91st Annual Meeting
of the International Association of Applied Mathematics and Mechanics
March 16-20, 2020 in Kassel, Germany

General Information & Daily Program

UNIKASSEL UNIVERSITÄT
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<th>Monday</th>
<th>Tuesday</th>
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<tr>
<td>8:30</td>
<td>Registration</td>
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<td>Lunch Break</td>
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<td>Prandtl Ring &amp; Lecture</td>
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<td>Welcome Reception</td>
<td>Public Lecture</td>
<td>Conference Dinner</td>
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Coffee breaks take place at the ground floor of the Campus Center
Welcome from the Local Organizers

Dear participants, a warm welcome to the 91st GAMM Annual Meeting, held in the documenta city Kassel at the University of Kassel.

We are grateful to our colleagues of the program committee and the organizers of the sections, young researchers’ minisymposia, minisymposia, and the GAMM-related DFG priority programs for their support and for ensuring a high quality of the scientific program.

We would like to express our thanks to the University of Kassel for their general support. We thank Springer Vieweg, Wiley, CADFEM, DYNAmore, UNIKIMS, Fraunhofer IEE, mhk, ERS, and DGLR for supporting the conference.

Further thanks to the local board for their contribution and support in hosting this conference. In addition, we would also like to thank all colleagues and students for helping to organize this conference.

Sincere thanks to the local organizing committee for their engagement and contributions which were of key importance for successful organization of the conference. Finally, we thank numerous colleagues and students helping to organize this conference.

Enjoy this conference and your stay in Kassel!

Conference Chairmen

Detlef Kuhl  Andreas Meister  Andreas Ricoeur  Olaf Wünsch

Conference Secretary

Tobias Gleim  Christina Franke
Welcome from the President and Secretary of the GAMM

Dear participants,

The International Association of Applied Mathematics and Mechanics (GAMM e.V.) cordially invites you to its 91st Annual Scientific Conference, from March 16 - March 20, 2020.

On behalf of the DGLR and the GAMM, we also invite you to the 63th Ludwig Prandtl Memorial Lecture.

We invite all GAMM members to the regular General Assembly of the GAMM on Wednesday, March 18, 2020.

Jörg Schröder  
President

Michael Kaliske  
Secretary
Welcome from the Lord Mayor of Kassel Christian Geselle

Written greeting by Lord Mayor Christian Geselle on the occasion of the annual conference of the Society for Applied Mathematics and Mechanics (GAMM) from March 16 - 20, 2020 at the University of Kassel

I am pleased and very proud that such an internationally important congress as the Annual Meeting of the Society for Applied Mathematics and Mechanics will be held this year from March 16 to 20, 2020 in Kassel, Germany, and I would like to welcome you as scientists at our university.

You will be able to inform yourself about the latest developments in your disciplines at the highest level and have the opportunity for important scientific exchange.

Perhaps it will be interesting for you to know that applied mathematics have a long tradition here in Kassel as an academic discipline. Important representatives of your field have been active here for centuries.

For example, Jost Bürgi, watchmaker, instrument maker, mathematician and astronomer lived and worked in Kassel. He acquired the highest achievements of his time, developing innovative constructions and new mathematical methods. He did not only use mathematical methods, instruments, data and his results and knowledge to create precise celestial globes and star charts, but also shared them with Johannes Kepler, with whom he had worked closely from 1603 to 1612.

Denis Papin - inventor and mathematician - worked in the service of the landgraves in Kassel from 1696 and was commissioned to develop the technical requirements for the impressive water games in the Bergpark Wilhelmshöhe.

Due to the season, you will unfortunately not be able to admire the water features. However, you will have the opportunity to get to know our city as part of the accompanying programme to your demanding conference. Kassel is surrounded by nature and enjoys a worldwide reputation for Europe’s largest and most beautiful mountain park. Our most prominent landmark, Hercules, and the water games have been included in the UNESCO World Heritage List. You can also enjoy a visit to the picture Gallery of Wilhelmshöhe castle in which old masters such as Rembrandt are on display. Only a few cities in Germany can compete with the cultural treasures of Kassel. Kassel is internationally known for the world art exhibition documenta and was home to the Brother’s Grimm. I wish you a successful conference, an inspiring exchange and eventful days in Kassel!

Cordially

Your

Christian Geselle

Lord Mayor
Dear guests of the GAMM- Conference 2020,

The International Association of Applied Mathematics and Mechanics „GAMM“, was founded nearly 100 years ago. This makes it almost twice as old as our university in Kassel, which will celebrate its 50th anniversary next year.

I am delighted that this year the traditional GAMM conference will take place in Kassel for the first time. You will see our city has a lot to offer - sightseeing spots like the Bergpark Wilhelmshöhe or the Grimmwelt for example.

The same applies to our university, which does a lot to promote mathematical skills. Last winter semester, we introduced the new plusMint course of study - this bachelor’s degree programme comprises of an orientation phase, unique in Hesse and a subsequent main course in science and technology. If you are interested in natural sciences or engineering, but don’t want to commit to a particular subject yet, the plusMint orientation course gives you the possibility to become acquainted with the multitude of bachelor’s degree programmes within the MINT-sector first.

Furthermore we are planing to introduce the Technomathematics course of study in the coming winter semester here in Kassel. We really hope to inspire our students for the applications of mathematics. And who knows, maybe you will meet some of them at one of the coming GAMM Conferences in the near future!

For this years conference I wish you many interesting insights and good contacts.

Prof. Dr. Reiner Finkeldey
President of the University Kassel
### Committees

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<thead>
<tr>
<th>Chairman</th>
<th>Detlef Kuhl, Kassel</th>
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<td>Andreas Meister, Kassel</td>
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<td>Andreas Ricoeur, Kassel</td>
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<td>Olaf Wünsch, Kassel</td>
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<tr>
<th>Local Organizing Committee</th>
<th>Otto Bruhns, Bochum</th>
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<td>Hartmut Hetzler, Kassel</td>
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<td>Dorothee Knees, Kassel</td>
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<td>Detlef Kuhl, Kassel</td>
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<td>Felix Lindner, Kassel</td>
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<td>Anton Matzenmiller, Kassel</td>
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<td>Andreas Ricoeur, Kassel</td>
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<td>Maria Specovius-Neugebauer, Kassel</td>
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<td>Jens Wackerfuß, Kassel</td>
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<td>Olaf Wünsch, Kassel</td>
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<th>Program Committee</th>
<th>Laura De Lorenzis, Braunschweig</th>
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<td>Wolfgang Ehlers, Stuttgart</td>
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<td>Heike Faßbender, Braunschweig</td>
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<td>Günter Hofstetter, Innsbruck</td>
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<td>Michael Kaliske, Dresden</td>
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<td>Barbara Kaltenbacher, Klagenfurt</td>
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<td>Dorothee Knees, Kassel</td>
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<td>Daniel Kressner, Lausann</td>
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<td>Detlef Kuhl, Kassel</td>
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<td>Ralf Müller, Kaiserslautern</td>
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<td>Martin Oberlack, Darmstadt</td>
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<td>Timo Reis, Hamburg</td>
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<td>Oliver Rheinbach, Freiberg</td>
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<td>Jörg Schröder, Duisburg-Essen</td>
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<td>Gabriele Steidl, Kaiserslautern</td>
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<td>Andrea Walther, Paderborn</td>
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<td>Kerstin Weinberg, Siegen</td>
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<td>Christoph Woernle, Rostock</td>
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<td>Olaf Wünsch, Kassel</td>
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## Special Events

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<tr>
<th>Date</th>
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<tr>
<td><strong>Monday, March 16</strong></td>
<td><strong>Opening</strong></td>
<td>13:00-14:00, Hörsaal 1, Campus Center</td>
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<td><strong>Ludwig Prandtl Ring Award</strong></td>
<td>14:00-14:30, Hörsaal 1, Campus Center</td>
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<td><strong>Ludwig Prandtl Memorial Lecture</strong></td>
<td>14:30-15:30, Hörsaal 1, Campus Center</td>
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<td><strong>Welcome Reception</strong></td>
<td>19:00, Campus Center</td>
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<td><strong>Tuesday, March 17</strong></td>
<td><strong>Poster Session</strong></td>
<td>16:00-16:30, Ground Floor, Campus Center</td>
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<td><strong>Public Lecture</strong></td>
<td>19:30-21:30, Ground Floor, Campus Center</td>
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<td><strong>Wednesday, March 18</strong></td>
<td><strong>Poster Session</strong></td>
<td>09:30-10:30, Ground Floor, Campus Center</td>
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<td><strong>Richard von Mises Prize Lecture</strong></td>
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<td><strong>GAMM General Assembly</strong></td>
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<td><strong>Plenary Meeting DEKOMECH</strong></td>
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<td><strong>Plenary Meeting Applied Mathematics</strong></td>
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<td><strong>YAMM Lunch</strong></td>
<td>13:00-14:00, Gießhaus</td>
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<td><strong>Conference Dinner</strong></td>
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<td><strong>Friday, March 20</strong></td>
<td><strong>Closing</strong></td>
<td>13:00-14:00, Hörsaal 1, Campus Center</td>
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# Plenary Lectures

## Plenary Lectures Mathematics

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<thead>
<tr>
<th>Name</th>
<th>Affiliation</th>
<th>Date/Time</th>
<th>Topic</th>
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<tbody>
<tr>
<td>Patrizio Neff</td>
<td>University of Duisburg-Essen</td>
<td>Monday, March 16, 15:00-16:00</td>
<td>Logarithmic strain measures in nonlinear elasticity</td>
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<tr>
<td>Laura Grigori</td>
<td>INRIA Paris</td>
<td>Thursday, March 19, 12:00-13:00</td>
<td>Recent advances in the design of robust communication avoiding algorithms: from large scale linear algebra to tensors</td>
</tr>
<tr>
<td>Carola Schönlieb</td>
<td>University of Cambridge</td>
<td>Tuesday, March 17, 12:00-13:00</td>
<td>Data driven variational models for solving inverse problems</td>
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<td>Josef Malek</td>
<td>Charles University Prague</td>
<td>Thursday, March 19, 16:30-17:30</td>
<td>Beyond the Navier-Stokes equations</td>
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## Plenary Lectures Mechanics

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<th>Name</th>
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<th>Date/Time</th>
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<tbody>
<tr>
<td>Stefan Hartmann</td>
<td>TU Clausthal</td>
<td>Tuesday, March 17, 11:00-12:00</td>
<td>The method of vertical lines in non-linear finite elements</td>
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<td>Jörn Mosler</td>
<td>TU Dortmund</td>
<td>Friday, March 20, 12:00-13:00</td>
<td>Mechanical interfaces and interphases</td>
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<td>Holger Steeb</td>
<td>University of Stuttgart</td>
<td>Thursday, March 19, 11:00-12:00</td>
<td>Modelling Porous Media: From Images to Numerical Simulations</td>
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<td>Laurette Tuckermann</td>
<td>ESPCI Paris</td>
<td>Friday, March 17, 11:00-12:00</td>
<td>Exotic patterns of Faraday waves</td>
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### Young Researchers’ Minisymposia, page 60 - 61

<table>
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<tr>
<th>No.</th>
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</table>
| 1   | Algorithms for coupled multi-physics problems                        | Alexander Heinlein (University of Cologne)  
Matthias Mayr (Bundeswehr University Munich)                                                                                       |
| 2   | Rank structured matrix and tensor techniques                         | Stefano Massei (EPF Lausanne)  
Davide Palitta (Max Planck Institute, Magdeburg)                                                                                      |
| 3   | Recent Developments in Isogeometric Analysis for Flow Problems       | Andreas Apostolatos (TU Munich)  
Lutz Pauli (RWTH Aachen)  
Philipp Morgenstern (University of Hannover)                                                                                         |
| 4   | Modelling, simulation and data-driven analysis of molecular systems   | Andreas Bittracher (Freie Universität Berlin)  
Feliks Nüske (Paderborn University)                                                                                                      |
| 5   | Complexity Reduction in Optimal Control                              | Carmen Gräßle (University of Hamburg)  
Silke Glas (University of Ulm)                                                                                                           |
| 6   | Novel discretization methods for phase-field modeling in fracture mechanics | Tuanny Cajuhi (TU Braunschweig)  
Fleurianne Bertrand (HU Berlin)                                                                                                           |

### Minisymposia, page 76 - 77

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<tr>
<th>No.</th>
<th>Title</th>
<th>Organizers</th>
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| 1   | Computational Photonics                                             | Christoph Pflaum (FAU Erlangen-Nürnberg)  
Bernd Witzigmann (University of Kassel)                                                                                           |
| 2   | Symbolic computation methods for differential equations, dynamical systems, and control theory - With special emphasis on biochemical problems | Werner Seiler (University of Kassel)  
Eva Zerz (RWTH Aachen)                                                                                                                  |
| 3   | Dissipativity, turnpikes and optimal control                         | Tim Faulwasser (KIT)  
Lars Grüne (University of Bayreuth)                                                                                                     |
| 4   | Advanced experimental and computational techniques in polymer mechanics | Vu Ngoc Khiêm (RWTH Aachen)  
Mokarram Hossain (Swansea University, UK)  
Jean-Benoît Le Cam (University of Rennes, France)                                                                                     |
<table>
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<tr>
<th></th>
<th><strong>PP 1748</strong>: Reliable Simulation Techniques in Solid Mechanics. Development of Non-Standard Discretization Methods, Mechanical and Mathematical Analysis</th>
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<td></td>
<td>Organizers: Jörg Schröder (University of Duisburg-Essen) Thomas Wick (University of Hannover)</td>
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<tr>
<td>2</td>
<td><strong>PP 1798</strong>: Compressed Sensing in Information Processing (CoSIP)</td>
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<td>Organizers: Robert Kunsch (RWTH Aachen) Gitta Kutyniok (TU Berlin) Holger Rauhaut (RWTH Aachen)</td>
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<td>3</td>
<td><strong>PP 1881</strong>: Turbulent Superstructures</td>
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<td>Organizer: Jörg Schumacher (TU Ilmenau)</td>
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<td>4</td>
<td><strong>PP 1886</strong>: Polymorphic Uncertainty Modelling for the Numerical Design of Structures</td>
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<td>Organizer: Michael Kaliske (TU Dresden)</td>
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<td>5</td>
<td><strong>PP 1897</strong>: Calm, Smooth and Smart - Novel Approaches for Influencing Vibrations by Means of Deliberately Introduced Dissipation</td>
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<td>Organizer: Peter Eberhard (University of Stuttgart)</td>
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<td><strong>PP 1962</strong>: Non Smooth and Complementarity-Based Distributed Parameter Systems: Simulation and Hierarchical Optimization</td>
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<td>Organizer: Michael Hintermüller (WIAS Berlin)</td>
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<td>6</td>
<td><strong>PP 2020</strong>: Cyclic Deterioration of High-Performance Concrete in an Experimental-Virtual Lab</td>
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<td>Organizer: Ludger Lohaus (University of Hannover)</td>
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## Sections

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<th>Section</th>
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<tbody>
<tr>
<td>S1</td>
<td><strong>Multi-body dynamics</strong></td>
<td>Simon R. Eugster (University of Stuttgart)</td>
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<td>Kristin de Payrebrune (TU Kaiserslautern)</td>
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<td>S2</td>
<td><strong>Biomechanics</strong></td>
<td>Silvia Budday (FAU-Erlangen-Nürnberg)</td>
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<td>Tim Ricken (University of Stuttgart)</td>
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<tr>
<td>S3</td>
<td><strong>Damage and fracture mechanics</strong></td>
<td>Markus Kästner (TU Dresden)</td>
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<td>Björn Kiefer (TU Freiberg)</td>
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<td>S4</td>
<td><strong>Structural mechanics</strong></td>
<td>Sven Klinkel (RWTH Aachen)</td>
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<td>Jens Wackerfuß (University of Kassel)</td>
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<td>S5</td>
<td><strong>Nonlinear oscillations</strong></td>
<td>Elmar Woschke (OvGU Magdeburg)</td>
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<td>Dominik Kern (TU Chemnitz)</td>
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<td>S6</td>
<td><strong>Material modelling in solid mechanics</strong></td>
<td>Jörn Mosler (TU Dortmund)</td>
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<td>Patrick Kurzeja (TU Dortmund)</td>
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<td>S7</td>
<td><strong>Coupled problems</strong></td>
<td>Dieter Dinkler (TU Braunschweig)</td>
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<td>Ute Kowalsky (TU Braunschweig)</td>
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<tr>
<td>S8</td>
<td><strong>Multiscales and homogenization</strong></td>
<td>Dietmar Gallistl (University of Twente)</td>
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<td>Julian Fischer (IST Klosterneuburg)</td>
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<tr>
<td>S9</td>
<td><strong>Laminar flows and transition</strong></td>
<td>Hendrik Kuhlmann (TU Wien)</td>
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<td>Peter Erhard (TU Dortmund)</td>
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<tr>
<td>S10</td>
<td><strong>Turbulence and reactive flows</strong></td>
<td>Olga Shishkina (MPI Göttingen)</td>
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<td>Sven Eckert (Helmholtz-Zentrum Dresden-Rossendorf e.V. (HZDR))</td>
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<tr>
<td>S11</td>
<td><strong>Interfacial flows</strong></td>
<td>Markus Scholle (Heilbronn University of Applied Sciences)</td>
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<td>Dirk Peschka (WIAS Berlin)</td>
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<tr>
<td>S12</td>
<td><strong>Waves and acoustics</strong></td>
<td>Fabian Duddeck (TU Munich)</td>
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<td>Tobias Gleim (University of Kassel)</td>
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<tr>
<td>S13</td>
<td>Flow control</td>
<td>Olaf Wünsch (University of Kassel)</td>
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<td>Markus Rütten (DLR Göttingen)</td>
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<tr>
<td>S14</td>
<td>Applied analysis</td>
<td>Dorothee Knees (University of Kassel)</td>
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<td>Marita Thomas (WIAS Berlin)</td>
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<tr>
<td>S15</td>
<td>Uncertainty quantification (replacement for applied stochastics)</td>
<td>Andrea Barth (University of Stuttgart)</td>
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<td>Philipp Petersen (University of Vienna)</td>
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<td>S16</td>
<td>Optimization</td>
<td>Martin Siebenborn (University of Hamburg)</td>
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<td>Kahtrin Welker (Helmut-Schmidt-University of Hamburg)</td>
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<tr>
<td>S17</td>
<td>Applied and numerical linear algebra</td>
<td>Kirk Soodhalter (Trinity College Dublin)</td>
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<td>John Pearson (University of Edinburgh)</td>
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<td>Kathryn Lund (Temple University)</td>
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<tr>
<td>S18</td>
<td>Numerical methods for differential equations</td>
<td>Christoph Lehrenfeld (University of Göttingen)</td>
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<td>Herbert Egger (TU Darmstadt)</td>
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<td>S19</td>
<td>Optimization of differential equations</td>
<td>Constantin Christof (TU Munich)</td>
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<td>Johannes Pfefferer (TU Munich)</td>
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<td>S20</td>
<td>Dynamics and control</td>
<td>Moritz Schulze Darup (University of Paderborn)</td>
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<td>Jens Saak (MPI Magdeburg)</td>
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<td>S21</td>
<td>Mathematical signal and image processing</td>
<td>Gerlind Plonka-Hoch (University of Göttingen)</td>
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<td>Michael Möller (University of Siegen)</td>
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<td>S22</td>
<td>Scientific computing</td>
<td>Christian Hesch (University of Siegen)</td>
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<td>Matthias Bolten (University of Wuppertal)</td>
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<td>S23</td>
<td>Applied operator theory</td>
<td>Birgit Jacob (University of Wuppertal)</td>
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<td>Hafida Laasri (University of Wuppertal)</td>
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<tr>
<td>S24</td>
<td>History of mechanics and history, teaching and popularization of math</td>
<td>Otto Bruhns (Ruhr University Bochum)</td>
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<td>Dietmar Gross (TU Darmstadt)</td>
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</tbody>
</table>
YAMM Lunch

Young Academics in Applied Mathematics and Mechanics
Wednesday, March 18, 13:00 – 14:00
Gießhaus (Mönchebergstr. 7)

Organizers: Tobias Kaiser (TU Dortmund)
             Johanna Waimann (RWTH Aachen)

Experts:   Andrea Barth (University of Stuttgart)
           Marc-André Keip (University of Stuttgart)
           Dennis Kochmann (ETH Zürich)
           Ulrich Römer (TU Braunschweig)
           Jörg Schröder (University of Duisburg-Essen)
           Martin Stoll (TU Chemnitz)
           Kathrin Welker (Helmut Schmidt University)
           Barbara Zwicknagl (TU Berlin)
           Tim Ricken (University of Stuttgart)
           Sigrid Leyendecker (FAU Erlangen-Nürnberg)
           Kerstin Weinberg (University of Siegen)
           Dorothee Knees (University of Kassel)
### Poster Session

