alloys

M. Lenz: Model and simulation of magnetic shape-memory polymer composites

B. Nestler: From dendritic and eutectic solidification to grain growth

Wednesday, March 29th 16:00-18:00

Room: H 112

Title: **Effective Constitutive Laws**

Chair: S. Conti

H. Emmerich: Improved constitutional relations by and for multiscale models

C. Eck: Multiscale Models for Phase Transitions with Microstructures

T. Biwanski: Flow structure in a technical scale reactor with internal reboiler

C. Timofte: Homogenization Results for Enzymatic Dispersion Processes

S. Kaßbohm: Fourier Series for Continua with Microstructure

J. Orlik: Homogenization for Contact Problems for Hyprosthesis with Periodi

Wednesday, March 29th 16:00-18:00

Room: H 111

Title: **Foundations of Homogenization**

Chair: P. Neff

P. Jenny: Multi-Scale Finite-Volume Method for Stiff Elliptic Problems

I. Schmidt: Effektive Steifigkeit von Polymeren mit Kohlenstoff-Nanoröhrchen

M. Schanz: Effective Frequency Dependent Properties of Cellular Materials

B. Miara: Shape optimization of heterogeneous phononic materials

A.-M. Timofte: Homogenization for rate-independent systems

B. Scholz: From Particle Dynamics to Micropolar Media: A Localization Study

Thursday, March 30th 13:30-15:30

Room: H 112

Title: **Multiscale Modeling in Metals**

Chair: C. Miehe

V. Levkovitch: Homogenization modeling of induced anisotropy in sheet metals

M. Becker: Micromechanically Motivated Gradient Crystal Plasticity

R. Glüge: Texture Evolution and Swift effect in NiAl

T. Hochrainer: A self-consistent theory of 3D-dislocation based plasticity

A. Trondl: 3D FEA of Size Effects in Deformation of Thin Metallic Films

Y. Chen: Local Deformation Behavior and Crystallographic Texture Evolution

Thursday, March 30th 13:30-15:30

Room: H 111

Title: **Passage from Discrete to Continuum Models**

Chair: H. Uecker

J. Giannoulis: Three-wave interaction in discrete lattices

B. Schmidt: On the passage from atomic to continuum theory for thin films

C. Patz: Dispersive and long-time behavior of oscillations in lattices

J. Rademacher: Towards macro-limits of Riemann problems in atomic chains

I. Andrianov: Continuous models for discrete media for higher-frequency I.

A. Mielke: Lagrangian and Hamiltonian structures for modulation equations

Room: H 112

Title: **Homogenization of Composites**

Chair: M. Becker

M. Kästner: Homogenisation of fibre composites using X-FEM

M. Birkle: On Variational Based Scale-Bridging of Inelastic Composites

B. Köster: A Micromechanical Damage Model for Fibre Reinforced Composites

V. Danishevskyy: Effects of interphases in fibre-reinforced composite materials

Georg Haasemann: On the simulation of textile reinforced composites and structures

J. Kreikemeier: Investigation, modelling and analysis of stiffened gfrp-samples

Section 9 - Turbulence and reactive flows

Organizer: C. O. Paschereit, D. Thevenin, F. Thiele

Tuesday, March 28th 13:30-15:30

Room: H 2035

Title: **Chemical Engineering and Applications**

Chair: C. O. Paschereit

S. Donescu: The motion of a micropolar fluid in inclined open channels

M. Javurek: Oscillation of Confined Jets in Continuous Casting Mold Flow

S. Schlauch: Numerical simulation of stirred liquid-liquid systems

J. Schumacher: Statistics and geometry in high-Schmidt number scalar mixing

H. Shalaby: Particle-Laden Flow Simulation in a Cyclone Separator

M. Streng: Analyse eines Flotationsprozesses

Tuesday, March 28th 16:00-18:00

Room: H 2035

Title: **RANS and boundary layer**

Chair: F. Thiele

G. Chernykh: Swirling turbulent wake behind a self-propelled body

M. Hölling: Using laser-cantilever anemometry under various flow condition

P. Kudinov: Compressible Flows Simulation on Multiblock Unstructured Grids

R. Schwarze: Performance and limitations of the unsteady RANS approach

I. Vigdorovich: Turbulent Boundary Layer on a Flat Plate with Suction

E.-S. Zanoun: Mean Flow Properties in Smooth Pipe Flow Experiment

Wednesday, March 29th 13:30-15:30

Room: H 2035

Title: **Turbulence and two-phase flows**

Chair: D. Thevenin

R. Henniger: LES of particle settling in homogeneous turbulence

A. Jocksch: Exergetic aspects of turbulent high-speed boundary layers

A. Kubik: Influence of Mass Loading on Particle-Laden Turbulent Channel Flow

N. Marheineke: Fiber Dynamics in Turbulent Flows - Mathematical Modeling Concept

R. Stresing: Longitudinal and transversal two-point correlations in turbulence

T. Weller: DNS of a Turb. Rotating Channel Flow: Study of the Reverse Effect

Wednesday, March 29th 16:00-18:00

Room: H 2035

Title: **Reacting flow computations**

Chair: D. Thevenin

O. Kurenkov: LES of premixed combustion using the level set approach

D. W. Meyer: Parameterized Scalar Profile Mixing Model for Turbulent Combustion

M. Hegetschweiler: Model of Partially Premixed Turbulent Combustion with PDF Methods

B. Rembold: A Lagrangian Joint PDF Approach for Turbulent Premixed Combustion

D. Thevenin: Influence of the Propagation Direction for an Acoustic Wave Interferometer

Thursday, March 30th 13:30-15:30

Room: H 2035

Title: **Fundamental considerations**

Chair: F. Thiele

M. Aripov: Self similar approach for visualisation of nonlinear processes

V. Grebenev: Integration of infinite chain of transport equations for cumulants

S. Yasuda: Evaporation and condensation of a binary mixture of vapors

Section 10 - Viscous flows

Organizer: N. Aksel, G. Böhme, D. Hänel

Tuesday, March 28th 13:30-15:30

Room: H 1058

Title: **Interfaces and Films**

Chair: M. Dreyer

K. Adler: Modelling Free Surfaces in Oscillating Pipe Flows

K. Afanasiev: Thin film dynamics on vertically rotating disks

A. Grah: Unsteady Modeling and Simulation of Open Capillary Channel Flows

C. Heining: Bistable resonance in gravity-driven film flows

U. Rosendahl: Sounding rocket experiment on capillary channel flow

F. Peters: Kräftegleichgewicht an kleinen Bläschen in einer Scherströmung

Tuesday, March 28th 16:00-18:00

Room: H 1058

Title: **Channel Flow**

Chair: P. Erhard, M. Scholle

P. Ehrhard: Messung des Strömungsfelds in einem Mikromischer

D. P. J. Barz: 3D simulation and experiment of flow in a folded microchannel

S. Strein: Stability analysis for the flow in a wetting/dewetting (micro-)gap

M. Finck: Simulation of Nasal Flow by Lattice Boltzmann Methods

V. Prokop: Numerical Solution of Newtonian and Non-Newtonian flows

P. Jonás: Pressure distributions in a channel with a backward facing step

Wednesday, March 29th 13:30-15:30

Room: H 1058

Title: **Heat and Mass Transfer**

Chair: H. Steinrück, D. Hänel

C. Conzen: Experimentelle Untersuchung des Temperaturfelds in einem Extruder

H. Steinrück: Mixed Convection Flow Past a Horizontal Plate: The Global Flow

L. Savic: Mixed Convection Flow past a Horizontal Plate: The Trailing Edge

S. Domesi: Dynamics of spherical particles in thermocapillary liquid bridges

M. Scholle: Influence of eddies on heat transfer in Couette flow

I.-R. Stan: Hammer Effect of Surfactants on a Free Drop

Wednesday, March 29th 16:00-18:00

Room: H 1058

Title: **Stability**

Chair: C. Egbers, N. Aksel

P. Stücke: Über die exzentrische Zylinderspaltströmung bei engen Spaltweiten

N. Scurtu: Numerical simulation of the flow in eccentric cylindrical system

M. Smieszek: Untersuchung eines scherverdünnenden Fluids im Zylinderspalt

C. Mayer: Wavelets Generated by Stokes Potentials

U. Schoisswohl: Flow instabilities in buoyant-thermocapillary liquid pools

S. Slavtchev: Solute transport by radial capillary flow in a Hele-Shaw cell

Thursday, March 30th 13:30-15:30

Room: H 1058

Title: **Non-Newtonian Fluid Flow**

Chair: O. Wunsch, G. Böhme

H. W. Müllner: Viscosity Characterisation for Rubber Blends from Die Swell Data

A. Rudert: Simulation of the Filling Behaviour of a Non-Newtonian Fluid

H. Shahnazian: Controlled shear stressed rheological investigations of ferrofluid

L. Mirela Pop: Microstructure of Co-based ferrofluids and its influence on the ρh

O. Matvienko: Particles separation in the non-Newtonian suspensions

D. Ivanovic: Control of Unsteady MHD boundary layer on porous accelerating surf

Thursday, March 30th 13:30-15:30

Room: H 1029

Title: **Miscellaneous**

Chair: V. Vetlutsky, N. Lebedeva

N. Lebedeva: Admixture Stratification in the stagnation region of two streams

T. Zlatanovski: General solution to the Stokes equation in spheroidal coordinates

V. Yericheva: Heat Transfer and Aeroelastic Oscillation of Circular Cylinder

V. Vetlutsky: Partikelbeladene Strömung in einer Überschalldüse

N. Ivanova: Numerical analysis of slow steady flows of nonlinear viscous fluid

Thursday, March 30th 16:00-18:00
Room: H 1058
Title: **Modelling/Rotating Systems**
Chair: F. Obermeier, V. Vasanta Ram

P. Mausbach: Scherviskosität für das "Gaussian Core Model"-Fluid

F. Obermeier: Prandtl's Mixing Length Model - Revisited

J. Vimmr: Modelling of Newtonian and non-Newtonian incompressible fluid flow

N. Bleier: Stability of a strongly swirling annular flow

J. Hussong: The critical layer of a swirling annular flow in transition

Thursday, March 30th 16:00-18:00
Room: H 1029
Title: **Aerodynamics and Turbulence**
Chair: D. Redchys

D. Redchys: Numerical modelling of aerodynamics of Darrieus and Savonius

O. Prykhodko: Numerical modeling of space flows using Navier-Stokes equations

B. Rasuo: On Boundary Layer Control Using Suction in the Wind Tunnels

A. Dumitrache: A numerical model for two-dimensional flow of flapping airfoil

H. Dumitrescu: Boundary Layer and Flow Field Structure on Wind Turbine Blades

Section 12 - Waves and acoustics

Organizer: A. Kluwick, F. Ziegler

Tuesday, March 28th 13:30-15:30
Room: H 2038
Title: **Acoustics**
Chair: A. Kluwick