**Poster Session of GAMM Juniors**  
Tuesday, March 17, 16:00 – 16:30  
Ground Floor at the Campus Center (Moritzstraße 18)

| Organizers: | Philipp Morgenstern (Leibniz University Hannover)  
Benjamin Unger (TU Berlin)  
Kathrin Welker, (Helmut-Schmidt-University Hamburg) |
|---|---|
| Posters: | Johanna Eisenträger, *Modeling Creep of Fiber-Reinforced Composites*  
Kerstin Lux, *Chance-constrained optimal control of hyperbolic supply systems*  
Henrik Ebel, *Cooperative Object Transportation: Modeling, Control Design and Experiments*  
Felix Diewald, *Including the Dissipative Properties from Molecular Dynamics Simulations into a Phase Field Model for Wetting*  
Svenja Drücker, *Open-loop Control of Underactuated Multibody Systems Using Servo-constraints*  
Peter Gangl, *Automated shape differentiation and optimization using NG-Solve*  
Kathrin Welker, *Shape Optimization in Shape Spaces*  
Roland Maier, *Reconstruction of quasi-local numerical effective models*  
Arne Claus Hansen-Dörr, *Phase-field modeling of fracture in heterogeneous materials*  
Johanna Waimann, *Variational modeling of irreversible effects during solid/solid phase transformations*  
Tillmann Mühlpfordt, *PolyChaos.jl – An open source Julia package for polynomial chaos expansion*  
Idoia Cortes Garcia, *Mathematical analysis and simulation of field models in accelerator circuits*  
Paul Schwerdtner, *Robust Controller Design for Large Sparse Systems*  
Lena Lambers, *A Multiscale Model of Growth Processes in Soft Tissue*  
Philipp Schulze, *Model Reduction for Nonlinear Convection-Dominated Systems*  
Carmen Gräßle, *Adaptive concepts in POD model reduction*  
Renate Sachse, *Motion design of structures based on a variational formulation*  
Lisa Scheunemann, *Microstructural modeling in solid mechanics* |
<table>
<thead>
<tr>
<th>Lecture Type</th>
<th>Date and Time</th>
<th>Location</th>
<th>Speaker</th>
<th>Title</th>
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<tbody>
<tr>
<td><strong>Ludwig Prandtl Memorial Lecture</strong></td>
<td>Monday, March 16, 14:30-15:30</td>
<td>Hörsaal 1 at the Campus Center (Moritzstraße 18)</td>
<td>Ulrich Schumann, German Aerospace Center (DLR)</td>
<td>On the spectrum of atmospheric motions</td>
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<tr>
<td><strong>Richard von Mises Prize Lecture</strong></td>
<td>Wednesday, March 18, 10:30-11:30</td>
<td>Hörsaal 1 at the Campus Center (Moritzstraße 18)</td>
<td>The awardee will be announced on March 16</td>
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</tr>
<tr>
<td><strong>Public Lecture</strong></td>
<td>Tuesday, March 17, 19:30-20:30</td>
<td>Hörsaal 1 at the Campus Center (Moritzstraße 18)</td>
<td>Siegfried Hoß, Museumslandschaft Hessen Kassel</td>
<td>Die Wasserkünste von Wilhelmshöhe - Technik und Kunst, see page 64</td>
</tr>
<tr>
<td><strong>Public Lecture</strong></td>
<td>Tuesday, March 17, 20:30-21:30</td>
<td>Hörsaal 1 at the Campus Center (Moritzstraße 18)</td>
<td>Timo Mappes, Deutsches Optisches Museum Jena</td>
<td>Entwicklung und Einsatz wissenschaftlicher Mikroskope zwischen 1820 und 1920, see page 65</td>
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</tbody>
</table>
Maps of Campus and Campus Center
Maps of Campus and Campus Center

Campus Center second floor

Campus Center ground floor
On-Site Information

Conference Venue
Scientific events will take place in the Campus Center of the University of Kassel (Moritzstraße 18, 34127 Kassel) which is located at the Holländischer Platz next to the inner city. The Registration Desk is located at the main entrance of the Campus Center. The conference venue can be easily reached by public transportation from Kassel Wilhelmshöhe (railway station) with the tram lines 1, 2 and 3 and from the Kulturbahnhof (cultural station) with the regio tram line 1. For all trams and regio tram the tram stop for getting off is Holländischer Platz.

Certificate of Participation
All participants will receive a certificate of participation by e-mail after the conference.

Coffee Breaks
Coffee, tea, soft drinks, fruit and biscuits are served throughout the week at the ground floor of the Campus Centers.
There are lockers in the Campus Center where small bags can be locked up during the day. For a deposit of 5€ a card for these lockers can be borrowed individually for the whole week or specific days at the reception desk. For larger items like suitcases, we have an extra luggage room in the Campus Center. Just ask at the reception desk. Opening hours of the reception desk are:

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<tr>
<th>Date</th>
<th>Opening Hours</th>
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<tr>
<td>Monday, March 16</td>
<td>8:00 - 23:00</td>
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<td>Tuesday, March 17</td>
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<td>Wednesday, March 18</td>
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<td>Thursday, March 19</td>
<td>8:00 - 19:00</td>
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<tr>
<td>Friday, March 20</td>
<td>8:00 - 15:00</td>
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The Conference team members of the university of Kassel are present at the registration desk and are present throughout the conference venue. Do not hesitate to approach them with queries – they will gladly assist you. Technical staff is present in all lecture rooms.
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<thead>
<tr>
<th><strong>On-Site Information</strong></th>
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<tr>
<th><strong>Conference App</strong></th>
<th>The Conference4me smartphone app provides you with the most comfortable tool for planning your participation at GAMM 2020. Browse the complete program directly from your phone or tablet and create your very own agenda on the fly. The app is available for Android, iOS and Windows Phone. To download the mobile app, please visit the app store of your mobile device.</th>
</tr>
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<tbody>
<tr>
<td><strong>Internet Access</strong></td>
<td>The eduroam network is available on the entire campus. Guests who do not have an eduroam account can get a login at the registration desk.</td>
</tr>
<tr>
<td>Latest Program Changes</td>
<td>Latest changes to the program will be communicated at the registration desk or through the conference app.</td>
</tr>
<tr>
<td><strong>Lost &amp; Found</strong></td>
<td>Participants can collect their lost items or leave found items at the registration desk.</td>
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## On-Site Information

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<tr>
<th>Lunch</th>
<th>Please see possibilities for lunch on page 48.</th>
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<tbody>
<tr>
<td>Medical Service</td>
<td>Throughout the week there will be medical emergency staff at the Campus Center.</td>
</tr>
<tr>
<td>Name Badge</td>
<td>Participants are kindly asked to wear and display their name badge at all times in order to access the conference venue and social events. Additional tickets, depending on the purchased option for the conference dinner, YAMM Lunch and Welcome Reception are enclosed in the badge.</td>
</tr>
<tr>
<td>Parking</td>
<td>There are no parking spaces available on the campus of the University of Kassel. Around the campus there are parking spaces at the roadside with costs. Short-term parking up to 5 hours - 5€ and long-term parking up to 11 hours - 7€.</td>
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### Registration Information

For registration and collection of conference materials, please visit the registration area at the main entrance of the Campus Center. Registration Tel.: +49 561 804 2984

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<tr>
<th>Date</th>
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**Registration Counters:**

- **Pre-Registrations:** Please note that all registration documents have been prepared for pre-registered participants and sorted by last name. Therefore, when approaching the appropriate registration counter make sure to clearly state your last name (family name) under which you have registered. Please have your confirmation letter and ID close at hand.

- **On-Site Registration / Open Payments:** For participants registering and paying their registration fees on-site or with an outstanding payment.
**On-Site Information**

| Room Numbering | As we have two times lecture halls (Hörsäle) with the numbering 1 - 6 on the campus, you have to pay attention to the room numbering of the lecture halls whether they are located on the Diagonale or in the Campus Center. Therefore, each lecture hall (Hörsaal) title is followed by either Diagonale or Campus Center. The seminar rooms have 4 numbers each. The first number indicates the level, the second number the building section and the last two numbers the room identification. In order to guarantee good accessibility, signposts are displayed for all important buildings starting from the Campus Center. In addition, large plans of the campus will be displayed in the Campus Center, where someone from the team can be asked at any time. |
| Social Program | Information about the tours can be found in the program booklet on page [30](#) and [40](#). Registration for the tours can be made at the registration desk. |
| Streaming | The opening and closing, all plenary lectures, the Ludwig Prandtl memorial lecture, the Richard von Mises lecture, and the public lecture will be streamed from Hörsaal 1 to Hörsaal 2. |
| Transportation in Kassel | Travel to the conference venue:  

- **From the railway station:** Those who will arrive by ICE or another express train should take the destination ”Kassel Wilhelmshöhe” and then in front of the station take tram line 1 to get directly to ”Holländischer Platz” or tram line 3 to get directly to ”Katzensprung”.  

- **From the cultural station:** Those who will arrive at the cultural station can take the regio tram line 1 to get directly to ”Holländischer Platz”. Alternatively, you can walk to the city centre (10min walk) and from there take tram lines 1 and 5 to ”Holländischer Platz” or walk directly to the campus (15min walk). |
Social Program

Tuesday, March 17
Schloss Wilhelmshöhe and Bergpark Wilhelmshöhe Tour
13:30 – 17:30 Meeting Point Ground Floor in the Campus Center

Wednesday, March 18
Brother Grimm Tour
13:30 – 17:30 Meeting Point Ground Floor in the Campus Center

Thursday, March 19
City of Kassel Tour including documenta Art, Orangerie and Karlsaue
13:30 – 17:30 Meeting Point Ground Floor in the Campus Center

Kassel

Once Upon a Time ...

...the Brothers Grimm (Jacob 1785-1863 and Wilhelm 1786-1859) lived in Kassel. They attended a school in Kassel: Friedrichsgymnasium. After studying in Marburg they lived with interruptions in Kassel. Jacob worked as a librarian for Napoleon’s brother Jérôme Bonaparte, who was head of the Kingdom of Westphalia between 1807 and 1813 which made Kassel its capital. Jérôme Bonaparte was called lovingly „König Lustik“ (King funny) by the population of Kassel, making fun of his French pronunciation. Wilhelmshöhe Palace was called Napoleonshöhe at that time. But Jérôme lived at first in the City Palace which was at that time where the Regierungspräsidium is situated nowadays. It burned down in 1811, only a staircase reminds of its former presence. Jacob Grimm as a librarian is said to have run into the burning palace to save some of the valuable old books from the library.

For a long time the Brothers Grimm lived in the building of the “alte Torwache” at the beginning of Wilhelmshöher Allee. In front of that house you can find a small monument of the Brothers Grimm (1985). Another relict from Kassel’s era as a residential city is the porticus of the Red Palais (built between 1821 and 1826). The palace itself burned down after a bomb attack of the Allied Troops in 1941, only the porticus was restored after the war and was integrated into the building of a warehouse at that site. Since documenta IX in 1992, there is a group of figurines on top of the porticus called “The Strangers”. This artwork was made by Thomas Schütte.

In 1806 the Brothers Grimm had started collecting German fairy tales which they published between 1812 and 1858 as “Kinder- und Hausmärchen”. Today, a copy of the first edition...
can be found in the Grimmwelt in Kassel. Dorothea Viehmann (1755-1815), the daughter of a French-Huguenot family, living in Kassel Niederzwehren at that time was one of the main sources for the Brother Grimm’s collection of fairy tales. Today you can find a statue of the “Viehmännin” in Kassel Niederzwehren.

It was only in 1961 that one of the German linguistic large scale projects of the Brothers Grimm was finished: the German Dictionary. It is a collection of all terms of the German language, defines them and gives evidence of them from examples of the German literature. It took so much more time than they would have expected and accordingly Wilhelm died when they were working on letter D and Jacob’s last entry was the word “FROTEUFEL”. In Kassel’s Grimmwelt you can find an artwork by Ecke Bonk (*1953) called “Book of Words / random reading” which he created for documenta 11 (2002) to honour this monumental part of the Grimms’ work.

The documenta, which is around the globe celebrated as most important exhibition of contemporary art, takes place every 5 years in Kassel and lasts for 100 days. Arnold Bode, an art professor from Kassel (to whom the University of Kassel dedicated a street name on campus), had the idea that led to the first documenta in 1955. After the end of the War he wanted to place contemporary art works that had been discriminated against as “entartet” by the Nazi-Regime into a new, appreciative light. And in the grey debris of post-war Kassel – 70 % of which was destroyed by the bombings of the Allied Troops – they were meant to bring new colour and life to Kassel, together with the exhibits of the national garden show (BUGA) that was simultaneously taking place in the city. The
documenta and its artworks have always led to controversies and wild discussions in the city and its population. Nevertheless, many artworks have been bought by the city, by private investors or even by collecting money in the population and are now an integral part of the cityscape.

During documenta 7 (1982), for example, Joseph Beuys piled up 7000 basalt steles in front of Museum Fridericianum and asked people to help him plant an oak tree beside each of the steles. The artwork “7000 oaks” was meant to be a “social sculpture”. Up to today many people in Kassel identify with their trees (not only oaks though) and take care of
them. Joseph Beuys had planted the first oak in front of “Museum Fridericianum”, in 1987. His wife and son completed the artwork by planting the 7000th oak at its side during documenta 8. Joseph Beuys himself had died in 1986. The trees can be found in many streets of Kassel, in private gardens, on school grounds, and even on Campus. You can recognize a Beuys tree by the stone.

Another famous documenta artwork is to be found in front of Kulturbahnhof Kassel, the “Man walking to the sky” by Jonathan Borofsky, from documenta IX (1992). The people of Kassel call it tenderly “Himmelsstürmer” (Sky-Striker).

In the meadows of River Fulda (Karlsaue), you can find a huge pickaxe at the Banks of the River Fulda. A modern legend tells that Hercules has thrown it down from his position in the mountain park to help the people of Kassel reconstructing the city from the debris of WW II. Claes Oldenburg is responsible for the artwork which was part of documenta 7 (1982). Next to the building of Kassel Staatstheater you can find a huge framework, an artwork of documenta 6 (1977), which is called “Rahmenbau” (frame-like build) or “Landschaft im Dia” (landscape within a slide) and was made by a group of architects and artists called Haus-Rucker-Co. It is meant to stress the opening of Friedrichsplatz towards the landscape of the Aue-Park. Up to 1907, there had been an Aue-Gate at this site, that was interpreted as a window to the landscape. In 1909 it was replaced by the
huge building of the old Prussian theatre that blocked the view. This building was partly
destroyed during WW II and later not restored but replaced by a new theatre building at
a slightly different position. This decision is still discussed every now and then in Kassel’s
local newspaper.

Most of Kassel’s old city – that consisted mainly of timbered houses – burned down in
the bombings of the Allied Troops in WW II. Accordingly, only very few buildings report
from the medieval city of Kassel. Brüderkirche and Renthof (as part of an old Carmelite
monastery) date back to the 13th century and are considered to be the oldest buildings
of Kassel. Both buildings are in gastronomical use nowadays. Close by there is another
historical building from the 16th century. It used to be the royal stables but since 1965 it
has been used as a market hall where you can buy fresh vegetables, and other local farming
produce and find small restaurants and cafés every Thursday and Saturday morning.

Bergpark Wilhelmshöhe, a unique landscape park that dates back to 1696, with its famous
waterworks – that were completed in 1714 – and the statue of Hercules (1701-1717) has
recently been proclaimed a UNESCO World Heritage. In the summer months (starting
May 1st, ending October 3rd) the water games can be seen on Wednesdays and Sundays.
They start below the Hercules monument, pass through all the park and end in a huge
fountain in front of Wilhelmshöhe Palace. Without electronic, with no pumps, merely
mechanically by using the slope and mechanic water gates that have to be run by hand the cascades, the Steinhöfer waterfall, the Teufelsbrücke (devil’s bridge) and the artificial ruin of an aqueduct are included into the water performance. The water that is used is rain and surface water that is collected in huge reservoirs on top of the mountain hidden behind the Hercules monument. Bergpark Wilhelmshöhe is a unique landscape park referring to different traditions of gardening and landscape construction, e.g. elements of the Baroque tradition with symmetrical structures and the idea of subordinating nature to ratio and elements of romantic landscape gardening with winding paths and Löwenburg which was built as simulacrum of a ruin of a medieval castle. In Wilhelmshöhe Palace (1786) you can find a gallery with a respectable collection of old masters like Rembrandt, Rubens and Frans Hals. In its Weißenstein wing you can find a museum with historic furniture.

Close to Friedrichsplatz the Gustav-Mahler-Staircase leads to the Karlsaue, a huge meadow park along the banks of river Fulda that stretches up to the Aue-Stadium. In the centre of this national park with baroque origin you can find an old orangery (built between 1703 and 1711), a baroque palace which is used as an astronomical-physical cabinet with a planetarium. Drahtbrücke (which translates as “wire bridge”) dates back to 1870 and is a pedestrian suspension bridge that traverses the Fulda within Kassel city to connect parts of the new city (Unterneustadt) with the old centre.
Kassel University’s Campus “Holländischer Platz” was built after WW II on the old site of the Henschel factory. Up to 1972 locomotives, machines and waggons had been constructed there. Some of the old red brick industrial buildings show traces of this era. Some of them like the former foundry (Gießhaus) were refurbished or even completely gutted and restyled like the building opposite Gießhaus that shows only the façade of the red brick building as a ruin. Especially Gießhaus is an architectural gem on the university campus and only used for special events.

A red brick Chimney and the building of the administration of the Henschel factory (K10) – which is now used by the department of architecture – are kept as memory of the former use of the area, other buildings were torn down. In the 1980s some new red brick buildings were built on campus. At that time Kassel as a Gesamthochschule wanted to be referred to the British “Red Brick Universities”. In the centre of this campus you can find the library as the “core” of the university. In the following years the campus was extended with buildings of different architectural styles. In 2002 Gesamthochschule Kassel became Kassel University.

The Henschel factory was one of the reasons why Kassel became such an important target for Allied bombing in WW II. The blue gate in Georg-Forster-Straße, an artwork by
Eberhard Fiebig called “Tor des irdischen Friedens” (gate of earthly peace) (1986) indirectly refers to this part of the history of the campus. More directly another sculpture or memorial reminds of the horrors of the Nazi regime: E.R. Neles “Die Rampe” (the ramp) (1985) recalls the practice of deportation. The Henschel factory had also employed forced laborers during the war.

During the 91st GAMM’s annual meeting three guided tours, at which participants will experience the art, culture and history of the documenta city Kassel, are offered. The tours will be guided by Catrin Siedenbiedel. She is head of the “Pre-service Teaching Office“ in the Center for Teacher Education at the University of Kassel. Her great expertise in art, culture, history and literature is based on her doctoral thesis in English literature.

The guided tours will start on Tuesday, Wednesday and Thursday at 13:30 in the foyer of the Campus Center close to the information desk. The arrangement of the tours will depend of the weather. Please expect a time frame of about four hours. The tours are free of charge, you are merely asked to pay for your tram and entrance tickets, and for café visits.
Kassel torch light adventure

The “Kassel torch light adventure” is a guided night walk through the University of Kassel and Kassel as documenta city. The special tour will take place on Thursday in the evening after the last presentation of annual meeting of GAMM 2020 will have been rewarded with a big hand. The tour will be guided by Hartmut Hetzler, a member of the local board of the 91st GAMM’s annual meeting and a great expert on the history and modern day and night life of the documenta city Kassel. He will guide you through the special facilities of the University of Kassel, the north part of the city where students and residents live together in peace and friendship. After the first short break at Ali’s kiosk, the tour will proceed with some historical, cultural highlights including some documenta art work. Of course, some surprises will be waiting for you in the deep darkness of Kassel’s night life. The tour will officially end at the sculpture “man walking to the sky“ created by the American artist Jonathan Borofsky (Rainer-Dierichs-Platz 1, Kassel).
Some torch lights will be provided by your tour guide and the conference chairman. However, if possible, please bring your own lights with you. Furthermore, please wear robust shoes and, if necessary, a cagoule. Because of the special style of the tour, the number of participants is limited by fifty. Please register for the gratuitous Kassel torch light adventure at the conference info desk of GAMM 2020. If you would like to join Hartmut Hetzler after the walk for dinner in his favorite restaurant, please accept an additional fifteen minutes walk and register for this dinner at latest on Wednesday March 18 at the info desk. Please notice that attendees should pay by themselves for food and drinks.
**GAMM 2020 Signature Slam**

The original graffiti of the GAMM 2020 Annual Meeting logo will be on display in the foyer of the Campus Center at Kassel University. It has been designed by the artist Cornelius Lustig, chief executive officer of Stylefusion, an advertising company. He has studied biology at Kassel University. Since 1994 he is a free painter, mainly specialized on graffiti art, graphic design and acrylic painting. Cornelius Lustig can be identified as a friend of Kassel University and the members of the University.

The artwork of Cornelius Lustig has not been finished yet. In order to complete the GAMM 2020 graffiti, we kindly invite all participants of the annual meeting to contribute their signatures. Of course, you are also welcome to add your favorite drawings, mechanical sketches and mathematical formulas. Please feel free to add your contribution to Cornelius Lustig’s artwork to give it a unique GAMM 2020 design.
Conference Dinner

**Wednesday, March 18**

**Conference Dinner**
19:30 - 22:30 in the Renthof (Renthof 3, 34117 Kassel)

The conference banquet will take place in all event locations of the past monastery “Renthof“ and the Order of Carmelites church “Alte Brüderkirche“ in Kassel.

Landgrave Heinrich I has called the Order of Carmelites from Palestine back to Europe to settle in Kassel. The Order has started to build a church and a monastery in the year 1298. 78 years later the monastery, nowadays called Renthof, and the church “Alte Brüderkirche“ have been finished. The Renthof has a great tradition as educational institution. In the year 1595 Landgrave Maurice the Learned has redesigned the monastery into a gentry school. Later, in the year 1617 the school was transformed into a Knight Academy. In the middle of the thirty year’s war in 1633 the famous University of Marburg has opened its Kassel branch in the north-west wing of the building complex. In fact this was the first documented incorporation of a University of Kassel.