O. von Estorff: Vibro-acoustic Investigations Using Finite and Infinite Elements

D. Obrist: Computation of Acoustic Far-Fields

H. Schmidt: A zero Mach number projection method coupled to external acoustics

V. Cardoso: Aerodynamic and acoustic radiation from an airfoil in arbitrary motion

D. Russkikh: To the Calculation of the Acoustic Field of Wind Turbine

G. Sokol: Infrasound is an ecologically harmful factor in wind energy

Tuesday, March 28th 16:00-18:00

Room: H 2038

Title: **Free surface and scalar dispersive waves**

Chair: A. Kluwick, A. Basmat

A. Kluwick: The effect of surface topography on weakly nonlinear roll waves

O. Basmat: Interaction of a Solitary Wave with a Porous Elliptical Cylinder

I. Selezov: Pulse propagation in fluid-filled cylindrical shell with insertion

F. G. Boese: On Impulse Distortion in Dispersive Media

Y. Rudnev: Small oscillations of inviscid fluid in vessels with perforated

Wednesday, March 29th 13:30-15:30

Room: H 2038

Title: **Elastic waves 1**

Chair: R. Heuer, C. Adam

W. Ellermeier: Waves in Active Media

S. von Ende: Simulation von Lamb-Wellen zur Schadensdetektion in Platten

I. Sofronov: Non-reflecting boundary conditions for anisotropic media

I. Symchuk: To evolution of the profile of hyperelastic cylindrical waves

Wednesday, March 29th 16:00-18:00

Room: H 2038

Title: **Elastic waves 2**

Chair: C. Adam, R. Heuer

D. Zakharov: Bending Waves of Rayleigh Type in Anisotropic Layered Plates

I. Dobovsek: Wave Dispersion Decoupling in Micropolar Thermoelasticity

O. Simionescu-Panait: Attenuated wave propagation in cubic crystals under biasing fields

Thursday, March 30th 13:30-15:30

Room: H 2038

Title: **Impact**

Chair: A. Basmat

A. Teufel: Rotating stick-slip-separation waves in a shaft-bush configuration

Y. Rossikhin: Dynamic Stability of a Pre-Stressed Elastic Orthotropic Plate

M. Shitikova: Fractional Derivative Viscoelastic Model of the Shock Interaction

V. Kubenko: Plain problem of impact by a blunted rigid body against a thick

E. Gavrilova: Forced stationary gas-structure interaction vibrations in a tank

T. Marchenko: Non-symmetric Shock of Different Elastic Cylindrical Bodies

Section 13 - Applied analysis

Organizer: A. Münch, G. Schneider

Tuesday, March 28th 13:30-15:30

Room: MA 141

Title: **Multiple scales**

Chair: G. Schneider, A. Münch

S. Teufel: Effective Quantum Dynamics in Slowly Perturbed Periodic Media (40 min.)

E. Pesetskaya: The effective conductivity of composite materials

W.-P. Düll: Phase dynamics in modulation equations for pattern forming system

S. Meier: Two-scale models of diffusion and reaction in porous media

Tuesday, March 28th 13:30-15:30

Room: MA 142

Title: **Eigenvalue problems**

Chair: A. Münch, G. Schneider

C. Trunk: Minimum-Phase Infinite-Dimensional Second-Order Systems

J. Behrndt: An operator theoretic approach to elliptic boundary value problems

O. Kirillov: Krein space related perturbation theory for MHD α^2 -dynamios

I. Karabash: Indefinite Sturm-Liouville operators and parabolic equations

R. Bulatovic: On the Perfectly Matched Gyroscopic Systems

B. Loginov: Pseudoperturbation method for computation of E. Schmidt eigenvalue

Tuesday, March 28th 16:00-18:00

Room: MA 141

Title: **Multiple scales**

Chair: G. Schneider, A. Münch

C. Lasser: Resonances generated by a conical intersection of energy levels

T. Swart: The Non-Crossing-Rule

M. Zeitlin: Pattern formation in collective quantum dynamics

A. Fedorova: Fusion Modeling in Complex Vlasov-Maxwell-Poisson Dynamics

N. Kazic: On the accumulation resonance of systems

Tuesday, March 28th 16:00-18:00

Room: MA 142

Title: **Thin liquid films and thin membranes**

Chair: A. Münch, G. Schneider

P. Evans: Asymptotic structure of a dewetting thin liquid film

T. Rump: Coarsening in a droplet model: The role of migration

I. Bock: On a Pseudoparabolic System for a Viscoelastic Shallow Shell

D. Rajter-Ciric: On stochastic wave equation

D. Ivashina: Calculation of temperature field in non-asymptotically thin layers

A. Voigt: Strong anisotropies in geometric evolution laws - physically motivated higher order regularizations

Wednesday, March 29th 13:30-15:30

Room: MA 141

Title: **Elasticity, energy methods**

Chair: G. Schneider, A. Münch

P. Krejč: Hysteresis in temperature-driven phase transitions (40 min.)

F. Schmid: An evolution model in contact mechanics with dry friction

S. Ricker: Existence of Solutions to the Linearized Spinning Wheel Problem

D. Knees: Energy release rate for cracks in finite-strain elasticity

A. Gitzky: Energy models where the equations are defined on different domains

Wednesday, March 29th 16:00-18:00

Room: MA 141

Title: **Fluid mechanics, conservation laws**

Chair: A. Münch, G. Schneider

C. Rohde: Mathematical models for Liquid-Vapour Flows (40 min.)

D. Langemann: Harmonical analysis of the total ponderomotive force

M. Prytula: Analysis of Witham type model

Y. Brazaluk: Dynamics of bubble motion under buoyancy force

M. Polyakov: Calculation of spraying process

Thursday, March 30th 13:30-15:30

Room: MA 141

Title: **Phase separation, phase transformation**

Chair: G. Schneider, A. Münch

J. A. Griepentrog: Nonlocal Phase Separation Processes (40 min.)

M. Herrmann: On cluster formation in Becker-Doering processes

A. Muntean: A two-reaction-zones model: Global existence of solutions

D. Serbichenko: Numerical solution of Stefan problem in Leybenzon approximation

O. Kochubey: Boundary instability of slow phase transformation

Thursday, March 30th 13:30-15:30

Room: MA 142

Title: **Fixed point theorems, bifurcations**

Chair: A. Münch, G. Schneider

U. Schäfer: A fixed point theorem in infinite-dimensional spaces

L. Marko: Global solutions of nonlinear problem in Hilbert space.

T. Seidel: Breaking the Symmetry in a Car-Following Model

I. Konopleva: Application of cosymmetric identity in branching theory

S. Iglın: Research of hyperelastic orthotropic elliptical membranes

A. Takaci: On the equation of viscoelastic bar

Thursday, March 30th 16:00-18:00

Room: MA 141

Title: **Numerical methods**

Chair: G. Schneider, A. Münch

M. Plum: Enclosure Methods for Elliptic Partial Differential Equations (40 min.)

K. Ruotsalainen: Boundary integral operators for fractional diffusion equation

T. Smolenska: Numerical modelling of nonuniformity of biological growth

Thursday, March 30th 16:00-18:00

Room: MA 141

Title: **Miscellaneous**

Chair: A. Münch, G. Schneider

U. Kähler: Frames for the continuous spherical wavelet transform

P. Cerejeiras: Factorization of the Non-stationary Heat Equation

P. Batra: Necessary stability conditions for differential-difference systems

I. Dmitriyeva: On Some New Aspects of Classical Riemann Problem

M. Milovanovic: Some mathematical models in forestry

Section 14 - Applied stochastics

Organizer: W. Römisch, K. Sabelfeld

Tuesday, March 28th 13:30-15:30

Room: H 1029

Chair: Karl Sabelfeld, Werner Römisch

R. Adamowski: Spectral Analysis of Dynamic Systems with Random Parameters

S. Heinz: Stochastic Multi-Scale Methods for Turbulent Flow Simulations

K. Mazur-Sniady: Random Longitudinal Vibrations of Composite Rod

C. Proppe: Computation of failure probabilities via local approximations

A. Rystwej: Dynamics of an Infinite Beam under Stochastic Moving Forces

M. Tyagi: Stochastic Particle Method for Nonlinear Hyperbolic Problems

Tuesday, March 28th 16:00-18:00

Room: H 1029

Chair: E. Buckwar

Y. Kabysh: Boundary-layer effects in randomly heterogeneous materials

M. Schlather: Simulating random fields

R. Sieniawska: Influence of plastic strength randomness on structure reliability

Wednesday, March 29th 13:30-15:30

Room: H 1029

Chair: Werner Römisch, Kart Sabelfeld

R. Winkler: Improved linear multi-step schemes for SDEs

E. Buckwar: Asymptotic mean-square stability of linear multistep methods for S

K. Ellermann: The random environment of offshore systems

T. Wagner: Predicting turnovers of Cash Recycling Systems

Wednesday, March 29th 16:00-18:00

Room: H 1029

Chair: R. Winkler

J. Gottschall: Stochastic modelling of wind speed power production correlations

D. Bryja: Suspension bridge response due to non-stationary wind action

T. Zajac: Die kinematisch erzwungenen Schwingungen der Fußgängerbrücke

Section 15 - Computer algebra and computer analysis

Organizer: W. Seiler, B. Tibken

Wednesday, March 29th 13:30-15:30

Room: MA 142

Title: **Computer Algebra Applications**

Chair: W. M. Seiler

W. Koepf: Computer Algebra Algorithms for Orth. Polys. and Spec. Funct. (40 min.)

E. Zerz: Linear exact modeling from multivariate data

V. Pillwein: Hypergeometric Summation Techniques for High Order Finite Elements

K. Gabor: A Generalization of Pascal's Triangle Using Powers of Base Numbers

I. Mladenov: Lorentz Force via Exponential Mapping

Wednesday, March 29th 16:00-18:00

Room: MA 142

Title: **Interval Arithmetics**

Chair: B. Tibken

F. Decker: Enclosing Eigenpairs of the Quadratic Eigenvalue Problem

S. Markov: Towards an axiomatisation of interval arithmetic

M. Neher: On Complex Inclusion Functions

W. Krämer: Generalized Intervals and the Dependency Problem

M. Schnurr: Some Supplements Concerning Automatic Slope Computation

Thursday, March 30th 13:30-15:30

Room: MA 041

Title: **Symbolics and Numerics**

Chair: W. M. Seiler

T. Sauer: H-bases - Computer Algebra for numerical computations (40 min.)

E. Kartashova: BK-factorization as a link between symbolics and numerics

A. Weber: Symbolic-numeric methods for investigating Kirchhoff rods

M. Rosenkranz: A Novel Treatment of Linear Two-Point Boundary Value Problems

G. Regensburger: Max-plus Linear Algebra and Nonlinear Ordinary BVPs

Section 16 - Optimization

Organizer: M. Hintermüller, A. Martin

Tuesday, March 28th 13:30-15:30

Room: MA 144

Title: **Topics in Discrete Optimization**

Chair: A. Martin

A. Fügenschuh: Topology Optimization of Branched Sheet Metal Products with MIP

G. Greif: Geometry Optimization of Branched Sheet Metal Products by All-at-O

U. Günther: Modelling Manufacturing Constraints for Branched Sheet Metal Produ

T. Koch: Finding the Strategic Corridor

N. Simeliene: Optimization of Investment Policy

Tuesday, March 28th 16:00-18:00

Room: MA 144

Title: **NLP-Techniques in Optimal Control, Stochastic and Multicriteria Optimization**