Since its reopening in the year 2017, the historic Renthof Kassel is a modern boutique hotel with exclusive gastronomy, a bar and several individual event locations within the walls of the more than seven hundred year old building. Enjoy excellent European buffet, some
drinks of your choice and the wonderful sound of a piano together with a fantastic voice in the impressing former monastery and Order of Carmelites church.
Where to have Lunch on Campus

On the campus of the University of Kassel there are several possibilities to have lunch. You can choose between a full lunch and snacks. The map of the campus shows all possibilities of the campus, see page 49.

<table>
<thead>
<tr>
<th>Number in Map</th>
<th>Restaurant</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bistro K10 (snacks and full lunch)</td>
</tr>
<tr>
<td>2</td>
<td>Café International (snacks)</td>
</tr>
<tr>
<td>3</td>
<td>Café ProWiso (only drinks)</td>
</tr>
<tr>
<td>4</td>
<td>Cafeteria Pavillion (snacks)</td>
</tr>
<tr>
<td>5</td>
<td>Tor Café (snacks and full lunch)</td>
</tr>
<tr>
<td>6</td>
<td>Café DesAStA (only drinks)</td>
</tr>
<tr>
<td>7</td>
<td>Restaurant Moritz (full lunch)</td>
</tr>
<tr>
<td>8</td>
<td>Zentralmensa (full lunch)</td>
</tr>
<tr>
<td>9</td>
<td>Lernbar im Leo (snacks and drinks)</td>
</tr>
</tbody>
</table>

The optimal place to have lunch is the students’ cantina (Zentralmensa) or the restaurant Moritz. Both are located close to the Campus Center.
Where to have Lunch on Campus
Where to have Lunch and Dinner nearby Campus

Where to have Lunch close to Campus

Besides the possibilities on campus, there are numerous restaurants close to campus.

<table>
<thead>
<tr>
<th>Restaurant</th>
<th>cuisine</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Café Nordpol (Gottschalkstraße 12)</td>
<td>Breakfast</td>
</tr>
<tr>
<td>11 Uni Imbiss (Gottschalkstraße 37)</td>
<td>Snacks</td>
</tr>
<tr>
<td>12 Bei Ali (Westring 73)</td>
<td>International</td>
</tr>
<tr>
<td>13 Café Hurricane (Gottschalkstraße 38)</td>
<td>International</td>
</tr>
<tr>
<td>14 Chevy American Diner (Henschelstraße 15)</td>
<td>American</td>
</tr>
<tr>
<td>15 Restaurant Ambrosia (Mittelring 66)</td>
<td>Greek</td>
</tr>
<tr>
<td>16 Backfarm (Westerstraße 41)</td>
<td>Bakery</td>
</tr>
<tr>
<td>17 Cappadocia Backparadies (Westerstraße 43)</td>
<td>Turkish</td>
</tr>
<tr>
<td>18 Zum glücklichen Bergschweinchen (Weserstraße 2)</td>
<td>Vegetarian snacks</td>
</tr>
<tr>
<td>19 Paco’s Tacos (Gottschalkstraße 39)</td>
<td>Tex-Mex</td>
</tr>
<tr>
<td>20 Bäckerei Karadeniz (Untere Königsstraße 78)</td>
<td>Bakery</td>
</tr>
<tr>
<td>21 Bäckerei Karagöz (Untere Königsstraße 74)</td>
<td>Bakery</td>
</tr>
<tr>
<td>22 Tat-Urfa (Untere Königsstraße 89)</td>
<td>Turkish</td>
</tr>
<tr>
<td>23 Subway (Untere Königsstraße 71)</td>
<td>Sandwich</td>
</tr>
<tr>
<td>24 City Point (Königsplatz 61)</td>
<td>Various fast food chains</td>
</tr>
</tbody>
</table>
Where to have Lunch nearby Campus
Where to have Lunch and Dinner in Kassel

Where to have Lunch in Kassel

In addition, we recommend the following restaurants as good places to eat. Some of the restaurants require a combination of walking and public transportation. Since classic route services do not include local trams in Kassel, we recommend using the local service of the Kasseler-Verkehrs-Gesellschaft (KVG) [www.kvg.de](http://www.kvg.de) or the Deutsche Bahn Navigator.

<table>
<thead>
<tr>
<th>Restaurant</th>
<th>Cuisine</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Abessina (Kurt-Schumacher-Straße 23)</td>
<td>Ethiopian</td>
<td>12min</td>
</tr>
<tr>
<td>2 L’Osteria (Königsplatz 36)</td>
<td>Italian</td>
<td>13min</td>
</tr>
<tr>
<td>3 IL Convento (An der Garnisonkirche 2)</td>
<td>Italian</td>
<td>13min</td>
</tr>
<tr>
<td>4 Enchilada (Opernstraße 9)</td>
<td>Mexican</td>
<td>16min</td>
</tr>
<tr>
<td>5 Renthof (Renthof 3)</td>
<td>Greek</td>
<td>17min</td>
</tr>
<tr>
<td>6 Pho Vang (Garde-du-Corps-Straße 1)</td>
<td>Vietnamese</td>
<td>18min</td>
</tr>
<tr>
<td>7 Osteria (Jordanstraße 11)</td>
<td>Italian</td>
<td>21min</td>
</tr>
<tr>
<td>8 Orestis (Königstor 34)</td>
<td>Greek</td>
<td>21min</td>
</tr>
<tr>
<td>9 Lohmann (Königstor 8)</td>
<td>German</td>
<td>21min</td>
</tr>
<tr>
<td>10 Bolero (Schöne Aussicht 1A)</td>
<td>American</td>
<td>21min</td>
</tr>
<tr>
<td>11 NACHBAR (Frankfurter Straße 76)</td>
<td>Hamburger</td>
<td>21min</td>
</tr>
<tr>
<td>12 denkMAHL (Friedrich-Ebert-Straße 98)</td>
<td>German</td>
<td>22min</td>
</tr>
<tr>
<td>13 Eno (Pestalozzistraße 12-18)</td>
<td>Tapas</td>
<td>22min</td>
</tr>
<tr>
<td>14 El Ernie (Parkstraße 42)</td>
<td>Spanish</td>
<td>23min</td>
</tr>
<tr>
<td>15 Voit (Friedrich-Ebert-Straße 86)</td>
<td>International</td>
<td>24min</td>
</tr>
<tr>
<td>16 Lavastein (Frankfurter Straße 194)</td>
<td>International</td>
<td>24min</td>
</tr>
<tr>
<td>17 Eberts (Friedrich-Ebert-Straße 116)</td>
<td>International</td>
<td>25min</td>
</tr>
<tr>
<td>18 Weissenstein (Königstor 46)</td>
<td>Local organic food</td>
<td>25min</td>
</tr>
<tr>
<td>19 Gusto Tavola Calda (Friedrich-Ebert-Straße 163)</td>
<td>Italian</td>
<td>28min</td>
</tr>
<tr>
<td>20 Da Vinci (Lassallestraße 11)</td>
<td>Italian</td>
<td>28min</td>
</tr>
</tbody>
</table>
Where to have Lunch in Kassel
## Guidelines for Presenters & Chairs

- Please check the time and lecture room of your presentation in the daily program and on the info boards as there might have been changes.

- Technical staff is assigned to each lecture room for help with technical equipment.

- Each lecture room is equipped with a computer (Windows 10, Microsoft Office 2016, Acrobat Reader DC) and a beamer. Your slides shall be prepared in the format of 16:9 or 4:3.

- Every room is equipped with a VGA and a HDMI cable.

- Please only upload your slides at the day of your presentation, as all computers will be automatically cleared during the night.

- You are asked to upload your presentation at the very latest in the break before the session.

- Please be present at least 10 minutes prior to the start of your session and let the chairperson know you are there.

- Please make sure to stay in your session from the beginning in order to ensure smooth changes between the individual presentations.

- The time scheduled for the presentations is
  - 20 min. (incl. discussion) for presentations in sections, MS, YRM, DFG-PP sessions,
  - 40 min. (incl. discussion) for Topical & Keynote Lectures in sections, MS, YRM, DFG-PP sessions, and
  - 60 min. for Plenary, Ludwig Prandtl Memorial, Richard von Mises Lectures and Public Lectures.

- The chairpersons are requested to stop presentations after the scheduled time has passed.
Guidelines for Chairs

Information for Chairs

• You are kindly asked to switch between presentations by simply announcing the name of the next presenter and the title of the presentation. Due to the tight schedule, there will not be sufficient time for introducing individual lecturers in a more detailed manner.

• Please do your best to strictly limit the duration of each presentation and discussion to the allotted time.

• If a lecturer is missing, please stick to the original program, i.e., extend the discussion time of the preceding presentation or allow a break for the duration of the missing lecture(s). This enables participants to switch between sessions and to listen to chosen individual lectures according to the announced sequence.

Poster Session

The provided boards have a size of 1150 x 1450 mm. The typical poster size is DIN A0 portrait with 841 x 1189 mm and fits perfectly. Fixing material (magnets) will be available at the boards.
### Section/Session Schedule

#### S1 Multi-body dynamics

<table>
<thead>
<tr>
<th>Session</th>
<th>Topic</th>
<th>Time</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>S01.01</td>
<td>Geometric Mechanics and Biomechanical Applications</td>
<td>Tuesday, March 17, 08:30 - 10:30</td>
<td>68</td>
</tr>
<tr>
<td>S01.02</td>
<td>Dynamics of Rods</td>
<td>Tuesday, March 17, 16:30 - 18:30</td>
<td>82</td>
</tr>
<tr>
<td>S01.03</td>
<td>Collision and Nonlinear Dynamics of Rigid Bodies</td>
<td>Wednesday, March 18, 14:00 - 16:00</td>
<td>98</td>
</tr>
<tr>
<td>S01.04</td>
<td>Control Strategies for Multi-body Systems</td>
<td>Wednesday, March 18, 16:30 - 18:30</td>
<td>106</td>
</tr>
<tr>
<td>S01.05</td>
<td>Modeling of Elastic Multi-body Systems</td>
<td>Thursday, March 19, 08:30 - 10:30</td>
<td>116</td>
</tr>
</tbody>
</table>

#### S2 Biomechanics

<table>
<thead>
<tr>
<th>Session</th>
<th>Topic</th>
<th>Time</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>S02.01</td>
<td>Growth</td>
<td>Tuesday, March 17, 08:30 - 10:30</td>
<td>68</td>
</tr>
<tr>
<td>S02.02</td>
<td>TPM &amp; brain</td>
<td>Tuesday, March 17, 16:30 - 18:30</td>
<td>82</td>
</tr>
<tr>
<td>S02.03</td>
<td>Constitutive modeling &amp; parameter identification</td>
<td>Wednesday, March 18, 08:30 - 09:30</td>
<td>92</td>
</tr>
<tr>
<td>S02.04</td>
<td>Arteries</td>
<td>Wednesday, March 18, 14:00 - 16:00</td>
<td>98</td>
</tr>
<tr>
<td>S02.05</td>
<td>Heart &amp; muscle</td>
<td>Wednesday, March 18, 16:30 - 18:30</td>
<td>106</td>
</tr>
<tr>
<td>S02.06</td>
<td>hydrogels &amp; tissue engineering</td>
<td>Thursday, March 19, 08:30 - 10:30</td>
<td>116</td>
</tr>
<tr>
<td>S02.07</td>
<td>Cells</td>
<td>Thursday, March 19, 14:00 - 16:00</td>
<td>123</td>
</tr>
<tr>
<td>S02.08</td>
<td>Impact/injury</td>
<td>Thursday, March 19, 17:40 - 18:40</td>
<td>130</td>
</tr>
</tbody>
</table>

#### S3 Damage and fracture mechanics

<table>
<thead>
<tr>
<th>Session</th>
<th>Topic</th>
<th>Time</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>S03.01</td>
<td>Gradient damage</td>
<td>Tuesday, March 17, 08:30 - 10:30</td>
<td>68</td>
</tr>
<tr>
<td>S03.02</td>
<td>Recent developments in phase-field modeling of fracture</td>
<td>Tuesday, March 17, 16:30 - 18:30</td>
<td>82</td>
</tr>
<tr>
<td>S03.03</td>
<td>Phase-field modeling of fracture in heterogeneous solids</td>
<td>Wednesday, March 18, 08:30 - 09:30</td>
<td>92</td>
</tr>
<tr>
<td>S03.04</td>
<td>Phase-field modeling of fatigue</td>
<td>Wednesday, March 18, 14:00 - 16:00</td>
<td>98</td>
</tr>
<tr>
<td>S03.05</td>
<td>Composites</td>
<td>Wednesday, March 18, 16:30 - 18:30</td>
<td>106</td>
</tr>
<tr>
<td>S03.06</td>
<td>Fracture and coupled problems</td>
<td>Thursday, March 19, 08:30 - 10:30</td>
<td>116</td>
</tr>
<tr>
<td>S03.07</td>
<td>Theory</td>
<td>Thursday, March 19, 14:00 - 16:00</td>
<td>123</td>
</tr>
<tr>
<td>S03.08</td>
<td>Testing</td>
<td>Thursday, March 19, 17:40 - 18:40</td>
<td>130</td>
</tr>
<tr>
<td>S03.09</td>
<td>Machining and fracture of concrete and rock</td>
<td>Friday, March 20, 08:30 - 10:30</td>
<td>136</td>
</tr>
</tbody>
</table>
**Section/Session Schedule**

### S4  Structural mechanics

<table>
<thead>
<tr>
<th>Session Code</th>
<th>Title</th>
<th>Date/Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>S4.01</td>
<td>FE-technique &amp; IGA (1/2)</td>
<td>Tuesday, March 17, 08:30 - 10:30</td>
</tr>
<tr>
<td>S4.02</td>
<td>FE-technique &amp; IGA (2/2)</td>
<td>Tuesday, March 17, 16:30 - 18:30</td>
</tr>
<tr>
<td>S4.03</td>
<td>Data-driven approach</td>
<td>Wednesday, March 18, 08:30 - 09:30</td>
</tr>
<tr>
<td>S4.04</td>
<td>SBFEM &amp; Miscellaneous</td>
<td>Wednesday, March 18, 14:00 - 16:00</td>
</tr>
<tr>
<td>S4.05</td>
<td>Dynamics &amp; Time integration methods</td>
<td>Wednesday, March 18, 14:00 - 16:00</td>
</tr>
<tr>
<td>S4.06</td>
<td>Optimization</td>
<td>Wednesday, March 18, 16:30 - 18:30</td>
</tr>
<tr>
<td>S4.07</td>
<td>Vibrations &amp; Waves</td>
<td>Wednesday, March 18, 16:30 - 18:30</td>
</tr>
<tr>
<td>S4.08</td>
<td>Model order reduction &amp; Reanalysis</td>
<td>Thursday, March 19, 08:30 - 10:30</td>
</tr>
<tr>
<td>S4.09</td>
<td>Lattice Boltzmann &amp; Peridynamics</td>
<td>Thursday, March 19, 14:00 - 16:00</td>
</tr>
<tr>
<td>S4.10</td>
<td>Material &amp; Slip/Friction</td>
<td>Thursday, March 19, 14:00 - 16:00</td>
</tr>
<tr>
<td>S4.11</td>
<td>Composite/laminates + Miscellaneous</td>
<td>Friday, March 20, 08:30 - 10:30</td>
</tr>
</tbody>
</table>

### S5  Nonlinear oscillations

<table>
<thead>
<tr>
<th>Session Code</th>
<th>Title</th>
<th>Date/Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>S5.01</td>
<td>System dynamics</td>
<td>Tuesday, March 17, 08:30 - 10:30</td>
</tr>
<tr>
<td>S5.02</td>
<td>Multi-field &amp; vehicle dynamics</td>
<td>Tuesday, March 17, 16:30 - 18:30</td>
</tr>
<tr>
<td>S5.03</td>
<td>Non-smooth dynamics &amp; Control</td>
<td>Wednesday, March 18, 14:00 - 16:00</td>
</tr>
<tr>
<td>S5.04</td>
<td>Rotor dynamics</td>
<td>Wednesday, March 18, 16:30 - 18:30</td>
</tr>
</tbody>
</table>

### S6  Material modelling in solid mechanics

<table>
<thead>
<tr>
<th>Session Code</th>
<th>Title</th>
<th>Date/Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>S6.01</td>
<td></td>
<td>Tuesday, March 17, 08:30 - 10:30</td>
</tr>
<tr>
<td>S6.02</td>
<td></td>
<td>Tuesday, March 17, 16:30 - 18:30</td>
</tr>
<tr>
<td>S6.03</td>
<td></td>
<td>Wednesday, March 18, 08:30 - 09:30</td>
</tr>
<tr>
<td>S6.04</td>
<td></td>
<td>Wednesday, March 18, 08:30 - 09:30</td>
</tr>
<tr>
<td>S6.05</td>
<td></td>
<td>Wednesday, March 18, 14:00 - 16:00</td>
</tr>
<tr>
<td>S6.06</td>
<td></td>
<td>Wednesday, March 18, 14:00 - 16:00</td>
</tr>
<tr>
<td>S6.07</td>
<td></td>
<td>Wednesday, March 18, 16:30 - 18:30</td>
</tr>
<tr>
<td>S6.08</td>
<td></td>
<td>Thursday, March 19, 08:30 - 10:30</td>
</tr>
<tr>
<td>S6.09</td>
<td></td>
<td>Thursday, March 19, 14:00 - 16:00</td>
</tr>
<tr>
<td>S6.10</td>
<td></td>
<td>Thursday, March 19, 17:40 - 18:40</td>
</tr>
<tr>
<td>S6.11</td>
<td></td>
<td>Thursday, March 19, 17:40 - 18:40</td>
</tr>
<tr>
<td>S6.12</td>
<td></td>
<td>Friday, March 20, 08:30 - 10:30</td>
</tr>
</tbody>
</table>

### S7  Coupled problems

<table>
<thead>
<tr>
<th>Session Code</th>
<th>Title</th>
<th>Date/Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>S7.01</td>
<td>Modelling the Behaviour of Magneto-active Materials</td>
<td>Tuesday, March 17, 08:30 - 10:30</td>
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#### S15 Uncertainty quantification (replacement for applied stochastics)

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#### S16 Optimization

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### S18 Numerical methods for differential equations

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<td><strong>Registration</strong></td>
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<td>Registration desk opens</td>
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| 13:00 | **Opening**                                | Hörsaal 1, Campus Center  | Secretary of state of the Hessen State Ministry for Higher Education, Research and the Arts: Ayse Asar  
|       |                                            |                           | Lord Mayor of Kassel: Christian Geselle                                    | 
|       |                                            |                           | GAMM President: Jörg Schröder                                             | 
|       |                                            |                           | Vice President of the University of Kassel: René Matzdorf                  | 
|       |                                            |                           | Announcement of the Richard von Mises Awardee                             | 
|       |                                            |                           | Music by the string quartet SYND                                            | 
|       |                                            |                           | Chaired by Detlef Kuhl                                                     |
| 14:00 | **Ludwig Prandtl Ring Award**              | Hörsaal 1, Campus Center  | Ann Dowling  
|       |                                            |                           | Handover ceremony for the Prandtl Ring                                     | 
|       |                                            |                           | Chaired by Edward Greitzer                                                  |
| 14:30 | **Ludwig Prandtl Memorial Lecture**        | Hörsaal 1, Campus Center  | Ulrich Schumann (German Aerospace Center (DLR))  
|       |                                            |                           | *On the spectrum of atmospheric motions*                                    | 
|       |                                            |                           | Chaired by Martin Oberlack                                                   |
| 15:30 | **Plenary Lecture - Mathematics**          | Hörsaal 1, Campus Center  | Patrizio Neff (University of Duisburg-Essen)  
<p>|       |                                            |                           | <em>Logarithmic strain measures in nonlinear elasticity</em>                       |
|       |                                            |                           | Chaired by Jörg Schröder                                                     |
| 16:30 | <strong>Coffee Break</strong>                           | Ground Floor, Campus Center | Refreshment including coffee, tea, soft drinks, fruits, and biscuits | |
| 17:00 | <strong>Young Researcher’ Minisymposia</strong>         | Hörsaal 1 - 6, Campus Center | 6 parallel minisymposia, page 60 - 61                                   | |
| 19:00 | <strong>Welcome Reception</strong>                      | Ground Floor, Campus Center | Welcome speech by the local organizer: Andreas Riceour                     |
|       |                                            |                           | Drinks and finger food are available                                         |</p>
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<th>YRM3</th>
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</table>
| 17:00 | Algorithms for coupled multi-physics problems  
Chair: Matthias Mayr,  
Alexander Heinlein | Rank structured matrix and tensor techniques  
Chair: Stefano Massei, Davide Palitta | Recent developments in Isogeometric Analysis for Flow Problems  
Chair: Philipp Morgenstern,  
Andreas Apostolatos |
| 17:20 | A unified Nitsche approach for fluid-structure interactions and contact  
S. Frei, E. Burman, M. A. Fernández | A matrix equation method for solving PDE-constrained optimization problems  
A. Bünger, M. Stoll, V. Simoncini | Adaptive isogeometric methods with inexact solvers  
G. Gantner, A. Haberl, D. Haberlik, D. Praetorius, S. Schimanko |
| 17:40 | Fluid-Structure Interaction of Slender Continua with 3-Dimensional Flow: An Embedded Finite Element Approach  
N. Hagmeyer, M. Mayr, A. Popp | Approximate interpolation of scattered data in tree tensor formats  
S. Krämer, L. Grasedyck | Spline-based methods for partitioned fluid-structure interaction  
T. Spenke, N. Hosters, M. Behr |
| 18:00 | Comparing Arterial Wall Models for the Curved Tube Fluid-Structure Interaction Benchmark  
A. Heinlein, A. Klawonn, O. Rheinbach | Compression properties and rank-structured solvers for Toeplitz, Vandermonde and related linear systems  
H. D. Wilber, D. Kressner, B. Beckermann | Mesh refinement for rate-optimal unstructured AS T-splines  
R. Maier, P. Morgenstern, T. Takacs |
| 18:20 | Large Scale Sea Ice Modeling - Problems and Perspectives.  
C. Nisters, J. Schröder | Nonnegative Matrix Factorization models for knowledge extraction from biomedical and other real world data  
F. Esposito | C1 Isogeometric discretizations over multi-patch domains  
M. Kapl, G. Sangalli, T. Takacs |
| 18:40 | Dynamic load balancing for large-scale mortar contact formulations  
M. Mayr, A. Popp | Residual-based iterations for Lyapunov equations  
T. Breiten, E. Ringh | Parallel coupled multiphysics simulation on hierarchical meshes  
M. Schlottke-Lakemper, L. Schnieders, A. Niemöller, M. Meinke, W. Schröder | Riemannian optimization for canonical tensor rank decomposition  
P. Breiding,  
N. Vannieuwenhoven |
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<th>YRM5</th>
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| 17:00 | Modelling, simulation and data-driven analysis of molecular systems  
Chair: Andreas Bittracher | Complexity Reduction in Optimal Control  
Chair: Silke Manuela Glas, Carmen Gräffe | Novel discretization methods for phase-field modeling in fracture mechanics  
Chair: Fleurianne Bertrand |
|       | Campus Center - Hörsaal 4                      | Campus Center - Hörsaal 5                      | Campus Center - Hörsaal 6                      |
| 17:00 | Discovery of complex reaction coordinates in autonomous artificial intelligence-guided computer simulations  
R. Covino, H. Jung, G. Hummer | Multiobjective Parameter Optimization of Elliptic PDEs using the Reduced Basis Method  
S. Banholzer, B. Gebken, S. Peitz, M. Dellnitz, S. Volkwein | A coupled multi-phase/scale numerical description for solidification processes of steel, using a phase-field model for phase-transformation  
C. Henning, T. Ricken |
| 17:20 | Parareal algorithm in the context of Molecular Dynamics  
U. Sharma, F. Legoll, T. Lelièvre | Finite element approximation of second-order PDEs in non-divergence form in the solution of Hamilton-Jacobi-Bellman equations  
J. Blechschmidt, R. Herzog, M. Winkler | An anisotropic phase-field model for fracture based on a decomposition of the material tangent  
C. Luo |
| 17:40 | The role of the lag time in spectral estimation for Markov processes  
E. H. Thiede, R. J. Webber, D. Dow, A. R. Dinner, J. Weare | Reduced basis methods for quasilinear elliptic PDEs with applications to permanent magnet synchronous motors  
D. Korolev | Extension of the phase-field model to anisotropic pressurized fracture  
C. Bilgen, M. Werner, K. Weinberg |
| 18:00 | Model Reduction of Complex Molecular Systems: The Transition Manifold Approach  
A. Bittracher, P. Koltai, S. Klus, R. Banisch, M. Dellnitz, B. Hamzi, C. Schütte | Reduced Order Models for the Planning of Thermal Cancer Treatments  
Z. Tokoutsu, M. Grepl, K. Veroy, M. Baragona, R. Maessen | Observation and viscoelastic modeling of tidal displacements at 79°N Glacier, Greenland  
| 18:20 | Tensor-based EDMD for the Koopman analysis of high-dimensional systems  
F. Nüske, P. Gell, S. Klus, C. Clementi | Convergence of the SQP method for a quasilinear parabolic optimal control problem  
F. Hoppe, I. Neitzel | Phase-field Modeling of Fractures in Nearly Incompressible Solids  
T. Heister, N. Kröger, K. Mang, T. Wick, W. Wollner |
| 18:40 | RB methods in optimal control of electromagnetic wave problems  
C. Lochner | Stress reconstructions for quasi-static phase-field fractures  
F. Bertrand |
Tuesday, March 17, General Overview

08:30 **Contributed Sessions**
lecture rooms 20 parallel sessions, page 68 - 74

10:30 **Coffee Break**
Ground Floor
Campus Center Refreshment including coffee, tea, soft drinks, fruits, and biscuits

11:00 **Plenary Lecture - Mechanics**
Hörsaal 1
Campus Center **Stefan Hartmann** (TU Clausthal)
The method of vertical lines in non-linear finite elements
Chaired by Alexander Düster

12:00 **Plenary Lecture - Mathematics**
Hörsaal 1
Campus Center **Carola Schönlieb** (University of Cambridge)
Data driven variational models for solving inverse problems
Chaired by Andreas Meister

13:00 **Lunch**
Information about lunch options is available on page 48

14:00 **Minisymposia**
Hörsaal 1 - 4
Campus Center 4 parallel minisymposia, page 76 - 77
Hörsaal 1 - 5
Diagonale 7 parallel DFG-PP minisymposia, page 78 - 80

16:00 **Coffee Break and Poster Session**
Ground Floor
Campus Center Refreshment including coffee, tea, soft drinks, fruits, and biscuits

16:30 **Contributed Sessions**
lecture rooms 20 parallel sessions, page 82 - 88

19:30 **Public Lecture**
Hörsaal 1
Campus Center **Siegfried Höß** (Museumslandschaft Hessen Kassel)
Die Wasserkünste von Wilhelmshöhe - Technik und Kunst
(in German), page 64
Chaired by Detlef Kuhl
Hörsaal 1
Campus Center **Timo Mappes** (Deutsches Optisches Museum Jena)
Entwicklung und Einsatz wissenschaftlicher Mikroskope zwischen 1820 und 1920 (in German), page 65
Chaired by Hartmut Hetzler

Die Berechnung der Objektive und die Entwicklung passender Werkstoffe führte das Auflösungsvermögen der Systeme bis zum Beginn der 20. Jahrhunderts an die noch heute geltenden Grenzen der Weitfeldoptik.

Die reproduzierbare Herstellung mechanischer Lösungen erlaubte den Schritt von der Manufaktur (siehe Abbildung links) zur erschwinglichen Serienfertigung - und damit die Verbre-
itung des Mikroskops als wichtigstes Werkzeug der Lebenswissenschaften & Medizin (siehe Abbildung mitte) und Petrografie (siehe Abbildung rechts).
Der Vortrag beschreibt an repräsentativen Beispielen die Entwicklung des wissenschaftlichen Mikroskopbaus, sowie das Wechselspiel zwischen Herstellern und Anwendern inklusive der zeitgenössischen Produktbewertung. Exemplarisch werden einige retrospektiv richtige, wie auch offensichtlich fatale strategische Entscheidungen der Hersteller aufgezeigt – die mitunter frappierende Parallelen zu Überlegungen der Gegenwart aufweisen.
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<tr>
<th>Time</th>
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<th>Speaker(s)</th>
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<td>08:30</td>
<td>Geometric numerical integration in simulation and optimal control of biomechanical motion</td>
<td>S. Leyendecker, J. Penner, U. Phutane</td>
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<td>S01.01 Geometric Mechanics and Biomechanical Applications Chair: Simon R. Eugster</td>
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<td>08:50</td>
<td>Age-dependent bone remodeling</td>
<td>A. Papastavrou, I. Schmidt, P. Steinmann</td>
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<td>S02.01 Growth Chair: Silvia Budday</td>
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<td>09:10</td>
<td>Hamilton’s principle on Galilean manifolds</td>
<td>G. Capobianco, S. R. Eugster</td>
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<td>S03.01 Gradient damage Chair: Geralf Hütter</td>
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<td>09:30</td>
<td>Damage-induced Growth and Remodelling of Soft Biological Tissues</td>
<td>M. Gierig, M. Marino, P. Wriggers</td>
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<td>Considering the Mechanobiology of Wound Healing</td>
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<td>09:50</td>
<td>The Influence of ground inclination on the energy efficiency of a bipedal walking robot</td>
<td>Y. Luo, U. J. Römer, A. Fidlin</td>
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<td>10:10</td>
<td>Multistable Tensegrity Structure as Multimodal Locomotion System</td>
<td>A. Juan-Lien Ramirez, S. Löh nert, I. Neuweiler</td>
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<td>Arnold-Bode-Straße 12 - Hörsaal 4</td>
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<td>08:30</td>
<td>Micromechanical analysis of failure in fiber reinforced polymer-metal structures</td>
<td>F. Hirsch, M. Kästner</td>
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<td>08:50</td>
<td>On the influence of biological availability on bone remodelling</td>
<td>I. Schmidt, A. Papastavrou, P. Steinmann</td>
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<td>09:10</td>
<td>Application of a gradient-enhanced damage model to simulate failure of highly alloyed TRIP-steel</td>
<td>A. Seupel, M. Kuna</td>
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<td>09:30</td>
<td>A Multiscale and Multiphase Model of Function-Perfusion Growth Processes in the Human Liver</td>
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<td>09:50</td>
<td>Modeling gradient-enhanced anisotropic ductile damage: Application to low cycle fatigue</td>
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<td>10:10</td>
<td>A crack propagation criterion for hydraulic fracturing based on gradient-enhanced brittle damage</td>
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<td>08:30</td>
<td>S04.01</td>
<td>Adaptive Particle Finite Element MEnthod (A-PFEM) in metal cutting processes</td>
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<td>08:30</td>
<td>S05.01</td>
<td>Modern Numerical Approaches to Quasiperiodic Oscillations</td>
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<td>08:30</td>
<td>S06.01</td>
<td>A Novel Approach to Gradient Plasticity: Dislocation and Disequilibrium Densities</td>
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<td>08:30</td>
<td>Characterization of magnetoactive elastomers - particles movement and</td>
<td>Markus Kästner</td>
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<td>interparticle interaction caused by magnetization process</td>
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<td>M. Schliephake, A. Dobrosedova, S. Kantorovich, S. Odenbach</td>
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<td>Influence of the particle size on the magnetorheological effect of</td>
<td>J. Schröder, M. Labusch, L. Scheunemann, S. Maike</td>
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<td>M. Schümann, J. Winger, S. Odenbach</td>
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<td>09:10</td>
<td>A Macroscopic Model for Magneto-active Elastomers based on Microscopic</td>
<td>K. A. Kalina, P. Metsch, J. Brummond, M. Kästner</td>
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<td>Field-Induced Interactions in Magneto-Active Elasomers - A Comparison of</td>
<td>I. Valizadeh, O. Weeger</td>
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<td>P. Metsch, K. Kalina, J. Brummond, M. Kästner</td>
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<td>09:50</td>
<td>Modeling and analysis of magneto-elastic coupling using IGA</td>
<td>W. Sun, D. Juhre</td>
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<td>M. Harutyunyan, S. Schöps</td>
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<td>10:10</td>
<td>Development of macroscale constitutive model for porous magnetoactive</td>
<td>J. Görthofer, M. Schneider, F. Ospald, A. Hrymak, T. Böhlke</td>
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<td>polymers using a computational homogenization approach</td>
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<td>P. Gebhart, T. Wallmersperger</td>
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<td>08:30</td>
<td>Remarks on homogenization techniques in solid mechanics</td>
<td>Dietmar Gallistl</td>
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<td>J. Schröder, M. Labusch, L. Scheunemann, S. Maike</td>
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<td>Influence of Micro-Inertia on the Macroscale - A Fully-Coupled Direct</td>
<td>E. Tamsen, D. Balzani</td>
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<td>Homogenization Framework for Dynamics</td>
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<td>09:30</td>
<td>Investigation of instabilities due to growth of an elastic film on a</td>
<td>T. Starick, D. O. Lignell, H. Schmidt</td>
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<td>heterogeneous, microstructured substrate: analytical and computational</td>
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<td>09:50</td>
<td>On Spray Modeling with Quadrature-Based Moment Methods</td>
<td>M. Pütz, M. Pollack, C. Hasse, M. Oevermann</td>
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<td>M. Sroka, J. Reiss</td>
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<td>10:10</td>
<td>Full-field homogenization of sheet molding compound composites based on</td>
<td>J. Görthofer, M. Schneider, F. Ospald, A. Hrymak, T. Böhlke</td>
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<td>An adaptive multiresolution framework applied to turbulent compressible</td>
<td>M. Sroka, J. Reiss</td>
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<td>Time</td>
<td>Session A: Bubbles</td>
<td>Session B: Methods in flow control</td>
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| 08:30 | Modeling and simulation of mass-transfer across fluid interfaces  
D. Bothe, A. Weiner | Towards Real-Time Simulation Of Complex Multiphysical Systems  
J. N. Fuhr, C. Böhm, P. Wriggers | Nonlocal-to-local convergence of Cahn-Hilliard equations  
E. Davoli, H. Ranetbauer, L. Scarpa, L. Trussardi |
| 08:50 | Cahn-Hilliard Navier-Stokes Approaches for the Simulation of Immiscible Free-Surface Flows  
N. Kühl, M. Hinze, T. Rung | Sharp Interface Limits with constant Contact Angle unequal 90° - Model Problems  
H. Abels, M. Moser |
| 09:10 | Predicting laser-induced cavitation near a solid substrate  
F. Denner, F. Evrard, F. Reuter, S. R. Gonzalez-Avila, B. van Wachem, C. Ohl | Towards mode-based model order reduction for flows featuring sharp fronts with complex dynamics  
P. Krah, J. Reiss | Weak-strong uniqueness and stability of evolutions for multi-phase mean curvature flow  
J. Fischer, S. Hensel, T. Laux, T. Simon |
| 09:30 | The rising bubble benchmark revisited  
S. Neumann, R. Schwarze | A new volume penalization for strongly compressible flows  
J. Reiss, M. Lemke | Convergence of Ginzburg-Landau approximations to certain complex fluid models  
J. Kortum |
| 09:50 | Experimental investigations on rising bubbles in vertical capillaries  
S. Grünendahl, D. M. Brandner, P. Ehrhard | Coupled Optimization of Airfoil Shape and Suction Boundary Layer for Hybrid Laminar Flow Control Application  
A. Sudhi, D. Kristopher, C. Badrya | Recent analytical developments on the dynamics of nematic liquid crystals  
F. De Anna |
| 10:10 | | The waiting time phenomenon in a Lagrangian discretization  
J. Fischer, D. Matthes |
### Contributed Sessions

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| **08:30** | **S15.01** Machine Learning and Inverse Problems  
Chair: Andera Barth                                                                 | Georg-Forster-Straße 4 - Seminarraum 0005 |                          |
|       | Bayesian parameter estimation for highly nonlinear problems  
J. Vondrejc, H. G. Matthies                                                                 |                                   |                        |
| **08:50** | **S16.01** A Reformulation Technique for Nonlinear Bilevel Programs Based on Sequential Quadratic Programming  
K. Schäfer, J. Fliege, K. Flaßkamp, C. BÜskens | Georg-Forster-Straße 4 - Seminarraum 1004  | Roland Herzog          |
|       | Detecting jumps in a jump-discontinuous random field using deep neural networks  
B. Maboudi, A. Barth                                                                 |                                   |                        |
| **09:10** | **S17.01** A Deep Learning Framework for an Uncertain Full-Field Homogenization Method  
A. Henkes, I. Caylak, R. Mahnken                                                                 | Georg-Forster-Straße 4 - Seminarraum 2004  | John William Pearson  |
|       | Mixed-integer programming based truss topology optimization of large-scale lattice structures for additive manufacturing  
C. Reintjes, U. Lorenz                                                                 |                                   |                        |
| **09:30** | **S15.01** A neural network-based ensemble filter for non-linear data assimilation  
T. Hoang, H. G. Matthies                                                                 |                                   |                        |
|       | Preferable Minima in Nonlinear Optimization: Definition and Algorithmic Approaches  
I. Mykhailiuk, K. Schäfer, K. Flaßkamp, C. BÜskens                                                                 |                                   |                        |
| **09:50** | **S16.01** Infeasibility of Convexified Pointwise Mixed Constraints for Weak Integer Control Approximations  
P. Manns                                                                 |                                   |                        |
|       | Chance-constrained optimal control of a gas-to-power system  
K. Lux, S. Göttlich, O. Kolb                                                                 |                                   |                        |
| **10:10** | **S17.01** Influence of geometrical variation on mechanical properties of fibrous paper materials: a multivariate regression analysis  
B. Lin, Y. Bai, P. Stein, B. Xu                                                                 |                                   |                        |
|       | Model Reduction for Optimal Control of Water Networks  
M. C. Steinbach, S. Grundel, P. Mlinaric                                                                 |                                   |                        |
|       | GR decompositions and their relations to Cholesky-like factorizations  
C. Penke, P. Benner                                                                 |                                   |                        |