Chair: M. Hintermüller

C. Grossmann: General Path-Following Penalty Methods Applied to Elliptic Control

N. Krejic: On a quasi-Newton method for stochastic optimization

Z. Luzanin: A Newton-like method for stochastic problems

Y. Kondratenko: Multicriteria optimization of cargo operations in uncertainty

J. Kasprzak: Bi-objective optimization of in-plane loaded composite plates

S.-D. Stan: Optimal design of 2 DOF PKM

Wednesday, March 29th 13:30-15:30

Room: MA 144

Title: **Applied Problems and Solution Techniques I**

Chair: Y. Kondratenko

J. Curtis: Minimal Heat Loss for Given Volume of Insulation

R. Kutylowski: Topology optimization procedure based on structure stress history

A. Dzjuba: Theoretical and experimental research of optimal cylindrical shell

G. Domek: Experimental revision of timing belt's loading model in FEM

M. Ranjbar: Study of Optimization Methods for Structural-Acoustic Applications

A. Nastase: Multidisciplinary aerodynamical optimal shape's design

Wednesday, March 29th 16:00-18:00

Room: MA 144

Title: **Applied Problems and Solution Techniques II**

Chair: N. Krejic

S. Rapajic: Globally convergent Jacobian smoothing IN methods for NCP

S. Shakhno: Method with Superquadratic Convergence for Nonlinear Least Squares

I. Nedelkovski: Expert System for Optimal Water Distribution at Irrigation System

N. Paulianok: Optimal Output On-Line Control via Dynamic Regulators

M. Lupu: Optimization Method for Airfoils in the Case of Nonlinear Problems

Section 17 - Applied and numerical linear algebra

Organizer: R. Nabben, M. Tuma

Tuesday, March 28th 13:30-15:30

Room: MA 043

Title: **H-matrices, model reduction, control theory**

Chair: P. Benner

I. Ibragimow: H-Matrices and Low Rank Plus Sparse Matrices

S. Börm: H^2 -matrices with variable rank

U. Baur: H-matrix based balanced truncation method for large-scale systems

F. Blömeling: Substructuring and SVD-based model reduction methods

T. Damm: Linear matrix equations in model reduction for bilinear systems

T. Stykel: The matrix sign function method for projected Lyapunov equations

Tuesday, March 28th 13:30-15:30

Room: MA 042

Title: **Iterative methods and preconditioner**

Chair: R. Nabben

J. Mayer: Some New Developments in ILU Preconditioners

J. Duintjer Tebbens: Preconditioner Updates for Nonsymmetric Linear System Sequences

A. Kallischko: FSPAI for Symmetric Positive Semidefinite Systems

E. Ludwig: Some new variants of Schwarz iterations in domain decomposition

C. Mense: Algebraic Multilevel Methods for nonsymmetric Matrices

M. Bollhöfer: Algebraic multigrid for indefinite systems

Tuesday, March 28th 16:00-18:00

Room: MA 043

Title: **Eigenvalue Problems**

Chair: M. Bollhöfer

T. Betcke: A domain decomposition GSVD method for planar eigenvalue problems

I. Wrobel: On simultaneous rootfinding methods for computing singular values

V. Drygalla: Exact innerproducts and the accurate computation of eigenvalues

M. Karow: Eigenvalue perturbation analysis for the classical Lie and Jordan

C. Schröder: Structured Kronecker forms for the Palindromic Eigenvalue Problem

J. Saak: On ADI parameters for solving PDE control-related matrix equations

Tuesday, March 28th 16:00-18:00

Room: MA 042

Title: **Iterative methods for linear systems and miscellaneous**

Chair: Z. Strakos

R. Nabben: Domain Decomposition Methods and Deflated Krylov Iterations

M. Rozložnik: Numerical behavior of iterative methods for saddle-point problems

V. Norbert: Parallel algorithm for linear equations in different architectural

M. Gyoza: A Scalable Parallel Algorithm for Solving General Linear System of

E. Boudinov: Conjugate direction method for large nonsymmetrical linear systems

Wednesday, March 29th 13:30-15:30

Room: MA 043

Title: **Eigenvalue Problems**

Chair: V. Simoncini

J. Moro: Perturbation of multiple eigenvalues (40 min.)

H. Voss: An a priori bound for automated multi-level substructuring

H. Schwetlick: Block RQI for Symmetric Matrices Converges Cubically

C. Mehl: Resurrecting Eberlein's Jacobi-like method

V. Mehrmann: Generalization of symplectic matrices to matrix polynomials

Wednesday, March 29th 16:00-18:00

Room: MA 043

Title: **Iterative methods**

Chair: J. Liesen

A. Frommer: Shifted Linear Systems: Algorithms, Applications, Theory (40 min.)

Z. Strakos: Stopping criteria in iterative methods - a miscellaneous issue?

I. Hnetynkova: Lanczos tridiagonalization and the core problem

V. Simoncini: Projection methods for approximating the matrix exponential ...

M. Popolizio: On acceleration methods for approximating the matrix exponential

Thursday, March 30th 13:30-15:30

Room: MA 043

Title: **Iterative methods**

Chair: A. Frommer

O. Ernst: Krylov Subspace Methods and Matrix Functions (40 min.)

M. H. Gutknecht: The Block Grade of a Block Krylov Space

J. Liesen: Effects of nonnormality on the convergence of GMRES

P. Tichy: GMRES and the polynomial numerical hull for a Jordan block

J.-P. M. Zemke: Abstract Perturbed Krylov Methods

Thursday, March 30th 16:00-18:00

Room: MA 043

Title: **Mixed Problems**

Chair: M. Tuma

D. Potts: Fast summation at nonequispaced knots by NFFT's (40 min.)

A. Smoktunowicz: Iterative improvement of singular triplets of matrices

C. Popa: Hybrid algorithms in image reconstruction

G. Dirr: A new type of C-numerical range arising in quantum computing

S. Solmaz: General Inertia and Circle Criterion

Section 18 - Numerical methods for differential equations

Organizer: B. Simeon, C. Wieners

Tuesday, March 28th 13:30-15:30

Room: MA 004

Title: **DAEs**

Chair: B. Simeon

R. Lamour: Practical tests of index determination of DAEs

S. Bächle: A structure preserving index reduction method for MNA

R. Dokchan: Numerical integration of DAEs with critical points

F. Ebert: Element-based index reduction in electrical circuit simulation

L. Wunderlich: Numerical Treatment of Second Order Differential-Algebraic Systems

K. Surla: On a spline collocation method for a singularly perturbed problem

Tuesday, March 28th 13:30-15:30

Room: MA 005

Title: **Flow Problems**

Chair: C. Wieners

M. Bause: Higher Order Mixed Approximation of Weakly Regular Solutions

J. Eberhard: Simulation of a free boundary problem modeling lesion growth

N. Chamakuri: Numerical Computation of Heat and Mass Transfer in Fluidized Beds

N. Faustino: Interpolating wavelets applied to the Navier-Stokes equations

A. Düster: CFD based on a DG method solving the discrete Boltzmann equation

B. Seibold: Multigrid and M-Matrices in the Finite Pointset Method

Tuesday, March 28th 16:00-18:00

Room: MA 004

Title: **H-Matrices and Related Topics**

Chair: C. Wieners

M. Bebendorf: The hierarchical LU decomp. for singularly perturbed problems

J. Djokic: Efficient Update of Hierarchical Matrices assembled by ACA & HCA

S. Le Borne: Hierarchical matrix preconditioners for saddle point problems

A. Constantiniu: New Nodal/Element Basis Interpolation Scheme for Galerkin Methods

J. Geiser: Domain-Decomposition Methods for Parabolic Problems

Tuesday, March 28th 16:00-18:00
Room: MA 005
Title: **Fluid Dynamics and Related Topics**
Chair: B. Simeon

P. Louda: Numerical solution of turbulent flow in a turbine cascade

B. Müller: Using CSP for Modeling Burgers-Turbulence

I. Sladek: Mathematical Modelling of Atmospheric Flow Over Complex Topography

E. Audusse: Well-balanced and conservative discretizations for Coriolis forces

S. Vater: A Semi-Implicit Projection Method for the Zero Froude Number SWE

S. A. Konglok: A K Model for Simulating the Dispersion of Sulfur Dioxide in Urban

Wednesday, March 29th 13:30-15:30
Room: MA 004
Title: **BEM and Related Topics**
Chair: C. Wieners

W. L. Wendland: Fast Boundary Element Method for Eddy Current Heat Production

S. Sauter: Efficient Numerical Solution of Time Domain Boundary Integral Form

L. Banjai: A refined BEM convergence theory for Helmholtz problems

U. Kähler: H^2 based 3D-Wavelet Galerkin BEM

B. Heubeck: Finite elements for long semiconductor laser resonators

M. Oevermann: A Finite Volume Method for Poisson's equation with discontinuities

Wednesday, March 29th 13:30-15:30
Room: MA 005
Title: **Diverse Topics**
Chair: B. Simeon