*Particular, worst and average cases in the analysis of Krylov subspace methods*  
J. Liesen
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<td>08:30</td>
<td>S18.01</td>
<td>Concepts in the Finite Element Method</td>
<td>Chair: Christoph Lehrenfeld</td>
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<td>Diagonale 5 - Hörsaal 3</td>
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<td>08:30</td>
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<td>The maximal angle condition on finite elements - useful or not?</td>
<td>T. Apel, L. Eckardt, C. Haubner, V. Kempf</td>
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<td>08:50</td>
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<td>Efficient methods for VI constrained shape optimization using adjoints</td>
<td>K. Welker</td>
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<td>09:10</td>
<td>S19.01</td>
<td>Shape and Topology Optimization</td>
<td>Chair: Constantin Christof, Johannes Pfeffer</td>
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<td>09:10</td>
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<td>Topological Derivative subject to 3D Nonlinear Magnetostatics</td>
<td>P. Gangl, K. Sturm</td>
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<td>09:30</td>
<td>S20.01</td>
<td>Model Predictive Control and Learning</td>
<td>Chair: Moritz Schulze Darup</td>
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<td>09:30</td>
<td></td>
<td>Learning-Based Model Predictive Control for Multi-Agent Systems using</td>
<td>M. A. Müller</td>
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<td>Gaussian Processes</td>
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<td>Comparison of Model Predictive and Graph Algebraic Approaches to</td>
<td>H. Ebel, P. Eberhard</td>
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<td>Distributed Formation Control</td>
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<td>Symbolic evaluation of <em>hp</em>-FEM element matrices on simplices</td>
<td>T. Haubold, V. Pillwein, S. Beuchler</td>
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<td>Continuous Differentiability of the Value Function of Semilinear</td>
<td>B. P. Sembukutti Liyanage</td>
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<td>Parabolic Problems Subject to Control Constraints</td>
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<td>Nonlinear Model Predictive Control and Online Parameter Identification</td>
<td>M. Runge, K. Flaßkamp, C. Büskens</td>
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<td>of an Idealized Robotic Manipulator</td>
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<td>On safety issues of reinforcement learning</td>
<td>P. Osinenko, L. Beckenbach, T. Gohrt, S. Streif</td>
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<td>08:30</td>
<td>Transport metrics in signal and image processing</td>
<td>Some glimpses in the history of beam and plate theories</td>
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<td>D. Lorenz</td>
<td>R. Kienzler</td>
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<td>09:10</td>
<td>Assignment Flow For Order-Constrained OCT Segmentation</td>
<td>The Invention of the Eigenstress Calculation in Plasticity by Heinrich Hencky</td>
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<td>D. Sitenko, B. Boll, C. Schnörr</td>
<td>O. T. Bruhns</td>
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<td>Self-Assignment Flows for Unsupervised Data Labeling on Graphs</td>
<td>On the History of Gradient Materials</td>
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<td>M. Zisler, A. Zern, B. Boll, S. Petra, C. Schnörr</td>
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<td>Explicitly constrained robust PCA for groupwise image registration</td>
<td>Numerical methods in Jost Bürgi’s “Coss“</td>
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<td>R. Haase, S. Heldmann, J. Lellmann</td>
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<td>10:10</td>
<td>Structured Low-Rank Approximation of Hankel Matrices</td>
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<td>H. Knirsch, G. Plonka</td>
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<td>Time</td>
<td>MS1: Computational Photonics</td>
<td>MS2: Symbolic computation methods of differential equations, dynamical systems, and control theory</td>
<td>MS3: Dissipativity, Turnpikes, and Optimal Control</td>
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| 14:00 | Current Challenges in Nano-Photonic Simulations  
C. Rockstuhl | On the relationship between Ritt and Kolchin differential algebra and tropical differential geometry  
F. Boulier | Dissipativity in economic model predictive control: beyond steady-state optimality  
M. A. Müller |
| 14:20 | Modeling and Simulation of the dynamics in semiconductor lasers  
U. Bandelow | | Economic MPC without terminal constraints: Gradient-correcting end penalties enforce asymptotic stability  
M. Zanon, T. Faulwasser |
| 14:40 | Numerical methods for resonance phenomena in nanophotonics  
F. Binkowski, F. Betz, M. Hammerschmidt, P. Schneider, L. Zschiedrich, S. Burger | The parameter region of multistationarity of the dual phosphorylation cycle  
E. Feliu | Storage functions for differential-algebraic equations  
T. Reis, F. Haller, M. Voigt |
| 15:00 | Simulation of quantum cascade lasers  
C. Jirauschek | Critical parameters for the reduction of CRN  
S. Walcher | Turnpike in optimal shape design  
G. Lance, E. Trélat, E. Zuazua |
| 15:20 | Numerical Modelling of III-Nitride Light Emitting Diodes  
F. Römer, B. Witzigmann | Algorithmic Approach to Strong Consistency Analysis of Finite Difference Approximations to PDE Systems  
D. Robertz | Turnpike structures for the solutions of optimal control problems with objective functions of tracking type  
M. Gugat |
| 15:40 | Ray tracing in thermally loaded solid-state laser crystals  
P. L. Rall, C. Pflaum | Symbolic computation for linear operators with matrix coefficients  
G. Regensburger, C. G. Raab, J. Hossein Poor | On the Relation of Velocity Turnpikes and Motion Primitives in Optimal Control of Mechanical Systems  
T. Faulwasser, K. Flaßkamp, S. Ober-Blöbaum, K. Worthmann |
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<td>14:00</td>
<td>Energy balance from thermomechanical characterization: new insights to revisit the deformation mechanisms in rubbers</td>
<td>J. LE CAM</td>
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<td>14:20</td>
<td>Experimental study on cavitation in rubber vulcanizates subjected to constrained tensile deformation</td>
<td>E. Euchler, R. Bernhardt, S. Wießner, G. Heinrich, F. Wilde, M. Schwartzkopf, T. Tada</td>
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<td>14:40</td>
<td>Mechanics of multiple network elastomers</td>
<td>V. N. Khiém, M. Itskov</td>
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<td>15:00</td>
<td>Fracture simulation of fibre reinforced polymers by the phase-field approach</td>
<td>B. Yin, M. Kaliske</td>
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<td>15:20</td>
<td>Experimental investigation and modelling of photopolymers for additive manufacturing processes</td>
<td>T. Rehbein, A. Lion, M. Johlitz</td>
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<td>15:40</td>
<td>Accelerating the distance-minimizing method with adaptive hyperparameters for data-driven elasticity problems</td>
<td>L. T. K. Nguyen, R. Can Aydin, C. J. Cyron</td>
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<tr>
<td>14:00</td>
<td>Reliable simulation techniques in solid mechanics.</td>
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<td>Chair: Jörg Schröder, Thomas Wick</td>
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<td>14:00</td>
<td>Virtual Element Formulation for Finite Strain Elastodynamics</td>
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<td>M. Cihan, F. Aldakheel, B. Hudobivnik, P. Wriggers</td>
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<td>14:20</td>
<td>Weakly symmetric stress equilibration for hyperelastic material models</td>
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<td>F. Bertrand, M. Moldenhauer, G. Starke</td>
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<td>14:40</td>
<td>Stochastic modelling of tensor fields</td>
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<td>S. K. Shivanand, B. Rosic, H. Matthies</td>
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<td>14:40</td>
<td>Robust Recovery of Sparse Nonnegative Mixtures of Covariance Matrices</td>
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<td>P. Jung</td>
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<td>15:00</td>
<td>Adaptive numerical simulation of quasi-static phase-field fractures</td>
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<td>M. Walloth, K. Mang, T. Wick, W. Wollner</td>
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<td>15:20</td>
<td>A Discussion of Finite Element Discretizations for Fracture Phase Field Models</td>
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<td>R. Müller, D. Olesch, A. Schlüter, C. Kuhn</td>
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<td>15:40</td>
<td>Adaptive isogeometric phase-field modelling - diffuse heterogeneities, fracture, and structural optimization</td>
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<td>M. Kästner, P. Hennig, L. Heindel, A. C. Hansen-Dörr</td>
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<td>15:00</td>
<td>Compressed sensing in information processing (CoSIP)</td>
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<td>Chair: Robert J. Kunsch</td>
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<td>Arnold-Bode-Straße 12 - Hörsaal 5</td>
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<td>15:00</td>
<td>Constructing approximate spherical t-designs</td>
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<td>T. Fuchs, F. Krahmer</td>
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<td>15:20</td>
<td>RadioUNet: Fast Radio Map Estimation with Convolutional Neural Networks</td>
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<td>R. Levie, C. Yapar, G. Kutyniok, G. Caire</td>
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<td>15:40</td>
<td>Lagrangian analysis of long-term dynamics of turbulent superstructures in Rayleigh-Bénard convection using evolutionary spectral clustering</td>
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<td>C. Schneider, K. Padberg-Gehle, J. Schumacher</td>
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<td>15:00</td>
<td>Turbulent Superstructures</td>
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<td>Chair: Jörg Schumacher</td>
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<td>15:00</td>
<td>How does filtering change the perspective on the scale-energetics of the near-wall cycle?</td>
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<td>M. Avila, D. Feldmann, A. von Kameke</td>
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<td>15:20</td>
<td>Introduction to the Priority Programme on Turbulent Superstructures</td>
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<td>J. Schumacher</td>
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<td>15:40</td>
<td>On the difficulties on applying optical measurement techniques to Rayleigh-Bénard convection</td>
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<td>15:40</td>
<td>Time Resolved PIV for Pipe Flow Structure at shear Reynolds Number of $Re_{\tau} &lt; 5000$</td>
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<td>15:40</td>
<td>Turbulent superstructures in turbulent boundary layers at high Reynolds and Mach numbers</td>
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<td>M. Bross, C. J. Kähler</td>
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<td>14:00</td>
<td>A data-driven FEM approach to problems with uncertain material data K. Weinberg, T. Korzeniowski</td>
<td>Limit cycle computation of self-excited dynamic systems using nonlinear modes S. Tatzko, M. Stender, M. Jahn, N. Hoffmann</td>
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<td>14:40</td>
<td>Efficient domain decomposition based reliability analysis for polymorphic uncertain material parameters A. Schmidt, T. Lahmer</td>
<td>Extension of an analytical solution of a unified plate formulation to the frequency response of composite plates with viscoelastic layers A. Jackstadt, L. Kärger</td>
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<td>15:00</td>
<td>Optimization of additively manufactured polymer scaffolds for bone tissue engineering P. Dondl</td>
<td>An approach for the determination of compression-dependent viscoelastic shear material properties for a broad range of excitation parameters P. Kostka, T. Ehrig, N. Modler, K. Holeczek</td>
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<td>15:20</td>
<td>Optimization of Glulam Beams with Spatial Dependent Polymorphic Uncertainty Modeling of Structural Inhomogeneity F. N. Schietzold, W. Graf, M. Kaliske</td>
<td>Active Damping of Thin Film Shape Memory Alloy Devices S. Ahmad, K. Jacob, F. Wendler, M. Kohl</td>
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## DFG-PP 2020

**Cyclic deterioration of high-performance concrete in an experimental-virtual lab**

Chair: Stefan Löhner, Fadi Aldakheel, Johannes Storm

Arnold-Bode-Straße 12 - Hörsaal 6

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| 14:00  | A micro-to-meso scale modelling of cement-based composite materials subject to fatigue loads  
D. Schicchi, A. Caggiano, S. Harenberg, S. Yang, V. Malarics-Pfaff, M. Pahn, F. Dehn, E. Koenders |
| 14:20  | Numerical simulation of the fatigue behaviour of UHPC under consideration of load-induced temperature fields  
N. L. Tran, M. Deutscher, S. Scheerer |
| 14:40  | Numerical investigation of influence of frictional sliding and crack roughness on development of hysteresis during cyclic loading of concrete  
V. Gudzulic, J. J. Timothy, G. Meschke |
| 15:00  | Simulating 3D crack propagation with xfem to investigate failure mechanism in High Strength concrete  
R. Patel, S. Loehnert |
| 15:20  | Modelling and analysis of steel fiber reinforced high performance concrete using ellipsoidal unit cell  
M. Pise, D. Brands, G. Gebuhr, M. Sarhil, J. Schröder, S. Anders |
| 15:40  | Phase-field Fracture with Representative Crack Elements at Finite Deformations  
J. Storm, M. Kaliske |
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<td><strong>S01.02</strong></td>
<td>Dynamics of Rods</td>
<td>Kristin Miriam de Payrebrune</td>
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<td><strong>S02.02</strong></td>
<td>TPM &amp; brain</td>
<td>Tim Ricken</td>
<td>Campus Center - Hörsaal 6</td>
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<td><strong>S03.02</strong></td>
<td>Recent developments in phase-field modeling of fracture</td>
<td>Ralf Müller</td>
<td>Arnold-Bode-Straße 12 - Hörsaal 4</td>
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<td>16:30</td>
<td>S04.02</td>
<td>Application of the compressed adaptive integration scheme to the polygonal version of the finite cell method</td>
<td>M. Petö, F. Duvigneau, D. Juhre, S. Duczek</td>
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<td>S05.02</td>
<td>Dynamics of a magnetic pendulum in the presence of an oscillating conducting plate</td>
<td>T. Boeck, T. I. Becker, S. L. Sanjari</td>
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<td>A primal-dual interior point algorithm for single crystal plasticity</td>
<td>L. Scheunemann, P. S. Nigro, J. Schröder, P. M. Pimenta</td>
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<td>16:50</td>
<td>S04.02</td>
<td>Curl-free finite elements for gradient-enhanced formulations at finite strains.</td>
<td>J. Riesselmann, D. Balzani, J. Ketteler, M. Schiedensack</td>
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<td>S05.02</td>
<td>Damping based on electromagnetic induction: A comparison of different minimal model</td>
<td>M. Rosenboom, H. Hetzler</td>
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<td>On the algorithmic formulation of local and non-local crystal plasticity models</td>
<td>V. Fohrmeister, J. Mosler</td>
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<td>17:10</td>
<td>S04.02</td>
<td>Increasing Robustness of Large Deformation EAS elements in Newton-Raphson Iterations</td>
<td>R. Pfefferkorn, S. Bieber, B. Oesterle, P. Betsch, M. Bischoff</td>
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<td>S05.02</td>
<td>SBFEM solution of the Reynolds equation</td>
<td>S. Pfeil, H. Gravenkamp, F. Duvigneau, E. Woschke</td>
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<td>Gradient-extended crystal inelasticity with a coupling of a microtractions and decohesion model</td>
<td>L. Spanraft, M. Ekh, F. Larsson, K. Runesson, P. Steinmann</td>
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<td>17:30</td>
<td>S04.02</td>
<td>Investigation of the influence of anisotropy on the hourglass stabilization of solid-shell formulations with reduced integration in the finite strain regime</td>
<td>H. Holthusen, J. Simon, S. Reese</td>
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<td>S05.02</td>
<td>Experiments of sloshing water exhibit Duffing dynamics</td>
<td>K. Avila, B. Bäuerlein</td>
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<td>Phase-field modelling and simulation of the evolution of twelve crystallographic martensite variants in austenitic parent grains</td>
<td>M. Graf, M. Kuntz, H. Autenrieth, F. Diewald, R. Müller</td>
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<td>17:50</td>
<td>S06.02</td>
<td>Local Refinement in Isogeometric Analysis of Complex Tire Models</td>
<td>A. Israfilova, M. Garcia, M. Kaliske</td>
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<td>S05.02</td>
<td>Hopf bifurcations for an oversteer vehicle - the influence of wheel load changes</td>
<td>A. Steindl, J. Edelmann, M. Plöchl</td>
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<td>Numerical study of shear bands formation in a 3D-printed Zr-based bulk metallic glass under uniaxial loading</td>
<td>J. Shi, S. Ma, B. Markert</td>
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<td>18:10</td>
<td>S06.02</td>
<td>Non-Linear Vehicle Dynamics with Multiplicative Road Models</td>
<td>W. V. Wedig</td>
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<td>Virtual element method for finite strain crystal-plasticity</td>
<td>C. Böhm, F. Aldakheel, P. Wriggers</td>
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### Contributed Sessions

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<td>16:30</td>
<td>A fully coupled two-phase bone material model</td>
<td>M. Blaszczyk, K. Hackl</td>
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<td>16:50</td>
<td>Numerical investigation on opening mechanisms of mussel-shaped micro soft robots</td>
<td>W. Huang, K. de Payrebrune</td>
<td>Campus Center - Hörsaal 5</td>
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<td>17:10</td>
<td>Numerical modelling of electro-viscoelasticity for fibre reinforced electro-active polymers.</td>
<td>A. Kanan, M. Kaliske</td>
<td>S07.02</td>
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<td>17:30</td>
<td>A Finite Element approach based on the Condensed Method: an efficient concept to integrate multiscale constitutive laws into numerical discretization schemes</td>
<td>R. Wakili, S. Lange, A. Ricoeur</td>
<td>S08.02</td>
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<td>17:50</td>
<td>Numerical Homogenization of Heterogeneous Fractional Laplacians</td>
<td>D. L. Brown, J. Gedike, D. Peterseim</td>
<td>S10.02</td>
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<tr>
<td>18:10</td>
<td>Numerical stochastic homogenization by quasilocal effective diffusion tensors</td>
<td>D. Gallistl, D. Peterseim</td>
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</table>

**S07.02**
Electro-Magnetic Actuation of Materials and Structures  
Chair: Ursula Kowalsky

**S08.02**  
Chair: Malte A. Peter

**S10.02**  
Chair: Sven Eckert

**Introduction to numerical homogenization of PDEs with arbitrary rough coefficients**  
D. Peterseim

**Numerical Homogenization by quasilocal effective diffusion tensors**  
D. Gallistl, D. Peterseim

**Superstructures in Rayleigh-Bénard turbulence**  
D. Krug
<table>
<thead>
<tr>
<th>Time</th>
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<th>Title</th>
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<tr>
<td>16:30</td>
<td>Arnold-Bode-Straße 2 - Seminarraum 0409</td>
<td>S11.02</td>
<td>Droplets and Multiphase Flows</td>
<td>Markus Scholle, Helmut Abels, Dirk Peschka</td>
<td>Campus Center - Hörsaal 4</td>
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<td>S14.02</td>
<td>Sharp Interface Limits of Diffuse Interface Models for Two-Phase Flows</td>
<td>Daniel Matthes</td>
<td>Georg-Forster-Straße 4 - Seminarraum 0005</td>
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<td>S15.02</td>
<td>Analysis of a hybrid model for the electrothermal behavior of semiconductor devices</td>
<td>H. Abels, A. Marquardt</td>
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<td>On the entropy method for a drift-diffusion model with trap-assisted recombination and self-consistent potential</td>
<td>K. Fellner, M. Kniely</td>
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<td>16:50</td>
<td>Arnold-Bode-Straße 2 - Seminarraum 0409</td>
<td></td>
<td>Evaluation of Lagrangian Particle Information from VOF Simulation Data</td>
<td>A. Spitzenberger, S. Neumann, R. Schwarze</td>
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<td>Campus Center - Hörsaal 4</td>
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<td>Coarse-graining via EDP-convergence for linear fast-slow reaction-diffusion systems</td>
<td>A. Stephan</td>
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<td></td>
<td>Georg-Forster-Straße 4 - Seminarraum 0005</td>
<td></td>
<td>Importance sampling for a robust and efficient multilevel Monte Carlo estimator for stochastic reaction networks</td>
<td>C. Ben Hammouda, N. Ben Rached, R. Tempone</td>
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<td>17:10</td>
<td>Arnold-Bode-Straße 2 - Seminarraum 0409</td>
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<td>Self-similar spreading with dynamic contact angles</td>
<td>D. Peschka, M. Gnann, L. Giacomelli</td>
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<td>Campus Center - Hörsaal 4</td>
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<td>Segregation and Gap Formation in Cross-Diffusion Models</td>
<td>J. Pietschmann, M. Burger, J. A. Carrillo, M. Schmidtchen</td>
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<td>17:30</td>
<td>Arnold-Bode-Straße 2 - Seminarraum 0409</td>
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<td>Arnold-Bode-Straße 2 - Seminarraum 0409</td>
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<td>Space-Time Sobolev Regularity for the Porous Medium Equation</td>
<td>L. M. Kreusser</td>
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<td>Arnold-Bode-Straße 2 - Seminarraum 0409</td>
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<td>Equilibria of an anisotropic, nonlocal aggregation equation</td>
<td>V. Reshniak, Y. Melnikov</td>
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<td>Campus Center - Hörsaal 4</td>
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<td>Method of Green’s potentials for elliptic PDEs in domains with random boundaries</td>
<td>V. Reshniak, Y. Melnikov</td>
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<td>S16.02</td>
<td>Georg-Forster-Straße 4 - Seminarraum 1004</td>
<td>Kathrin Welker</td>
<td>A finite differences approach for optimization of gas networks S. Hossbach, M. Lemke, J. Reiss</td>
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<td>16:30</td>
<td>S17.02</td>
<td>Georg-Forster-Straße 4 - Seminarraum 2004</td>
<td>Kathryn Lund</td>
<td>Optimization of a partial differential equation on a complex network M. Stoll, M. Winkler</td>
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<td>16:50</td>
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<td>Model adaptation of hyperbolic balance laws J. Giesselmann, H. Joshi</td>
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<td>17:10</td>
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<td>A combinatorial framework for Mixed-integer optimal control problems F. Bestehorn, C. Kirches</td>
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<td>17:10</td>
<td>S16.02</td>
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<td>Krylov Subspace Recycling for Shape Optimization on Structured Meshes C. Hahn, M. Bolten, E. de Sturler</td>
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<td>High order well-balanced scheme for hyperbolic balance laws Y. Mantri, M. Herty, S. Noelle</td>
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<td>A New Hybrid Optimization Technique for Point Clouds Registration G. G. Yacout Gadallah, M. K. Shoukry</td>
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<td>17:30</td>
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<td>Fast Solvers and Multilevel Circulant Preconditioners for Fractional Differential Equation Constrained Optimization J. W. Pearson, S. Pougkakiotis, S. Leveque, J. Gondzio</td>
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<td>17:30</td>
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<td>Fluxes on the mesoscopic level: Boltzmann vs. BGK models H. K. Babovsky</td>
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<td>17:30</td>
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<td>Frequency-weighted damping via non smooth optimization and fast computation of QEPs N. Jakovcevic Stor, T. Mitchell, M. Puvaca, Z. Tomljanovic</td>
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<td>17:30</td>
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<td>Numerics of gas pipeline networks S. M. Grundel</td>
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<td>17:50</td>
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<td>Towards the optimization of fuzzy pattern trees by abs-linearization A. Walther, E. Hüllermeier</td>
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<td>Analysis and numerical solution of an optimal control problem arising in non-Newtonian fluid mechanics C. Christof, M. Winkler, R. Herzog</td>
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<td>Numerical methods to solve non-local conservation laws for material flow problems S. Göttlich</td>
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<td>Implicit methods for district heating networks M. Eimer, R. Borsche, N. Siedow</td>
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<td>Variational discretization of a parabolic optimal control problem with sparse initial data E. Herberg, M. Hinze</td>
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<td>Structure-preserving discretization of a port-Hamiltonian formulation of the non-isothermal Euler equations S. Hauschild, N. Marheineke</td>
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<td>Time</td>
<td>S18.03: Surface PDEs and unfitted discretizations</td>
<td>S19.02: Non-smooth Systems</td>
<td>S20.02: Model Order Reduction and System Identification</td>
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<td>16:30</td>
<td>Liquid crystals on deformable surfaces</td>
<td>A proximal gradient method for control problems with non-smooth and non-convex control cost</td>
<td>Structure-Preserving Model Reduction for Bilinear Systems</td>
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<td>A. Voigt</td>
<td>C. Natemeyer</td>
<td>P. Benner, S. W. R. Werner</td>
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<td>16:50</td>
<td>A trace finite element method for Allen-Cahn equation on evolving surfaces</td>
<td>Analysis of Optimal Control Problems with an $L^0$ Term in the Cost Functional</td>
<td>Model Reduction of Differential-Algebraic Systems by Parameter-Dependent Balanced Truncation</td>
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<td>M. Olshanskii, V. Yushutin, X. Xu</td>
<td>D. Wachsmuth</td>
<td>J. Fraybilla, M. Voigt</td>
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<td>17:10</td>
<td>$\phi$-FEM: a finite element method on domains defined by level-sets</td>
<td>Structure Exploitation (not only) for PDE Constrained Nonsmooth Optimization</td>
<td>AAA-inspired systems-theoretic model reduction for linear dynamical systems</td>
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<td>M. Duprez, V. Lleras, A. Lozinski</td>
<td>O. Weiß, A. Walther, S. Schmidt</td>
<td>I. V. Gosea, S. Gugercin, C. Beattie</td>
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<td>17:30</td>
<td>Optimal Control of Perfect Plasticity</td>
<td>Optimal Control of Perfect Plasticity</td>
<td>The missing link between the output and the H2-norm of bilinear systems</td>
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<td>C. Meyer, S. Walther</td>
<td>C. Meyer, S. Walther</td>
<td>M. Redmann</td>
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<td>17:50</td>
<td>A subgrid-scale boundary layer model following from the unif. of Nitsche’s method and var. multiscale analysis</td>
<td>Second-order optimality conditions of an optimal control problem governed by a regularized phase-field fracture propagation model</td>
<td>Identification of Second-Order Systems from Frequency Response Data</td>
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<td>18:10</td>
<td>A Particle Method without Remeshing</td>
<td>Optimal control of the drift in Fokker-Planck equations</td>
<td>Data-Driven Identification of Dynamical Systems with Hard (non-trivial, strong) Nonlinearities</td>
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<td>M. Kirchhart, C. Rieger</td>
<td>H. Meinlschmidt, K. Kunisch</td>
<td>D. S. Karachalios, I. V. Gosea, A. C. Antoulas</td>
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<td>16:30</td>
<td><strong>S21.02</strong>&lt;br&gt;Super-resolution of points and curves&lt;br&gt;S. Kunis</td>
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<td><strong>S24.02</strong>&lt;br&gt;On the History of Mechanics in St. Petersburg/Petrograd/Leningrad&lt;br&gt;H. Altenbach</td>
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<td>17:10</td>
<td><strong>S21.02</strong>&lt;br&gt;Reconstruction Using Generalized Shift Operators and Prony's Method&lt;br&gt;I. Keller, G. Plonka, K. Stampfer</td>
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<td><strong>S24.02</strong>&lt;br&gt;Plasticity, Viscosity, Tenacity - Remarks on the bitter Forbes - Tyndall Controversy&lt;br&gt;D. Gross</td>
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<td>17:30</td>
<td><strong>S21.02</strong>&lt;br&gt;Deterministic sparse and stable FFT for M-sparse vectors&lt;br&gt;T. von Wulffen</td>
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<td><strong>S24.02</strong>&lt;br&gt;The legacy of Coulomb and Amontons and generalized laws of friction&lt;br&gt;E. Popova, V. L. Popov</td>
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<td>17:50</td>
<td><strong>S21.02</strong>&lt;br&gt;Efficient multivariate approximation on the cube&lt;br&gt;R. Nasdala, D. Potts</td>
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<td><strong>S24.02</strong>&lt;br&gt;Selected historical aspects of wave phenomena in the context of dynamical systems, and applications in seamless learning&lt;br&gt;R. Gunesch</td>
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<td>18:10</td>
<td><strong>S21.02</strong>&lt;br&gt;Efficient multivariate inversion of the nonequispaced fast Fourier transform&lt;br&gt;M. Kircheis, D. Potts</td>
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<td>08:30</td>
<td><strong>Contributed Sessions</strong></td>
<td>lecture rooms</td>
<td>15 parallel sessions, page 92 - 96</td>
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<tr>
<td>09:30</td>
<td><strong>Coffee Break and Poster Session</strong></td>
<td>Ground Floor</td>
<td>Refreshment including coffee, tea, soft drinks, fruits, and biscuits</td>
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<td>Campus Center</td>
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<td>10:30</td>
<td><strong>Richard von Mises Prize Lecture</strong></td>
<td>Hörsaal 1</td>
<td>To be announced</td>
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<td>Campus Center</td>
<td>Chaired by (to be announced)</td>
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<tr>
<td>11:45</td>
<td><strong>GAMM General Assembly</strong></td>
<td>Hörsaal 1</td>
<td>For GAMM members only</td>
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<td>Campus Center</td>
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<td>13:00</td>
<td><strong>Lunch</strong></td>
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<td>Information about lunch options is available on page 48</td>
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<td>13:00</td>
<td><strong>YAMM Lunch</strong></td>
<td>Gießhaus</td>
<td>YAMM: Career Opportunities for Young Academics</td>
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<td>separate registration required, booked out</td>
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<td>14:00</td>
<td><strong>Contributed Sessions</strong></td>
<td>lecture rooms</td>
<td>22 parallel sessions, page 98 - 105</td>
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<td>16:00</td>
<td><strong>Coffee Break</strong></td>
<td>Ground Floor</td>
<td>Refreshment including coffee, tea, soft drinks, fruits, and biscuits</td>
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<td>16:30</td>
<td><strong>Contributed Sessions</strong></td>
<td>lecture rooms</td>
<td>22 parallel sessions, page 106 - 113</td>
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<td>19:00</td>
<td><strong>Conference Dinner</strong></td>
<td>Renthof</td>
<td>Conference speech by the local organizer: Andreas Meister</td>
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<td>Only for participants with a ticket, see page 42</td>
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| S02.03 | Constitutive modeling & parameter identification  
Chair: Arndt Wagner |
|------------------|--------------------------------------------------|
| Campus Center - Hörsaal 6 | 08:30 Inverse Identification of Material Properties of the Human Eye Using Optical Deformation Measurements  
S. Münch, M. Röllig, D. Balzani |
| S03.03 | Phase-field modeling of fracture in heterogeneous solids  
Chair: Marreddy Ambati |
| Campus Center - Hörsaal 4 | 08:50 Identification of mechanical models and parameters for alginate-based hydrogels as proxy materials for brain tissue  
S. Kaessmair, T. Distler, E. Schaller, A. Boccaccini, P. Steinmann, S. Budday |
| S04.03 | Data-driven approach  
Chair: Christian J. Cyron |
| Campus Center - Hörsaal 1 | 09:10 Identification of mechanical models and parameters for alginate-based hydrogels as proxy materials for brain tissue  
S. Münch, M. Röllig, D. Balzani |

| S02.03 | Constitutive modeling & parameter identification  
Chair: Arndt Wagner |
|------------------|--------------------------------------------------|
| Campus Center - Hörsaal 6 | 08:30 Inverse Identification of Material Properties of the Human Eye Using Optical Deformation Measurements  
S. Münch, M. Röllig, D. Balzani |
| S03.03 | Phase-field modeling of fracture in heterogeneous solids  
Chair: Marreddy Ambati |
| Campus Center - Hörsaal 4 | 08:50 Identification of mechanical models and parameters for alginate-based hydrogels as proxy materials for brain tissue  
S. Kaessmair, T. Distler, E. Schaller, A. Boccaccini, P. Steinmann, S. Budday |
| S04.03 | Data-driven approach  
Chair: Christian J. Cyron |
| Campus Center - Hörsaal 1 | 09:10 Identification of mechanical models and parameters for alginate-based hydrogels as proxy materials for brain tissue  
S. Münch, M. Röllig, D. Balzani |

| S02.03 | Constitutive modeling & parameter identification  
Chair: Arndt Wagner |
|------------------|--------------------------------------------------|
| Campus Center - Hörsaal 6 | 08:30 Inverse Identification of Material Properties of the Human Eye Using Optical Deformation Measurements  
S. Münch, M. Röllig, D. Balzani |
| S03.03 | Phase-field modeling of fracture in heterogeneous solids  
Chair: Marreddy Ambati |
| Campus Center - Hörsaal 4 | 08:50 Identification of mechanical models and parameters for alginate-based hydrogels as proxy materials for brain tissue  
S. Kaessmair, T. Distler, E. Schaller, A. Boccaccini, P. Steinmann, S. Budday |
| S04.03 | Data-driven approach  
Chair: Christian J. Cyron |
| Campus Center - Hörsaal 1 | 09:10 Identification of mechanical models and parameters for alginate-based hydrogels as proxy materials for brain tissue  
S. Münch, M. Röllig, D. Balzani |

| S02.03 | Constitutive modeling & parameter identification  
Chair: Arndt Wagner |
|------------------|--------------------------------------------------|
| Campus Center - Hörsaal 6 | 08:30 Inverse Identification of Material Properties of the Human Eye Using Optical Deformation Measurements  
S. Münch, M. Röllig, D. Balzani |
| S03.03 | Phase-field modeling of fracture in heterogeneous solids  
Chair: Marreddy Ambati |
| Campus Center - Hörsaal 4 | 08:50 Identification of mechanical models and parameters for alginate-based hydrogels as proxy materials for brain tissue  
S. Kaessmair, T. Distler, E. Schaller, A. Boccaccini, P. Steinmann, S. Budday |
| S04.03 | Data-driven approach  
Chair: Christian J. Cyron |
| Campus Center - Hörsaal 1 | 09:10 Identification of mechanical models and parameters for alginate-based hydrogels as proxy materials for brain tissue  
S. Münch, M. Röllig, D. Balzani |

| S02.03 | Constitutive modeling & parameter identification  
Chair: Arndt Wagner |
|------------------|--------------------------------------------------|
| Campus Center - Hörsaal 6 | 08:30 Inverse Identification of Material Properties of the Human Eye Using Optical Deformation Measurements  
S. Münch, M. Röllig, D. Balzani |
| S03.03 | Phase-field modeling of fracture in heterogeneous solids  
Chair: Marreddy Ambati |
| Campus Center - Hörsaal 4 | 08:50 Identification of mechanical models and parameters for alginate-based hydrogels as proxy materials for brain tissue  
S. Kaessmair, T. Distler, E. Schaller, A. Boccaccini, P. Steinmann, S. Budday |
| S04.03 | Data-driven approach  
Chair: Christian J. Cyron |
| Campus Center - Hörsaal 1 | 09:10 Identification of mechanical models and parameters for alginate-based hydrogels as proxy materials for brain tissue  
S. Münch, M. Röllig, D. Balzani |

| S02.03 | Constitutive modeling & parameter identification  
Chair: Arndt Wagner |
|------------------|--------------------------------------------------|
| Campus Center - Hörsaal 6 | 08:30 Inverse Identification of Material Properties of the Human Eye Using Optical Deformation Measurements  
S. Münch, M. Röllig, D. Balzani |
| S03.03 | Phase-field modeling of fracture in heterogeneous solids  
Chair: Marreddy Ambati |
| Campus Center - Hörsaal 4 | 08:50 Identification of mechanical models and parameters for alginate-based hydrogels as proxy materials for brain tissue  
S. Kaessmair, T. Distler, E. Schaller, A. Boccaccini, P. Steinmann, S. Budday |
| S04.03 | Data-driven approach  
Chair: Christian J. Cyron |
| Campus Center - Hörsaal 1 | 09:10 Identification of mechanical models and parameters for alginate-based hydrogels as proxy materials for brain tissue  
S. Münch, M. Röllig, D. Balzani |
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<tr>
<td>08:30</td>
<td>S06.03</td>
<td>Campus Center - Hörsaal 2</td>
<td>Neural networks for structural optimisation of mechanical metamaterials</td>
<td>S. Bronder, S. Diebels, A. Jung</td>
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<td>08:30</td>
<td>S06.04</td>
<td>Arnold-Bode-Straße 12 - Hörsaal 5</td>
<td>Data-Driven Simulation of History-Dependent Materials Using Structured Data Sets and Tangential Transition Rules</td>
<td>K. Ciftci, K. Hackl</td>
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<td>08:30</td>
<td>S07.03</td>
<td>Diagonale 3 - Hörsaal 2</td>
<td>Variationally consistent framework to discretize higher-order imperfect interface models for thin layers with isogeometric cut fem</td>
<td>H.T. Nguyen, S.K.F. Stoter, S. Baranova, S.G. Mogilevskaya, D. Schillinger</td>
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<td>08:50</td>
<td>S06.03</td>
<td>Campus Center - Hörsaal 2</td>
<td>Applications of a hybrid approach to describe the elastic-plastic deformation behavior of foam like media involving neural networks</td>
<td>M. Abendroth, A. Malik, G. Hütter, B. Kiefer</td>
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<td>08:50</td>
<td>S06.04</td>
<td>Arnold-Bode-Straße 12 - Hörsaal 5</td>
<td>Study of stochastic aspects in the modeling of the strain-induced crystallization in unfilled polymers</td>
<td>S. Aygün, S. Klinge</td>
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<td>08:50</td>
<td>S07.03</td>
<td>Diagonale 3 - Hörsaal 2</td>
<td>An efficient method for multi-physical problems using coupled isogeometric boundary elements and finite elements.</td>
<td>M. P. Rajski, R. A. Sauer</td>
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<td>09:10</td>
<td>S06.03</td>
<td>Campus Center - Hörsaal 2</td>
<td>Constitutive Artificial Neural Networks</td>
<td>K. P. Abdolazizi, K. Linka, C. J. Cyron</td>
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<td>09:10</td>
<td>S06.04</td>
<td>Arnold-Bode-Straße 12 - Hörsaal 5</td>
<td>A thermodynamic framework for the constitutive modeling of viscoplasticity incorporating dynamic recrystallization at large strains</td>
<td>H. Westermann, R. Mahnken</td>
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<td>09:10</td>
<td>S07.03</td>
<td>Diagonale 3 - Hörsaal 2</td>
<td>Building models for coupled thermo elastic problems in different software architectures using a new model exchange format</td>
<td>S. Sauerzapf, A. Naumann, M. Beiltschmidt</td>
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<td>08:30</td>
<td>S08.03</td>
<td>Campus Center - Hörsaal 5</td>
<td>Towards the engineering design of metamaterials structures through micromorphic enriched continuum modeling</td>
<td>A. Madeo</td>
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<td>08:30</td>
<td>S08.04</td>
<td>Campus Center - Hörsaal 3</td>
<td>Multiscale modelling of the cyclic behavior of metallic materials with graded microstructure</td>
<td>J. A. Kuhn, P. Sonnweber-Ribic, M. Schneider, T. Böhlke</td>
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<td>08:30</td>
<td>S11.03</td>
<td>Arnold-Bode-Straße 2 - Seminarraum 0409</td>
<td>Phase Transition: Enthalpy-Porosity Method vs. Level-Set Method on 4D Simplex Space-Time Meshes</td>
<td>V. Karyofylli, B. Terschanski, J. Kowalski, M. Behr</td>
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<td>08:50</td>
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<td>Relaxed micromorphic modeling of finite-size mechanical metamaterials</td>
<td>G. Rizzi, P. Neff, A. Madeo</td>
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<td>08:50</td>
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<td>Simulation of granular filling material by means of particle methods for the application as crash absorber.</td>
<td>D. Müller, C. Woitzik, M. Dosta, A. Düster</td>
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<td>08:50</td>
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<td>Spin hydrodynamic voltage in capillary flow at low and high Reynolds numbers</td>
<td>H. Tabaei Kazerooni, J. Schumacher, C. Cierpka</td>
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<td>09:10</td>
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<td>Transparent relaxed micromorphic description of anisotropy in metamaterials</td>
<td>M. V. d’Agostino, A. Madeo, P. Neff</td>
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<td>09:10</td>
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<td>Simulation of absorption processes in nanoparticle catalysts</td>
<td>M. Köhler, P. Junker, D. Balzani</td>
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<td>09:10</td>
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<td>Asymptotics for a class of nonlinear magnetorheological composites</td>
<td>G. Nika, B. Vernescu</td>
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Wednesday, March 18, 08:30-09:30

**S14.03**  
Chair: Helmut Abels  
Campus Center - Hörsaal 4  
Ground states for the multiphase Canham-Helfrich functional  
K. Brazda, L. Lussardi, U. Stefanelli

**S15.03**  
Stochastic Analysis and Processes  
Chair: Andera Barth  
Georg-Forster-Straße 4 - Seminarraum 0005  
Strong convergence rates for space-time discrete numerical approximation schemes for stochastic Burgers equations  
M. Hutzenthaler, A. Jentzen, F. Lindner, P. Pusnik

**S18.04**  
Time discretization for PDEs  
Chair: Herbert Egger  
Diagonale 5 - Hörsaal 3  
Exponential Integrators for Semi-Linear Parabolic Problems with Linear Constraints  
C. Zimmer, R. Altmann

08:30

**S14.03**  
Ground states for the multiphase Canham-Helfrich functional  
K. Brazda, L. Lussardi, U. Stefanelli

08:50

**S15.03**  
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09:10

**S18.04**  
Exponential Integrators for Semi-Linear Parabolic Problems with Linear Constraints  
C. Zimmer, R. Altmann, R. Maier, B. Unger

**S15.03**  
Weak Error Rates for Option Pricing under the Rough Bergomi Model  
C. Bayer, E. J. Hall, R. Tempone

**S18.04**  
Semi-explicit discretization of elliptic-parabolic problems  
R. Altmann, R. Maier, B. Unger

**S14.03**  
The biharmonic Alt-Caffarelli Problem  
M. Mueller

**S15.03**  
Modeling of directional uncertainty using moments of the angular central Gaussian  
F. Ospald, R. Herzog

**S18.04**  
Evaluation and development of a spectral deferred correction method for convection-diffusion equations  
M. Grotteschi, J. Stiller

**S14.03**  
The Jordan-Moore-Gibson-Thompson equation of nonlinear acoustics: Well-posedness and singular limit for vanishing relaxation time  
B. Kaltenbacher, V. Nikolic
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<tr>
<td>08:30</td>
<td>The augmented embedded Markov chain: A sparse representation of nonautonomous Markov processes</td>
<td>A. Sikorski, M. Weber</td>
<td>Nora-Platien-Straße 6 - Seminarraum 0207</td>
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<td>08:50</td>
<td>A transfer operator based computational study of mixing processes in open flow systems</td>
<td>A. Klünker, K. Padberg-Gehle</td>
<td>Campus Center - Seminarraum 6</td>
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<td>09:10</td>
<td>A random attractor for the TASEP model</td>
<td>L. Grüne, T. Kriecherbauer, M. Margaliot</td>
<td>Seminaraum 0207</td>
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<td>Mixed-precision techniques for fast and guaranteed arithmetic in density-functional theory simulations</td>
<td>M. F. Herbst, A. Levitt, E. Cancès</td>
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<td>Waveform relaxation using asynchronous time-integration for coupled systems of PDEs</td>
<td>P. Meirsimel, P. Birken</td>
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<td>A 2D simulation framework to model sensitivity of impedance of a piezoelectric disk-shape ceramic</td>
<td>V. Schulze, B. Jurgelucks, N. Feldmann, A. Walther</td>
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### Contributed Sessions

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<tr>
<td>14:00</td>
<td><strong>S01.03</strong> Collision and Nonlinear Dynamics of Rigid Bodies</td>
<td>Kristin Miriam de Payrebrune</td>
<td>Campus Center - Seminarraum 2</td>
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<tr>
<td>14:20</td>
<td>An extended version of the Intermediate Axis Theorem for a freely rotating rigid body</td>
<td>R. I. Leine, G. Capobianco</td>
<td>Campus Center - Hörsaal 6</td>
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<tr>
<td>14:40</td>
<td>Spatial motion of a pendulum in a jet flow: qualitative aspects and integrability</td>
<td>M. V. Shamolín</td>
<td>Arnold-Bode-Straße 12 - Hörsaal 4</td>
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<td>15:00</td>
<td>Derivation of Analytical, Closed-form Formulas for the Calculations of the Instantaneous Screw Axes of Arbitrary Rigid 3D Multi-Body Systems</td>
<td>J. Boungard, J. Wackerfuß</td>
<td>Campus Center - Seminarraum 2</td>
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<tr>
<td>15:20</td>
<td>Modeling the Evolution of a cluster of gravitating bodies taking into account their absolutely inelastic collisions</td>
<td>D. G. Kiryan, G. V. Kiryan</td>
<td>Campus Center - Seminarraum 2</td>
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<tr>
<td>15:40</td>
<td>Improved collision detection for rigid body simulations</td>
<td>U. J. Römer, A. Fidlin, W. Seemann</td>
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### S02.04 Arteries

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<tr>
<td>14:00</td>
<td>Finite element modeling of percutaneous coronary intervention</td>
<td>K. Manjunatha, J. Frischkorn, S. Reese</td>
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<td>14:20</td>
<td>Fluid-Structure Interaction Simulations of Aortic Dissection</td>
<td>R. Schussnig, T. Fries</td>
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<td>15:00</td>
<td>Towards a growth and remodelling framework for biohybrid aortic valve implants</td>
<td>L. Lamm, C. Böhm, S. Jockenhövel, S. Reese</td>
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<td>15:20</td>
<td>Unraveling the principles of vascular mechanobiology across the scales</td>
<td>C. J. Cyron, J. F. Eichinger, D. Paukner, R. C. Aydin</td>
<td>Campus Center - Seminarraum 2</td>
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### S03.04 Phase-field modeling of fatigue

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<tr>
<td>15:00</td>
<td>Numerical investigation of static and fatigue fracture using the variational phase-field approach</td>
<td>M. Ambati</td>
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<td>15:20</td>
<td>Phase-field modelling of fatigue fracture in ductile materials</td>
<td>M. Seiler, T. Linse, P. Hantschke, M. Kästner</td>
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<td>15:40</td>
<td>Extension of the Local strain approach to transient material behavior and residual stresses</td>
<td>D. Kühne, M. Seiler, P. Hantschke, M. Kästner, M. Fiedler</td>
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<td>15:00</td>
<td>Modeling the Bayliss-Effect in Vascular Smooth Muscles</td>
<td>K. Uhlmann, D. Balzani</td>
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<td>15:20</td>
<td>Experimental investigation and numerical simulation of cyclic deformation behavior of SLM-manufactured aluminum alloys</td>
<td>T. Wiegold, M. Awd, S. Klinge, F. Walther</td>
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<td>14:00</td>
<td>A comparative study of numerical approaches for the computation of effective properties of micro-heterogeneous materials</td>
<td>R. Assaf, L. Scheunemann, C. Birk, J. Schröder</td>
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<td>14:20</td>
<td>A polyhedral element formulation based on the scaled boundary method for the analysis of nonlinear problems in solid mechanics</td>
<td>R. Reichel, S. Klarmann, S. Klinkel</td>
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<td>14:40</td>
<td>Closed-form stress solution of open holes in a finite domain</td>
<td>M. Nguyen-Hoang, W. Becker</td>
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<td>15:00</td>
<td>Efficient modeling of 3D geometries using octree meshes combined with SBFEM and transfinite elements</td>
<td>H. Gravenkamp, A. A. Saputra, S. Duczek</td>
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<td>15:20</td>
<td>Image-based stress analysis of porous structures produced by freeze casting</td>
<td>C. Birk, D. C. Lupascu</td>
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<td>15:40</td>
<td>Microstructure-related multifield-modeling of timber constructions</td>
<td>S. Wiese, U. Kowalsky, D. Dinkler</td>
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**S04.05**