T. Schmelzer: Talbot Quadratures and Rational Approximations

R. Chapko: A comparison of Landweber and hybrid methods for inverse problems

M. Schäfer: Partial space moment approximation for radiative transfer

D. Herceg: On a nonequidistant difference scheme of Chawla type

M. Yunusi: Numerical solutions of DEs in partial derivations

P. B. Beda: Anticipatory computation and the models of dynamical systems

Wednesday, March 29th 16:00-18:00

Room: MA 004

Title: **Solid Mechanics**

Chair: C. Wieners

F. S. Attia: The Use of the MTW-Element in a MGM for linear Elasticity

G. Starke: Adaptive Least-Squares Finite Element Methods in Elastoplasticity

H.-U. Rempler: An Extended FE Formulation for Elasto-Plastic Materials

C. Lovadina: A posteriori error estimates for plates

H. Wobker: HPC Techniques for the FEM Simulation in Structural Mechanics

K. Kukielka: Modeling and numerical analysis of the thread rolling process

Wednesday, March 29th 16:00-18:00

Room: MA 005

Title: **Reaction-Diffusion Equations and Related Topics**

Chair: B. Simeon

H.-J. Reinhardt: Multidimensional Inverse Heat Conduction Calculations

T. Linß: Layer-adapted meshes for time-dependent reaction-diffusion

M. Ehrhardt: Nonlocal Boundary Conditions for Higher-Order Parabolic Equations

N. Pochai: A One-dimensional Mathematical Model of Water Pollution Control

B. Jovanovic: Difference schemes for a general parabolic problem with interface

R. Müller: Numerical Simulation of Dendritic Crystal Growth

Thursday, March 30th 13:30-15:30

Room: MA 004

Title: **Finite Elements and Related Topics**

Chair: C. Wieners

B. Heinrich: Nitsche mortaring combined with the Fourier-finite-element method

S. Franz: Superconvergence of SDFEM for ell. problems with parabolic layers

M. Stiemer: Adaptive FE-discretizations of mixed elliptic-parabolic PDEs

H. Zarin: A finite element method for two-parameter perturbed problems in 2D

R. Schneider: Automatic anisotropic mesh adaption

T. Samrowski: A Fast Adaptive Method for the Neumann Problem

Thursday, March 30th 16:00-18:00

Room: MA 004

Title: **Diverse Topics**

Chair: B. Simeon

E. Hart: Numerische Aspekte für das Projektions-Iterationsverfahren

T. Krylova: Non-linear eigenvalues of boundary problem for differential ...

F. Kudratillo: Boundary value problem for higher order abstract partial different

L. Kurpa: R-Functions Method for Solving Nonlinear Problems of Shell Theory

Thursday, March 30th 16:00-18:00

Room: MA 005

Title: **Diverse Topics**

Chair: C. Wieners

D. Takaci: The difference schemes for operator difference equations

T. Tarasova: Boundary element method in domain with disturbed boundary

D. Yevdokymov: Potential theory application to Onsager's equation system

O. Tumashova: Deformation state of flexible cylindrical shells

Section 19 - Optimization of differential equations

Organizer: V. Heuveline, M. Hinze

Tuesday, March 28th 13:30-15:30

Room: MA 415

Chair: V. Heuveline

R. Griesse: Optimal Control in Magnetohydrodynamics (40 min.)

T. Götz: Control of crystallization processes

C. Meyer: Optimal control of sublimation growth of semiconductor crystals

S. Görner: MPC for the Burgers Equation Based on an LQG Design

Tuesday, March 28th 16:00-18:00

Room: MA 415

Chair: M. Hinze

R. Pinnau: Mathematical Tasks in Optimal Control of Radiative Heat Transfer (40 min.)

M. Herty: Analysis for an Optimality System in Radiative Transfer

T. Lahmer: Optimal data selection for piezoelectric material characterization

N. Dmitruk: Optimal Online Control of Large Scale Dynamical Systems

Wednesday, March 29th 13:30-15:30

Room: MA 415

Chair: E. Kostina

T. Carraro: Parameter estimation and optimal experimental design for PDE (40 min.)

Y. Menshikov: Inverse Problem for the Differential Equation under Uncertainties

S. Göttlich: Modelling and Optimization of Supply Chains on General Networks

G. Winkler: A Priori Discretization Error Estimates of OCP in Nonconvex Domain

Wednesday, March 29th 16:00-18:00

Room: MA 415

Chair: R. Griesse

B. Vexler: Adaptive Finite Elements for Parabolic Optimization Problems (40 min.)

K. Theißen: Controlling evolution equations into stationary solutions

K. Arens: Levelset Methods in a Benchmark for Thermoacoustic Instabilities

Thursday, March 30th 13:30-15:30

Room: MA 415

Chair: R. Pinneau

F. Strauss: Existence and approximation results in design optimization (40 min.)

G. Vossen: Sufficient conditions for bang-bang and singular controls

N. Balashevich: Optimization of Linear System under Convex End-Point Constraints

J. Kubitz: Smoothing Solver for nonsmooth Least-Squares Methods

Thursday, March 30th 16:00-18:00

Room: MA 415

Chair: Thomas Carraro

E. Kostina: Robustness issues in model validation for complex dynamic systems (40 min.)

M. Hintermüller: Path-following in constrained minimization

A. Schiela: The Control Reduced Interior Point Method

D. Wachsmuth: Numerical verification of optimality conditions

Section 20 - Dynamics and control

Organizer: B. Jacob, K. Schlacher

Tuesday, March 28th 13:30-15:30

Room: MA 001

Title: **Controllability and controller design**

Chair: B. Lampe

T. Meurer: Feedforward Control of the Temperature Distribution in a Cuboid

A. Kugi: Nonlinear control of a variable displacement axial piston pump

K. Sepahvand: Robust control of mechatronic systems with sensor uncertainties

T. Sattel: A note on vehicle guidance control using a mechanical analogy

N. Mandaloju: Analogue Implementation of the Funnel Controller

A. Brzakala: Dynamical stability of a viscoelastic bar

Tuesday, March 28th 13:30-15:30

Room: MA 041

Title: **Mechanical systems**

Chair: M. Hanke

C. Rudolf: Messung langsam veränderlicher Lasten mit Piezosensoren

M. Neumann: Eigenschaften und Stabilität eines dynamischen Reibgesetzes

C.-C. Neuber: Aufbau und Regelung einer Magnetführung für Werkzeugmaschinen

D. Liana Pisl: Kinematic and dynamic analysis of a parallel micro-manipulator

Tuesday, March 28th 16:00-18:00

Room: MA 001

Title: **Differential Algebraic Equations**

Chair: A. Ilchmann

R. März: Feedback solutions of optimal control problems with DAE constraint

E. Virnik: On Controllability of Positive Descriptor Systems

S.-O. Lindert: Steuerung und Regelung von LTI-Systemen in DAE-

Darstellung

B. Lampe: Causal polynomial stabilisation of forward models of discrete PMD

T. Reis: Decoupling of Abstract DAEs

Tuesday, March 28th 16:00-18:00

Room: MA 041

Title: **Controllability and optimality**

Chair: B. Jacob

V. Istratie: Optimal Interception with Terminal Constraints.

A. Pislă: Achievement of control strategies for micro-robots

F. Ursu: New developments in robust synthesis with antiwindup compensation

M. Popescu: Analysis of optimality in singular control

G. Kostin: Method of Intergo-Differential Relations for Optimal Beam Control

P. Kiriazov: Controllability of Dynamic Systems and Applications in Engineering

Wednesday, March 29th 13:30-15:30

Room: MA 001

Title: **System theory**

Chair: K. Schlacher

A. Ilchmann: Time-varying linear systems: relative degree and normal form

H. Zwart: Well-posedness and regularity of the undamped wave equation

K. Röbenack: High gain observers using an approximate observer normal form

G. Kielau: Generalized Helmholtz Conditions for the Existence of a Lagrangian

A. Gaull: Zellabbildung für dynamische Systeme mit Störungen

M. Schöberl: Geometric Analysis of Hamiltonian Mechanics using Connections

Wednesday, March 29th 13:30-15:30

Room: MA 041

Title: **Fuzzy control and identification**

Chair: B. Jacob

V. Kondratenko: Fuzzy arithmetic analytic models for triangular uncertain numbers

I. Ursu: Fuzzy supervised neurocontrol of electrohydraulic servos

E. Pervukhina: Analysis of adaptive filtering algorithm for random consequences

Wednesday, March 29th 16:00-18:00

Room: MA 001

Title: **Numerical Methods**

Chair: A. Kugi

R. Mohr: Galerkin-based Time Integrators for Finite Elastodynamics

F. Wirth: State dependent AIMD algorithms and consensus problems

R. Shorten: AIMD for General Decentralised Resource Allocation