Dynamics & Time integration methods
Chair: Michael Groß

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<td>14:00</td>
<td>A space-time formulation for nonlinear problems in structural dynamics</td>
<td>F. Bamer, N. Shirafkan, M. Stoffel, B. Markert</td>
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<td>14:20</td>
<td>An algorithm for the macro to micro velocity transformation</td>
<td>M. Jahn, M. Meywerk</td>
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<td>14:40</td>
<td>An energy-momentum space-time discretization of a constrained micropolar continuum for 3D fiber-reinforced composites</td>
<td>M. Groß, J. Dietzsch, C. Röbiger</td>
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<td>15:00</td>
<td>Analysis of higher order accurate time integration schemes within multifield plasticity</td>
<td>B. Schröder, D. Kuhl</td>
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<td>15:20</td>
<td>Inverse dynamics of nonlinear elastic ropes and the method of characteristics</td>
<td>T. Ströhle, P. Betsch</td>
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<td>15:40</td>
<td>Mixed finite element formulations and energy-momentum time integrators for thermo-viscoelastic fiber-reinforced continua</td>
<td>J. Dietzsch, M. Groß</td>
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**S05.03**

Non-smooth dynamics & Control
Chair: Dominik Kern

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<td>14:00</td>
<td>Efficient surrogate strategy for investigating stick-slip instability</td>
<td>A. Fau, J. N. Fuhg</td>
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<td>14:20</td>
<td>Quenching friction-induced oscillations in multibody-systems</td>
<td>S. Keller, W. Seemann</td>
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<td>14:40</td>
<td>Limit cycle oscillation analysis in a hydraulic pressure control valve</td>
<td>S. Schröders, A. Fidlin</td>
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<td>15:00</td>
<td>On the orbital stability of periodic trajectories of systems with discontinuous right-hand sides</td>
<td>A. Zuyev, P. Benner, A. Seidel-Morgenstern</td>
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<td>Mitigation of Resonant Vibrations using Impact Absorbers</td>
<td>M. Krack</td>
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<td>15:40</td>
<td>Stability analysis of dynamic extremum seeking systems via Lie brackets approximations</td>
<td>V. Grushkovska</td>
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<td>S06.05</td>
<td>Lisa Scheunemann, Johanna Waimann</td>
<td>Campus Center - Hörsaal 2</td>
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<td>S06.06</td>
<td>Jörn Ihlemann, Thorsten Bartel, Holger Steeb</td>
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<td>S07.04</td>
<td>Tim Ricken</td>
<td>Diagonale 3 - Hörsaal 2</td>
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<td>S08.05</td>
<td>Geralf Hütter</td>
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<td>14:20</td>
<td>S08.06</td>
<td>Daniel Peterseim</td>
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<td>14:40</td>
<td>S10.03</td>
<td>Olga Shishkina</td>
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<td>Influence of the correlation model on the continuous mode conversion</td>
<td>E. Zimmermann, W. Weber</td>
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<td>Heuristic dispersion design of discrete periodic systems</td>
<td>A. Tkachuk, M. Tkachuk</td>
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<td>On the analysis of contact acoustic nonlinearities caused by sub-surface cracks in vibrating beams</td>
<td>M. Schagerl, C. Kralovec</td>
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<td>Influence of the geometric nonlinearity on the wave propagation properties of periodic lattice frame structures</td>
<td>M. Mellmann, C. Zhang</td>
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<td>15:20</td>
<td>Simulation of guided waves in cylinders subject to arbitrary boundary conditions for applications in material characterization</td>
<td>D. Itner, H. Gravenkamp, D. Dreiling, N. Feldmann, B. Henning</td>
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<td>15:40</td>
<td>Numerical analysis of nonlinear wave mixing in 3-D infinite elastic solids with a spherical damage</td>
<td>B. Ankay, C. Zhang</td>
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**Uncertain Problems**

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<td>On the jerky crack growth of elastoplastic materials</td>
<td>R. Toader, G. Dal Maso</td>
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<td>First-order shape derivative of the reduced energy for elastic plates with defects</td>
<td>V. Shcherbakov</td>
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<td>Optimal amount of thin rigid inclusions for equilibrium problems describing inhomogeneous two-dimensional bodies with a crack</td>
<td>N. Lazarev</td>
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<td>Equilibrium configurations for epitaxially strained films in three-dimensional linear elasticity</td>
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<td>Semicoercive hemivariational inequalities in contact mechanics</td>
<td>J. Gwinner</td>
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<td>Analysis of a temperature-dependent system for nonlocal adhesive contact</td>
<td>G. Bonfanti, M. Colturato, R. Rossi</td>
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**Simulation of guided waves in cylinders subject to arbitrary boundary conditions for applications in material characterization**

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<td>14:00</td>
<td>Tensor-Galerkin POD for Efficient Uncertainty Quantification in PDEs with Multivariate Random Parameters</td>
<td>P. Benner, J. Heiland</td>
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<td>Computation of the Sharpest Bounds on Probabilities under the Influence of Polymorphic Uncertainties</td>
<td>N. Miska, D. Balzani</td>
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<td>Non-Intrusive Collocation Solution for Bratu Problem</td>
<td>M. Youssef, R. Pulch, G. Baumann</td>
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<td>15:00</td>
<td>Parameter identification in dynamic crack propagation</td>
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<td>15:20</td>
<td>Optimal sensor placement for thermo-elastic coupled machine models</td>
<td>A. Naumann, R. Herzog</td>
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**Numerical analysis of nonlinear wave mixing in 3-D infinite elastic solids with a spherical damage**
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<td>14:00</td>
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<tr>
<td>Chair: Martin Siebenborn</td>
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<td>Georg-Forster-Straße 4 - Seminarraum 1004</td>
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<td>An Active Signature Method for Constraint Optimization Using Abs-Linearization T. Kreimeier, A. Walther, A. Griewank</td>
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<tr>
<td>S17.03</td>
<td>Data, random walks, and parallelism</td>
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<td>Numerical Linear Algebra in Data Assimilation M. Freitag</td>
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<td>S18.05</td>
<td>Space-Time discretizations</td>
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<td>Stabilized Nitsche fictitious domain method with higher order variational space-time discretization for the Navier–Stokes equations M. Bause, M. Anselmann</td>
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<td>14:20</td>
<td>Scalable solvers for PDE constrained shape optimization of cellular composites A. Vogel, M. Siebenborn</td>
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<td>14:40</td>
<td>An efficient adjoint sensitivity analysis for level set-based topology optimization of flexible multibody systems A. Azari Nejat, A. Held, R. Seifried</td>
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<td>A computational framework for handling semi infinite quasi-Toeplitz matrices S. Massei, D. A. Bini, B. Meini, L. Robol</td>
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<td>15:00</td>
<td>Surface Metrics and Geometrical Constraints Within CAD-Free Adjoint-Based Hydrodynamic Shape Optimization N. Kühl, P. M. Müller, M. Siebenborn, T. Rung</td>
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<td>Analyzing Raman Spectral Data without Separability Assumption K. Fackeldey, A. Niknejad, M. Weber</td>
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<td>PDEs on Domains with Time-Dependent Topology M. von Danwitz, V. Karyofylli, N. Hosters, M. Behr</td>
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<td>Topology and material optimization including a filter to smooth fiber pathways D. R. Jantos, K. Hackl, J. Philipp</td>
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<td>A Space-Time Method for Maxwell’s Equations J. I. M. Hauser, O. Steinbach</td>
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<td>Aerodynamic-thermal/structural design optimization of missile fin configuration during supersonic flight condition B. Rasuo, N. Vidanovic, G. Kastratovic, N. Mirkov</td>
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<td>Study of Exploiting Coarse-Grained Parallelism in Block-Oriented Numerical Linear Algebra Routines G. C. Kroiz, A. Bardakoff, T. Blattner, W. Keyrouz</td>
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<td>Doubling the convergence rate by pre- and post-processing the finite element approximation for linear wave problems S. Geevers</td>
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### Contributed Sessions

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<tr>
<td>14:00</td>
<td>S19.03</td>
<td>Learning, Stabilization and Networks</td>
<td>Daniel Wachsmuth</td>
<td>Georg-Forster-Straße 4 - Seminarraum 3004</td>
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<tr>
<td>14:20</td>
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<td>Mathematical Foundations of Residual Neural Networks</td>
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<tr>
<td>14:40</td>
<td>S20.04</td>
<td>Robust Control</td>
<td>Jens Saak</td>
<td>Nora-Platiel-Straße 6 - Seminarraum 0207</td>
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<tr>
<td>15:00</td>
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<td>Designing Robust Controllers for Large Sparse Systems</td>
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<td>15:20</td>
<td>S21.04</td>
<td>Challenges in dynamic imaging</td>
<td>Michael Moeller, Gerlind Plonka-Hoch</td>
<td>Campus Center - Seminarraum 6</td>
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<td>Analysis of flame vibrations based on high speed recordings</td>
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<td>Optimization of the distance to non-passivity and instability via robust realizations</td>
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#### S19.03: Learning, Stabilization and Networks
- **Chair:** Daniel Wachsmuth
- **Location:** Georg-Forster-Straße 4 - Seminarraum 3004

- **14:00**
  - Learning nonlocal regularization operators using bilevel optimization
    - G. Holler, K. Kunisch

- **14:20**
  - Mathematical Foundations of Residual Neural Networks
    - R. Pochampalli, N. Gauger, E. ¨Ozkaya

- **14:40**
  - Optimal feedback stabilization via deep neural network approximation
    - D. Walter, K. Kunisch

- **15:00**
  - Sparse optimization of integral shallow neural networks
    - K. Pieper, A. Petrosyan

- **15:20**
  - On the stabilizability of the Navier-Stokes equation toward a trajectory by finite-dimensional RHC
    - B. Azmi

- **15:40**
  - Adjoint Based Optimal Control of District Heating Networks
    - D. Linn, J. Mohring, R. Pinnau

#### S20.04: Robust Control
- **Chair:** Jens Saak
- **Location:** Nora-Platiel-Straße 6 - Seminarraum 0207

- **14:00**
  - Numerical Methods for H-infinity-Control of Large-Scale Systems
    - N. Aliyev, P. Benner, E. Mengi, T. Mitchell, P. Schwerdtner, M. Voigt

- **14:20**
  - Designing Robust Controllers for Large Sparse Systems
    - P. Schwerdtner, T. Mitchell, M. Voigt

- **15:00**
  - Convex Synthesis of Accelerated Gradient Algorithms
    - C. Scherer, C. Ebenbauer

- **15:20**
  - Optimization of the distance to non-passivity and instability via robust realizations
    - V. Mehrmann, P. Van Dooren

- **15:40**
  - Infinite-horizon optimal control - Stability and dissipativity
    - T. Faulwasser

#### S21.04: Challenges in dynamic imaging
- **Chair:** Michael Moeller, Gerlind Plonka-Hoch
- **Location:** Campus Center - Seminarraum 6

- **14:00**
  - Numerical Methods for H-infinity-Control of Large-Scale Systems
    - B. Hahn, S. Blanke, M. Kienle, A. Wald

- **14:20**
  - Designing Robust Controllers for Large Sparse Systems
    - P. Schwerdtner, T. Mitchell, M. Voigt

- **15:00**
  - Convex Synthesis of Accelerated Gradient Algorithms
    - C. Scherer, C. Ebenbauer

- **15:20**
  - Optimization of the distance to non-passivity and instability via robust realizations
    - V. Mehrmann, P. Van Dooren

- **15:40**
  - Infinite-horizon optimal control - Stability and dissipativity
    - T. Faulwasser

- **15:40**
  - Multi-scale tomographic analysis for micron-sized particulate samples
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<td>Efficient mortar-based algorithms for embedding 1D fibers into 3D volumes</td>
<td>I. Steinbrecher, A. Popp</td>
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<td>Numerical Tensile Strength Simulations of Nonwoven Fiber Materials</td>
<td>M. Harmening</td>
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<td>An Improved Viscoelastic Crystallization Model for Fiber Melt Spinning</td>
<td>M. Ettmüller, W. Arne, A. Klar, R. Wegener</td>
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<td>Multiscale Modeling of Skin Penetration</td>
<td>A. Nägel</td>
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<td>Optimal Control for Minimizing Generalized Joint Reaction Forces in Multibody Systems using the Adjoint Method</td>
<td>K. Nachbagauer, T. Lauss, D. Lichtenecker</td>
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<td>An Outlook on Microstructurally Motivated Modeling of Growth and Remodeling in Pressure Overloaded Hearts</td>
<td>J. A. Niestrawska, C. M. Augustin, G. Plank</td>
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<td>Analysis of the influence of process-induced damage on the fracture behaviour - a study on remote laser cut carbon fibre reinforced polymers</td>
<td>B. Schmidt, M. Rose, M. Zimmermann, M. Kästner</td>
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<td>On the numerical behaviour of constrained mechanical systems within the framework of optimal control</td>
<td>S. Schneider, P. Betsch</td>
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<td>Characterization of passive mechanical properties of healthy and infarcted rat myocardium</td>
<td>D. Martonová, J. Seufert, D. Holz, M. T. Duong, M. Alkassar, S. Leyendecker</td>
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<td>Investigation of the anisotropic damage behavior of smc composites under biaxial stress states</td>
<td>J. Lang, C. Schmidt, T. Böhle</td>
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<td>Stable Inversion for Flexible Multibody Systems Using the ANCF</td>
<td>S. Drücke, R. Seifried</td>
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<td>Computational Challenges in Modelling the Musculoskeletal System</td>
<td>O. Röhrle, O. Avci</td>
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<td>Free-edge delamination in composite laminates under tensile loading: An analytical closed-form approach</td>
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<td>Internal Dynamics of multibody systems</td>
<td>T. Berger, L. Lanza</td>
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<td>A dynamical model for the calcineurin-NFAT signaling pathway and muscle fiber shifting</td>
<td>Y. Villota-Narvae</td>
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<td>How forgivable is the sin to neglect locking effect on the failure behavior of the interface?</td>
<td>H. R. Bayat, S. Rezaei, A. Rajaei Harandi, T. Brepols, S. Reese</td>
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<td>MBS model for design and control of a hydrofoil boat</td>
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<td>Towards a physiologically accurate ECG from numerical simulations: comparative analyses in a simplified tissue model</td>
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<td>Experiment and simulation of a single-fiber push-out test on glass fiber reinforced SMC</td>
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<td>Time-Optimal Control of a Moon Landing - Ascent, Descent, and Aborts</td>
<td>P. Eichmeir, T. Lauß, W. Steiner</td>
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<td>A three-dimensional model of gastric smooth muscle contraction and the influence of the stomach wall's mechanical properties</td>
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<td><strong>S04.06 Optimization</strong></td>
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<td>A mixed finite element for finite deformations of quasi-incompressible materials with non-constant bulk moduli</td>
<td>P. Schneider, J. Schönherr, C. Mittelstedt</td>
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<td>16:50</td>
<td>A Scaled Boundary Approach for Inelasticity of Fiber-Reinforced Composites</td>
<td>J. Eisenträger, J. Zhang, C. Song</td>
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<td>17:10</td>
<td>Calibration of the Material-Point-Method for machining simulation</td>
<td>S. F. Maassen, R. Niekamp, J. Schröder, P. Wiederkehr, W. Theisen</td>
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<td>17:30</td>
<td>Electro-magneto-mechanical response of polycrystalline materials: computational homogenization based on the Virtual Element Method</td>
<td>C. Böhm, B. Hudobivnik, P. Wriggers, M. Marino</td>
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<td>18:10</td>
<td>Identification of Optimal Shape and Material Parameters using Biparabolic Target Functions</td>
<td>N. Nostitz, N. H. Kröger, J. Ihlemann, H. Wulf</td>
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### S08.08
Chair: Patrick Kurzeja
Arnold-Bode-Straße 12 - Hörsaal 6
16:30 A multiscale approach for fatigue damage of fiber-reinforced composite parts
N. Magino, J. Köbler, H. Andrä, M. Schneider, F. Welschinger

### S10.04
Chair: Sven Eckert
Arnold-Bode-Straße 2 - Seminarraum 0401
16:30 Turbulent flow over heterogeneous roughness
B. Frohnapfel, K. Schaefer, P. Forooghi, A. Stroh

### S12.02
Chair: Sven Eckert
Arnold-Bode-Straße 2 - Seminarraum 0404
16:30 Seismic Exploration in Tunneling using Full Waveform Inversion with a Frequency Domain Model
C. Riedel, K. Musayev, M. Baitsch, K. Hackl

### 16:50
16:50 A numerical method for computing the effective crack resistance of heterogeneous media
M. Schneider

### 17:10
Multiscale Modeling of Distributed Microcracking and Damage in Concrete
T. T. G. Vu, J. J. Timothy, T. Iskhakov, G. Meschke

### 17:30
The impact of fiber properties on the material coefficients of short fiber-reinforced composites
N. Rauter, R. Lammering

### 17:50
Computational Modelling and Design of Compressible Cementitious Composite Materials
T. Iskhakov, J. J. Timothy, G. Meschke, M. Bessa

### 18:10
On selective homogenization in multi-scale phase-field fracture model
R. Bharali, F. Larsson, R. Jänicke

### 19:10
Classical and symmetrical horizontal convection
P. Reiter, O. Shishkina

### 19:30
A Chebyshev collocation method for band structure calculations of the anti-plane elastic waves in phononic crystals
L. Cao, C. Zhang, Y. Gu, H. Fan
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<td>Campus Center</td>
<td>Rodica Toader</td>
<td>Junction problems for thin inclusions located inside elastic bodies</td>
<td>A. Khludnev, T. Popova</td>
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<td>16:50</td>
<td>S15.05</td>
<td>Georg-Forster-</td>
<td>Felix Lindner</td>
<td>On the influence of surface roughness on friction-induced oscillations due to mode-coupling</td>
<td>L. J. Oestriinger, C. Proppe</td>
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<td>Maximizing the ratio of eigenvalues of non-homogeneous partially hinged plates</td>
<td>A. Falocchi, E. Berchio</td>
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<td>17:30</td>
<td>S16.04</td>
<td>Georg-Forster-</td>
<td>Andrea Walther</td>
<td>Simultaneous Shape and Mesh Optimization using Pre-Shape Calculus</td>
<td>D. Luft, V. Schulz</td>
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<td>Analysis of model and data uncertainties for the failure of adhesive bonds in composite materials</td>
<td>M. Drieschner, R. Gruhlke, Y. Petryna, M. Eigel, D. Hömberg</td>
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<td>A global sensitivity analysis study on the conductivity of flowing blood</td>
<td>G. M. Melito, T. Müller, V. Badeli, K. Ellermann, G. Brenn, A. Reinbacher-Köstinger</td>
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<td>Damage Optimisation for Air Bending</td>
<td>F. Guhr, F. Barthold</td>
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<td>The stochastic performance evolution analysis of long span steel arch bridge based on long-term</td>
<td>M. Xiong</td>
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<td>Shape Optimization for Mitigating Coastal Erosion - First Results based on a Helmholtz Model</td>
<td>L. Schlegel, V. Schulz</td>
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<td>Shape optimization of the X0-specimen for biaxial experiments</td>
<td>J. Liedmann, S. Gerke, F. Barthold, M. Brünig</td>
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<td>S18.06</td>
<td>Solving differential Riccati equations: A nonlinear space-time method using tensor trains</td>
<td>Diagonale 5 - Hörsaal 3</td>
<td>Herbert Egger</td>
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<td>S19.04</td>
<td>Roots of multivariate polynomials from tensor decompositions</td>
<td>Georg-Forster-Straße 4 - Seminarraum 3004</td>
<td>Christian Kahle</td>
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<td>17:30</td>
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<td>Distance problems for dissipative Hamiltonian systems and related matrix polynomials</td>
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<td>Parameter estimation for orthogonal polynomial moments</td>
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<td>On the efficient solution of large-scale algebraic Riccati equations with banded data</td>
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<td><strong>16:30</strong></td>
<td><strong>S20.05</strong>&lt;br&gt;Contributed Sessions&lt;br&gt;<strong>Trajectory Planning, Flatness, and Optimization</strong>&lt;br&gt;Chair: Moritz Schulze Darup&lt;br&gt;Nora-Platel-Straße 6 - Seminarraum 0207&lt;br&gt;<strong>S21.05</strong>&lt;br&gt;Chair: Gerlind Plonka-Hoch, Michael Moeller&lt;br&gt;Campus Center - Seminarraum 6&lt;br&gt;<strong>S22.03</strong>&lt;br&gt;Chair: Matthias Bolten&lt;br&gt;Diagonale 1 - Hörsaal 1&lt;br&gt;<strong>16:30</strong>&lt;br&gt;<strong>S20.05</strong>&lt;br&gt;<strong>Trajectory Planning for cooperative autonomous vehicles using motion primitive libraries</strong>&lt;br&gt;B. Jurgelucks, K. Flaßkamp, B. Alrifaee, P. Scheffe&lt;br&gt;<strong>S21.05</strong>&lt;br&gt;A geometric first-order multigrid method for linear inverse problems with simple constraints&lt;br&gt;J. Plier, F. Savarino, M. Kocvara, S. Petra&lt;br&gt;<strong>S22.03</strong>&lt;br&gt;Optimizing MGRIT and Parareal coarse-grid operators for linear advection&lt;br&gt;H. De Sterck, R. D. Falgout, S. Friedhoff, O. A. Krzysik, S. P. MacLachlan&lt;br&gt;<strong>16:50</strong>&lt;br&gt;<strong>S20.05</strong>&lt;br&gt;<strong>Trajectory Planning for Closed Kinematic Chains Applied to Cooperative Motions in Health Care</strong>&lt;br&gt;C. Knoll, X. Jia, K. Röbenack&lt;br&gt;<strong>S21.05</strong>&lt;br&gt;Order-p means, M-smoothers, and PDEs&lt;br&gt;M. Welk&lt;br&gt;<strong>S22.03</strong>&lt;br&gt;Parareal for coupled differential algebraic equations&lt;br&gt;L. Cortes Garcia, I. Kulchytska-Ruchka, S. Schöps&lt;br&gt;<strong>17:10</strong>&lt;br&gt;<strong>S20.05</strong>&lt;br&gt;Flat inputs of nonlinear systems from an algebraic point of view&lt;br&gt;K. Fritzsche, K. Röbenack&lt;br&gt;<strong>S21.05</strong>&lt;br&gt;Stochastic upwind method for level-set segmentation on images with uncertain data&lt;br&gt;X. Luo-Theilen, T. Preusser&lt;br&gt;<strong>S22.03</strong>&lt;br&gt;Parallel-in-Time Simulation of an Induction Machine using MGRIT&lt;br&gt;J. Hahne, S. Friedhoff, M. Bolten, S. Schöps&lt;br&gt;<strong>17:30</strong>&lt;br&gt;<strong>S20.05</strong>&lt;br&gt;Efficient Solution of Distributed MIP in Control of Networked Systems&lt;br&gt;Z. Liu, O. Stursberg&lt;br&gt;<strong>S21.05</strong>&lt;br&gt;Tensor-Free Proximal Solvers for Lifted Bilinear and Quadratic Inverse Problems&lt;br&gt;R. Beinert, K. Bredies&lt;br&gt;<strong>S22.03</strong>&lt;br&gt;A multigrid preconditioner for an entropy stable Space-Time Discontinuous Galerkin Spectral Element method&lt;br&gt;L. M. Verbach, P. Birken, G. Gassner&lt;br&gt;<strong>17:50</strong>&lt;br&gt;<strong>S20.05</strong>&lt;br&gt;Convergence of Pixel-Driven Projection Methods&lt;br&gt;R. Huber, K. Bredies&lt;br&gt;<strong>S21.05</strong>&lt;br&gt;An asynchronous time-integration method for nonlinear structural dynamics and its parallel implementation&lt;br&gt;A. Seibold, D. Rixen&lt;br&gt;<strong>S22.03</strong>&lt;br&gt;On Next-Generation Time Stepping Methods for Weather and Climate Simulations&lt;br&gt;M. Schreiber</td>
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Wednesday, March 18, 16:30-18:30