R. Balan: A MPC algorithm applied to nonlinear processes

T. Örtel: Integrated motional measurement system for a flexible beam

S. Siegmund: Vortex Merger is a Bifurcation in Time

Thursday, March 30th 13:30-15:30

Room: MA 001

Title: **Vibration problems**

Chair: K. Schlacher

Z. Wójcicki: Parametric vibration in foot-bridges

G. Stavroulakis: Vibration suppression of smart beams under stochastic loading

P. Sniady: Vibrations of an Elastically Connected Double-String System

K. Majcher: Sensitivity analysis of multi-storey building due to blast loading

D. Takacs: Theoretical and experimental investigation of tyre dynamics

Thursday, March 30th 16:00-18:00

Room: MA 001

Title: **Modeling**

Chair: B. Jacob

O. Hancu: Modeling, simulation and control of a hydraulic servo system

M. Dhanu Singh: Modeling of Pneumatic Hybrid Actuator using Exponential Approaches

D. Ionescu: A geometric modelling of nonlinear RLC networks

L. Poppe: The Immune Response as an Optimal Control Problem with Time-Delays

M. Strömgen: Semidiscretization of a PDAE system modelling a heat exchanger

F. Antritter: Trajectory design using differential parameterizations

Section 21 - Mathematical image processing

Organizer: M. Hanke-Bourgeois, J. Weickert

Wednesday, March 29th 13:30-15:30

Room: MA 042

Title: **Differential Equations and Variational Models I**

Chair: J. Weickert

G. Steidl: Higher Order Total Variation Regularization (40 min.)

J. Friedrich Acker: PDE based visualization of nonstationary flows

K. Frick: Inverse Scale Space Methods for Surface Denoising

O. Nemitz: Structure enhancing smoothing of 3D MR Angiography data

B. Burgeth: Nonlinear and Singular PDEs for the Processing of Tensor Fields

Wednesday, March 29th 16:00-18:00

Room: MA 042

Title: **Inverse Problems**

Chair: M. Hanke-Bourgeois

A. Kirsch: Inverse Scattering Problems for Maxwell's Equations (40 min.)

K. Bredies: An optimal control problem in image processing

B. Gebauer: Detecting objects by low-frequency electromagnetic imaging

R. Griesmaier: Identification of small inhomogeneities: Asymptotic factorization

T. Schuster: Can projection methods be useful for detecting optical flow?

Thursday, March 30th 13:30-15:30

Room: MA 042

Title: **Correspondence Problems**

Chair: B. Kawohl

J. Modersitzki: Mathematical Methods for Image Registration (40 min.)

B. Berkels: Symmetric Ambrosio-Tortorelli based registration

N. Olischläger: An Image Processing Approach to Surface Matching

P. Ruhnau: Optical Stokes Flow

H. Köstler: Including landmark based information in optical flow problems

Thursday, March 30th 16:00-18:00

Room: MA 042

Title: **Differential Equations and Variational Models II**

Chair: J. Modersitzki

B. Kawohl: Mumford-Shah vs Perona-Malik: an analytic view at image processing (40 min.)

W. Boiger: An efficient local morphological Scheme for the AMSS

M. Breuß: Discretisation of stabilised inverse diffusion equations

M. Welk: Dynamical Systems in the Modelling of Space-Discrete Image Filters

Section 22 - Theoretical studies and engineering applications of vortical flows

Organizer: E. Krause

Tuesday, March 28th 09:30-12:00

Room: H 2032

Title: **Vortices in atmospheric and geophysical flows**

Chair: E. Krause, L. Ting

R. Klein: Three-layer structure of gradient wind vortices in the atmosphere

O. Buhler: Interactions between waves and vortices

A. Tanabe: Laboratory experiments on vortices colliding with multiple islands

N. Shokina: Numerical simulation of stationary flows in rivers with islands

Tuesday, March 28th 13:30-15:30

Room: MA 313

Title: **Vortices in complex flows**

Chair: L. Ting, E. Krause

B. Shashikanth: Dynamics and control of a moving cylinder and point vortices

K. Ishii: Numerical analysis of 3D vortical cavity flow

E. Crespo del Arco: Pattern dynamics in rotating RBC with realistic boundary condition

I. Recktenwald: Turbulent channel flow rotating about the streamwise axis

Tuesday, March 28th 16:00-18:00

Room: MA 313

Title: **Point and line vortices**

Chair: P. Bontoux, D. Blackmore

O. Knio: Recurrent Motions for Perturbed Three Point Vortex Dynamics

C. Lim: Vortex line statistics - new results by path-integral Monte Carlo

I. Mamaev: Dynamics of vortex sources in an ideal fluid

Wednesday, March 29th 13:30-15:30

Room: MA 313

Title: **Dynamics of vortex structures and filaments**

Chair: D. Blackmore, P. Bontoux

A. Borisov: Dynamics of a rigid body and vortex structures in an ideal fluid

N. Kevlahan: Stochastic Lagrangian DNS of vortex reconnection

Y. Prykarpatsky: Some aspects of Chern-Simons type vorticity solutions

G. Accary: Simulation of transitional convection in near-critical fluids

Wednesday, March 29th 16:00-18:00

Room: MA 313

Title: **Aerodynamic applications**

Chair: W. Schröder, R. Klein

M. Dietz: Helicopter Tip Vortex Conservation by Vortex-Adapted Chimera Grids

G. Ling: Numerical Studies on Vorticity Modification in Wake-type Flow

E. Serre: Spectral vanishing viscosity for LES of rotor-stator flow

Thursday, March 30th 13:30-15:30

Room: MA 313

Title: **Vortices with axial flow**

Chair: R. Klein, G. Ling

M. Brøns: Topology of vortex breakdown bubbles

M. Klaas: Investigation of Normal and Oblique Shock/Vortex Interaction

N. Takahashi: The influence of turbulence on a columnar vortex with axial flow

J. Fröhlich: Large Eddy Simulation of swirl flows in annular and co-annular jet

Thursday, March 30th 16:00-18:00

Room: MA 313

Title: **Vortex interaction**

Chair: G. Ling, D. Blackmore

G. Huppertz: Vortex/Engine-Jet Interaction in the Near Wake of a Swept Wing

E. Krause: Influence of winglets on near-field of tip vortex

R. Hörnschemeyer: Tip Vortex Wake Destabilization with and without Winglets

List of participants (registration before February 22nd, 2006)

Abramyan, Andrey	Russian Academy of Sciences
Acartürk, Ayhan	Universität Stuttgart
Accary, Gilbert	MSNM-GP UMR 6181 CNRS Marseille
Acker, Jens Friedrich	Universität Dortmund
Adachi, Shizuko	Riken, Tokyo
Adam, Christoph	TU Wien
Adamowski, Radoslaw	Wroclaw University of Technology
Adeyemi, Adeniyi Franklyn	CIRCUIT PLUS NIGERIA LIMITED
Adler, Katrin	TU Bergakademie Freiberg
Afanasiev, Konstantin	WIAS Berlin
Aksel, Nuri	Universität Bayreuth
Alefeld, Götz	Universität Karlsruhe (TH)
Alexandrov, Sergey	University of Moscow
Alkhaldi, Hashem	Universität Stuttgart
Altenbach, Holm	Martin-Luther-Universität Halle-Wittenberg
Ams, Alfons	TU Freiberg
Ansorge, Rainer	Universität Hamburg
Anritter, Felix	FAU Erlangen-Nürnberg
Apostolescu, Nicolae	National Institute for Aerospace Research "Elie Carafoli" Bukarest
Aps, Ulrich	Universität der Bundeswehr München
Arens, Kai	TU München
Arghir, Mariana	Technical University Clus-Napoca
Artel, Jens	TU Darmstadt
Attia, Frank S.	Universität Hannover
Avci, Okan	Universität Stuttgart
Avramov, Konstantin	National Technical University "KhPI"
Babovsky, Hans	TU Ilmenau

Bächle, Simone	TU Berlin
Badur, Janusz	Polish Academy of Sciences
Balan, Radu	Technical University of Cluj-Napoca
Balashevich, Natalia	University of Minsk
Balke, Herbert	TU Dresden
Balzani, Claudio	Universität Karlsruhe (TH)
Balzani, Daniel	Universität Duisburg-Essen
Ban, Michael	RWTH Aachen
Baniotopoulos, Charalambos	Aristotle Univ./Research Committee 090049627 I DOY Thessaloniki
Banjai, Lehel	Universität Zürich
Bao, Erna	Otto-von-Guericke-Universität Magdeburg
Bargmann, Swantje	Universität Kaiserslautern
Bartel, Andreas	Bergische Universität Wuppertal
Bartel, Thorsten	Ruhr-Universität Bochum
Bartels, Soeren	Humboldt-Universität zu Berlin
Barthels, Pierre	Universität Karlsruhe (TH)
Barthold, Franz-Joseph	Universität Dortmund
Barz, Dominik P.J.	Forschungszentrum Karlsruhe GmbH
Basmat, Oleksandr	Renewave Ltd. Toronto
Batra, Prashant	TU Hamburg-Harburg
Baur, Ulrike	TU Berlin
Bause, Markus	Universität Erlangen-Nürnberg-Nuernberg
Beck, Patrick	TU Darmstadt
Becker, Martin	Universität Stuttgart
Becker, Ralf	TU Berlin
Becker, Wilfried	TU Darmstadt
Beda, Peter	Budapest University of Technology and Economics
Behrndt, Jussi	TU Berlin
Belica, Tomasz	University of Zielona Góra

Benner, Peter	TU Chemnitz
Berezovski, Arkadi	University of Technology Tallinn
Berkels, Benjamin	Universität Bonn
Bertram , Albrecht	Universität Magdeburg
Berveiller, Marcel	LPMM CNRS ENSAM Metz
Besdo, Dr. Dieter	Universität Hannover
Besdo, Silke	Universität Hannover
Betcke, Timo	TU Braunschweig
Betsch, Peter	Universität Siegen
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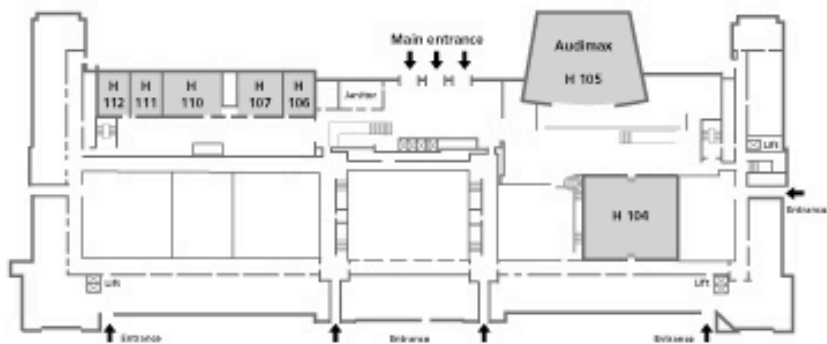
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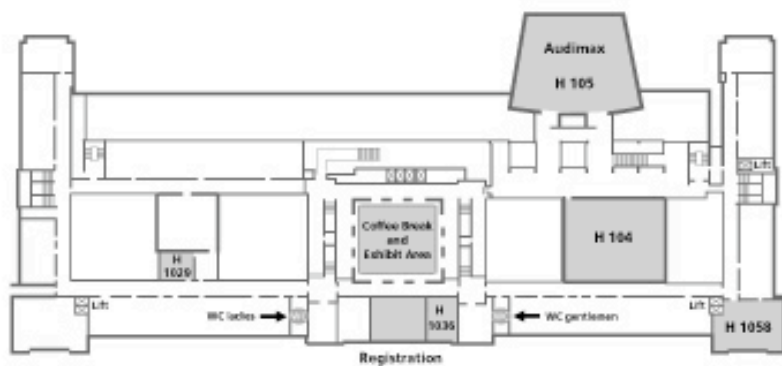
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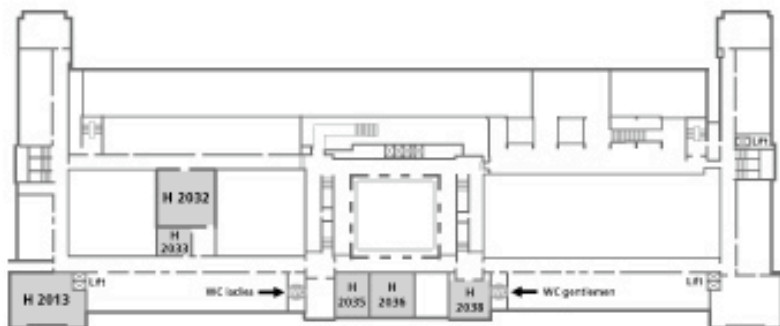
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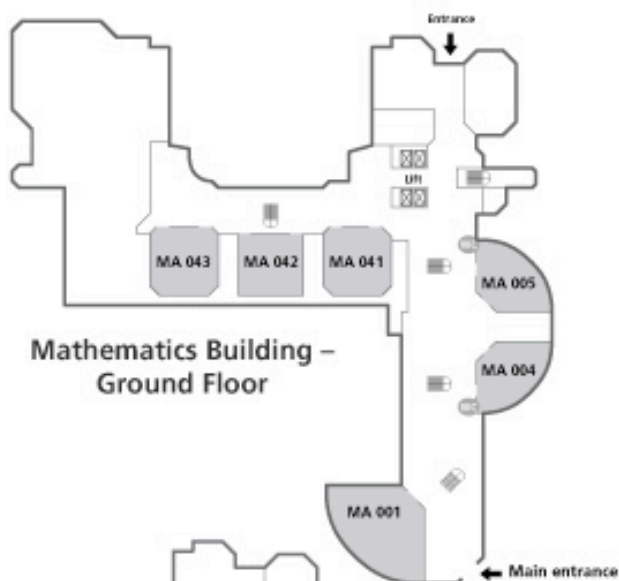
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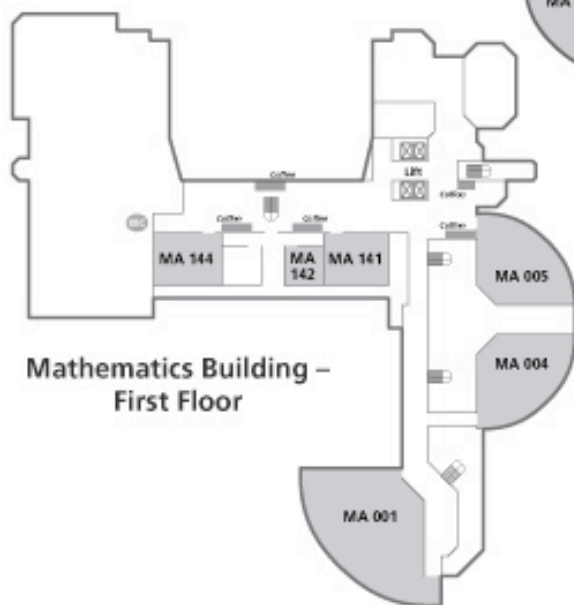
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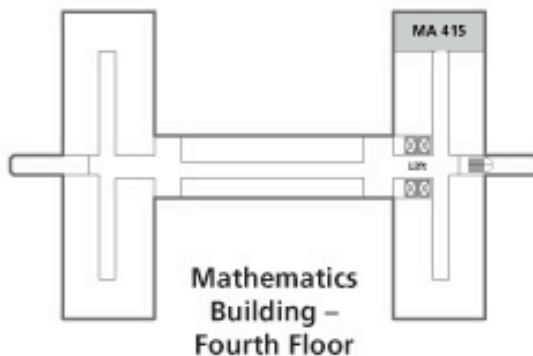
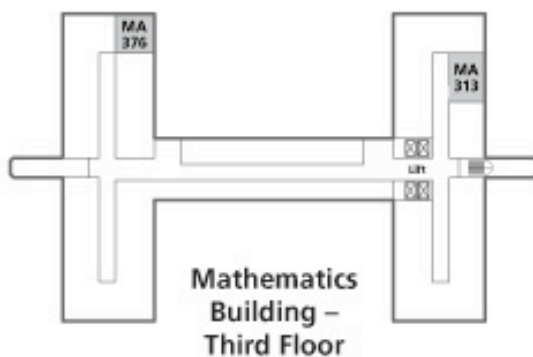
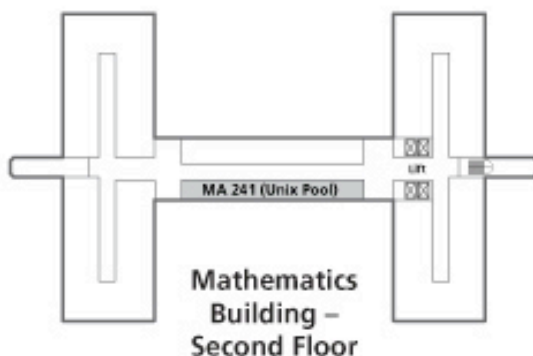


Mathematics Building –
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Mathematics Building –
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