S23.01

Chair: Birgit Jacob

Arnold-Bode-Straße 2 - Seminarraum 0409

16:30

$L^p$ Spectrum of Ornstein-Uhlenbeck operators
R. Schnaubelt

16:50

The constrained Lojasiewicz-Simon inequality
F. Rupp

17:10

On Gradient Flows with Obstacles
M. Mueller

17:30

The fast-sorption–fast-surface-reaction limit of a heterogeneous catalysis model
B. Augner, D. Bothe

17:50

18:10
08:30 **Contributed Sessions**

lecture rooms 18 parallel sessions, page 116 - 121

10:30 **Coffee Break**

Ground Floor
Campus Center Refreshment including coffee, tea, soft drinks, fruits, and biscuits

11:00 **Plenary Lecture - Mechanics**

Hörsaal 1
Campus Center **Holger Steeb** (University of Stuttgart)

*Modelling Porous Media: From Images to Numerical Simulations*

Chaired by Stefan Diebels

12:00 **Plenary Lecture - Mathematics**

Hörsaal 1
Campus Center **Laura Grigori** (INRIA Paris)

*Recent advances in the design of robust communication avoiding algorithms: from large scale linear algebra to tensors*

Chaired by Matthias Bolten

13:00 **Lunch**

Information about lunch options is available on page 48

14:00 **Contributed Sessions**

lecture rooms 19 parallel sessions, page 123 - 129

16:00 **Coffee Break**

Ground Floor
Campus Center Refreshment including coffee, tea, soft drinks, fruits, and biscuits

16:30 **Plenary Lecture - Mathematics**

Hörsaal 1
Campus Center **Josef Málek** (Charles University Prague)

*Beyond the Navier-Stokes equations*

Chaired by Helmut Abels

17:40 **Contributed Sessions**

lecture rooms 11 parallel sessions, page 130 - 133
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<td>08:30</td>
<td>Identification, Modeling and Simulation of Vibration Characteristics of a Painting</td>
<td>Y. Gao, P. Ziegler, P. Eberhard</td>
<td>Campus Center - Seminarraum 2</td>
<td>Perspectives in modeling of biopolymer aerogel networks subject to wetting A. Rege, P. Gurikov, B. Milow</td>
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<td>08:50</td>
<td>On the Use of Machine Learning in Multibody Dynamics Models</td>
<td>H. Grossert, L. Dostal, D. Kreuter, K. Sandmann, B. Zillmann, R. Seifried</td>
<td>Campus Center - Hörsaal 6</td>
<td>Characterisation of a magnetic hydrogels used as new materials for individual implants C. Czichy, S. Günther, M. Gelinsky, S. Odenbach</td>
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<td>09:10</td>
<td>Efficient Elastic Multibody Models for Dynamic Gearing Simulations</td>
<td>L. Kazaz, P. Ziegler, P. Eberhard</td>
<td>Campus Center - Hörsaal 6</td>
<td>The influence of magnetic field on nanoparticle transport in a micro channel M. Bavandi, O. Wünsch</td>
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<td>10:10</td>
<td>Modelling of dynamic contact forces during orthogonal turn milling</td>
<td>K. Knape</td>
<td>Campus Center - Hörsaal 6</td>
<td>Damage modelling for the lifetime prediction of structural adhesive joints subjected to hygro-thermo-mechanical long-term loading U. Kroll, A. Matzenmiller</td>
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<td>Campus Center - Seminarraum 2</td>
<td>Switching induced transient heat problems at cracks in ferroelectric ceramics O. El Khatib, M. Kuna</td>
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<td>08:30</td>
<td>S04.08</td>
<td>Campus Center - Hörsaal 1</td>
<td>Model order reduction &amp; Reanalysis</td>
<td>Chair: Wilfried Becker</td>
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<td>An artificial intelligence approach to model nonlinear continua by intelligent meta-elements</td>
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<td>08:50</td>
<td>S05.08</td>
<td>Campus Center - Hörsaal 1</td>
<td>Comparison of two thermo-mechanically coupled material models in the context of parameter identification</td>
<td>L. Rose, A. Menzel</td>
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<td>08:50</td>
<td>S06.08</td>
<td>Campus Center - Hörsaal 2</td>
<td>Application of a reduced basis method for an efficient treatment of structural mechanics problems</td>
<td>S. Bremm, P. L. Rosendahl, W. Becker</td>
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<td>09:00</td>
<td>S07.08</td>
<td>Campus Center - Hörsaal 1</td>
<td>Energy related thermomechanical material model validation in complex tensile testing with self heating</td>
<td>H. Sparr, R. Roszak, I. Sagradov, D. Schob, M. Ziegenhorn</td>
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<td>09:10</td>
<td>S08.08</td>
<td>Campus Center - Hörsaal 1</td>
<td>Model order reduction for small strain elasto-plasticity based on an adaptive strategy</td>
<td>Y. Özmen, P. S. B. Nigro, L. Scheunemann, J. Schröder</td>
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<td>09:30</td>
<td>S09.08</td>
<td>Campus Center - Hörsaal 2</td>
<td>Efficient identification of parameters for nonlinear materials undergoing large strains based on experiments providing full-field kinematics</td>
<td>L. Makhool, D. Balzani</td>
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<td>Determining experimental campaigns for the identification of stress-strain laws that characterize the constituents of composite materials</td>
<td>F. Sewerin</td>
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<td>Identifying equivalent transversely isotropic material parameters for full-surface bonded sheet-layered lamination stacks</td>
<td>M. V. Baloglu, K. Willner</td>
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<td>Numerical simulation of viscoelastic fluid-structure interaction problems coupled to chemical processes in the human eye</td>
<td>A. Drobeny, E. Friedmann</td>
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<td>Numerical study of the fluid-structure interaction in an aquatic canopy consisting of long, highly flexible blades</td>
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<td>Volumetric Compression Behaviour of Rubber: Experimental and Simulative Challenges</td>
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<td>Substructured Model Order Reduction for Simple Exchange of Subsystems</td>
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### Contributed Sessions

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<td>On the analysis of Helmholtz problems with micro-structure</td>
<td>B. Schweizer</td>
<td>Campus Center - Hörsaal 5</td>
<td>Julian Fischer</td>
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<td>Instability mechanisms in high-Prandtl number liquid bridges exposed to an ambient gas stream</td>
<td>M. Stojanovic, H. C. Kuhlmann</td>
<td>Arnold-Bode-Straße 2 - Seminarraum 0404</td>
<td>Ilya Barmak</td>
<td>Arnold-Bode-Straße 2 - Seminarraum 0404</td>
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<td>Linear stability of the asymptotic suction boundary layer flow and new 3D modes</td>
<td>A. Yalcin, M. Oberlack</td>
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<td>Ilya Barmak</td>
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<td>Transition to turbulence in two-phase core-annular pipe flow</td>
<td>C. Plana, B. Song, M. Avila</td>
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<td>Ilya Barmak</td>
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<td>S16.05</td>
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<td>Can hail and rain nucleate cloud droplet?</td>
<td>Large Time Existence for Thin Vibrating Rods</td>
<td>Multilevel Augmented-Lagrangian Methods for</td>
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<td>S. Weiss</td>
<td>H. Abels, T. Ameismeier</td>
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<td>Towards Optimization Techniques on Diffeological</td>
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<td>L. Zwirner, O. Shishkina</td>
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<td>N. Rathai, K. Welker</td>
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<td>09:10</td>
<td>Experimental Investigation of non-periodic</td>
<td>On models for fatigue and phase transition in an oscillating elastoplastic plate</td>
<td>Optimization on Manifolds for Data Science</td>
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<td>E. Tadrous, G. Wozniak</td>
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<td>09:30</td>
<td>EHD-enhanced internal forced convection</td>
<td>Fatigue and phase transition in an oscillating elastoplastic beam</td>
<td>Characterization of the topography of an objective function using the A* algorithm</td>
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<td>from a One-Dimensional Turbulence</td>
<td>C. Gavioli, M. Eleuteri, J. Kopfova, P. Krejci</td>
<td>S. Weiser, H. Wulf, J. Ihlemann</td>
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<td>J. A. Medina Méndez, H. Schmidt</td>
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<td>09:50</td>
<td>Thermo-visco-elasticity at finite strain</td>
<td>Optimization of sample geometries and loading histories for error-resistant parameter identification</td>
<td>Solving the traffic assignment problem</td>
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<td>A. Mielke</td>
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<td>C. Hansknecht, C. Kirches, S. Stiller</td>
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<td>Intermittent chaotic flows in the weakly</td>
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<td>magnetised spherical Couette system</td>
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<td>F. Garcia Gonzalez, M. Seilmayer, A. Giesecke, F. Stefani</td>
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<td>08:30</td>
<td>On fast iterative methods for radiative transfer</td>
<td>M. Schlottbom</td>
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<tr>
<td>08:50</td>
<td>A Numerical Method to Solve a Problem of Flow in a Channel with Two Axisymmetric Narrowings in the Variables Velocity-Pressure</td>
<td>A. O. Borysyuk</td>
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<td>09:10</td>
<td>A finite element formulation for a simplified, relaxed 2D micromorphic continuum</td>
<td>A. Chejanovsky, I. Münch, P. Neff</td>
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<td>09:30</td>
<td>Gradient Flow Finite Element Discretizations with Energy-Based Adaptivity for the Gross-Pitaevskii Equation</td>
<td>P. Heid, B. Stamm, T. Wihler</td>
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<td>09:50</td>
<td>Stable and efficient Petrov-Galerkin schemes for a kinetic Fokker-Planck equation</td>
<td>J. Brunken, K. Smetana</td>
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<td>10:10</td>
<td>Tensor Methods for Optimal Control Problems Constrained by a Fractional Operator with Variable Coefficients</td>
<td>V. Khoromskaia, B. N. Khoromskij, B. Schmitt, V. Schulz</td>
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**S18.07**

**Miscellaneous**

Chair: Christoph Lehrenfeld

**Diagonale 5 - Hörsaal 3**

**08:30** On fast iterative methods for radiative transfer

M. Schlottbom

**S19.05**

**Algorithms and Numerical Methods - Part II**

Chair: Johannes Pfefferer, Constantin Christof

**Georg-Forster-Straße 4 - Seminarraum 3004**

**08:50** A Numerical Method to Solve a Problem of Flow in a Channel with Two Axisymmetric Narrowings in the Variables Velocity-Pressure

A. O. Borysyuk

**09:10** A finite element formulation for a simplified, relaxed 2D micromorphic continuum

A. Chejanovsky, I. Münch, P. Neff

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P. Heid, B. Stamm, T. Wihler

**09:50** Stable and efficient Petrov-Galerkin schemes for a kinetic Fokker-Planck equation

J. Brunken, K. Smetana

**S20.06**

**Linear, Nonlinear and Chaotic Systems**

Chair: Klaus Röbenack, Moritz Schulze Darup

**Nora-Platlie-Straße 6 - Seminarraum 0207**

**08:50** Adaptive time horizons in POD based model predictive control

A. Alla, C. Gräflle, M. Hinze

**09:10** Finite Element Error Estimate for One-dimensional Elliptic Optimal Control by BV Functions

D. Hafemeyer, F. Mannel, I. Neitzel, B. Vexler

**09:30** Optimal control of pedestrian dynamics

R. Herzog, J. Pietschmann, A. Stötzer, M. Winkler

**09:50** An adaptive randomized algorithm for the computation of the PI controller stabilizing set of nonlinear systems

J. H. Urrea Quintero, J. N. Fuhr, M. Marino, A. Fau

**10:10** Tensor Methods for Optimal Control Problems Constrained by a Fractional Operator with Variable Coefficients

V. Khoromskaia, B. N. Khoromskij, B. Schmitt, V. Schulz

**S20.07**

**Algorithms and Numerical Methods - Part II**

Chair: Johannes Pfefferer, Constantin Christof

**Nora-Platlie-Straße 6 - Seminarraum 0207**

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V. Khoromskaia, B. N. Khoromskij, B. Schmitt, V. Schulz

**S20.08**

**Algorithms and Numerical Methods - Part II**

Chair: Johannes Pfefferer, Constantin Christof

**Nora-Platlie-Straße 6 - Seminarraum 0207**

**08:30** Adaptive time horizons in POD based model predictive control

A. Alla, C. Gräflle, M. Hinze

**08:50** Adaptive time horizons in POD based model predictive control

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V. Khoromskaia, B. N. Khoromskij, B. Schmitt, V. Schulz
### S21.06

**Chair:** Michael Moeller, Gerlind Plonka-Hoch  
**Location:** Campus Center - Seminarraum 6

- **08:30** A robustness measure for singular point and index estimation in pixelated orientation and vector fields  
  *K. B. Hoffmann, I. F. Sbalzarini*

- **08:50** Birdsong recognition using Gabor frames  
  *S. Heuer*

- **09:10** Geometric Properties of Cross-validation in Tikhonov Regularization  
  *F. Bartel, R. Hielscher, D. Potts*

- **09:30** Uniform recovery guarantees for least squares approximation using random samples  
  *T. Ullrich, L. Kämmerer, T. Volkmer*

- **09:50** Variational Coupling Revisited: Simpler Models, Theoretical Connections, and Novel Applications  
  *A. Wewior, J. Weickert*

- **10:10** Estimating divergence-free flows via neural networks  
  *D. Kabanov, L. Espath, R. Tempone*

### S22.04

**Chair:** Melanie Krüger  
**Location:** Diagonale 1 - Hörsaal 1

- **08:30** Combining machine learning and adaptive coarse spaces to design robust and efficient FETI-DP methods  
  *J. Weber, A. Heinlein, A. Klawonn, M. Lanser*

- **08:50** Towards multi-fidelity machine learning in scientific computing  
  *P. Zaspel*

- **09:10** Data-driven Parameter Identification in Nonlinear Dynamical Systems  
  *R. Pulch, M. Youssef*

- **09:30** Parallel Performance for Tornado Prediction using Deep Learning and GAN  
  *C. A. Barajas, M. K. Gobbert, J. Wang, A. Gangopadhyay*

- **09:50** Data-assisted second-level reduced order model  
  *S. Alameddin, F. Fritzen*

- **10:10** Analysis of the primitive equations with horizontal viscosity  
  *A. Hussein*

### S23.02

**Chair:** Roland Schnaubelt  
**Location:** Arnold-Bode-Straße 2 - Seminarraum 0409

- **08:30** Three applications of scale uniform uncertainty relations for elliptic PDEs  
  *I. Veselic*

- **08:50** Combining machine learning and adaptive coarse spaces to design robust and efficient FETI-DP methods  
  *J. Weber, A. Heinlein, A. Klawonn, M. Lanser*

- **09:10** Towards multi-fidelity machine learning in scientific computing  
  *P. Zaspel*

- **09:30** Data-driven Parameter Identification in Nonlinear Dynamical Systems  
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- **10:10** Analysis of the primitive equations with horizontal viscosity  
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<tr>
<td>14:00</td>
<td>S02.07 Cells</td>
<td>Campus Center - Hörsaal 6</td>
<td>Dominik Schillinger</td>
<td>On the mechanical modeling of cell components</td>
<td>S. Klinge, T. Wiegold, S. Aygün, R. P. Gilbert, G. A. Holzapfel</td>
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<td>S03.07 Theory</td>
<td>Arnold-Bode-Straße 12 - Hörsaal 4</td>
<td>Björn Kiefer</td>
<td>Kolosov’s equations and the common use of holomorphic functions in linear elasticity of cracks</td>
<td>J. Scheel, A. Ricoeur</td>
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<td>S04.09 Lattice Bolzmann &amp; Peridynamics</td>
<td>Campus Center - Hörsaal 1</td>
<td>Felix Diewald</td>
<td>Buckling experiments of additively manufactured hybrid lattice structures</td>
<td>C. Völlmecke, V. Dreßler, G. Ganzosch</td>
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<td>14:20</td>
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<td>Time-incremental regularization for rate-independent damage processes using the emulated RVE</td>
<td>S. Schwarz, P. Junker, K. Hackl</td>
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<td>14:40</td>
<td>Computational Modeling of the Passive Vesicle-Mediated Cell Transport</td>
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<td>Modelling stress-state dependent nonlocal damage and failure of ductile metals</td>
<td>M. Nahrmann, A. Matzenmiller</td>
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<td>S03.07 Theory</td>
<td>Arnold-Bode-Straße 12 - Hörsaal 4</td>
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<td>S. Schwarz, P. Junker, K. Hackl</td>
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<td>15:00</td>
<td>Extending a pharmacodynamic model for nuclear receptor-induced enzyme production with spatial resolution.</td>
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<td>Experimental and numerical investigation on the effect of non-proportional load paths on damage and failure behavior in ductile metals</td>
<td>M. Zistl, S. Gerke, M. Brünig</td>
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<td>S04.09 Lattice Bolzmann &amp; Peridynamics</td>
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<td>15:20</td>
<td>R rigidity analysis with kino-geometric modeling of active and inactive kinases</td>
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<td>Optimal control of quasi-static crack growth in two-dimensional composite structures using gradient-based material optimization</td>
<td>S. Singh, M. Stingl</td>
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<td>S04.09 Lattice Bolzmann &amp; Peridynamics</td>
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<td>Computational analysis of the influence of drusen growth on the morphology of the retinal pigment epithelium in age-related macular degeneration</td>
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<td>Lattice Boltzmann Method for Anti-plane Shear with non-mesh conforming boundary conditions</td>
<td>T. Reinirken, A. Schlüter, R. Müller</td>
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<th>Topic</th>
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<tr>
<td>14:00</td>
<td>A displacement-based analytical stress solution for various adhesive joint configurations</td>
<td>Franz-Joseph Barthold</td>
<td>Campus Center - Hörsaal 3</td>
<td>Material &amp; Slip/Friction</td>
<td>T. S. Methfessel, W. Becker</td>
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<td>14:20</td>
<td>A rate-dependent, numerically high efficient modeling approach for thermomechanical coupled superelastic SMAs</td>
<td>Daniel Juhré, Stefan Löhnert, Rainer Glüge</td>
<td>Campus Center - Hörsaal 2</td>
<td>Hydrogels</td>
<td>D. Helm, L. Kertsch</td>
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<td>Multi-level thermomechanical material modeling to study heterogeneous plastic deformation of DC04 steel and effects of residual stresses on its mechanical properties</td>
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<td>Diagonale 3 - Hörsaal 2</td>
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<td>S. Ahmed, S. Loehnert, P. Wriggers</td>
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<td>14:40</td>
<td>A second-gradient continuum formulation for bi-pantographic fabrics</td>
<td>Thomas Wallmersperger</td>
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<td>A Thermodynamically Consistent Model for Deformation and Microstructure Evolution in Hot Forming and Heat Treatment</td>
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<td>D. Helm, L. Kertsch</td>
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<td>A phase field approach to investigate the effect of temperature field and crack propagation on martensitic phase transformation</td>
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<td>E. Borzabadi Farahani, D. Juhré</td>
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<td>Investigating different friction models for the stick-slip effect with nodal contact</td>
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<td>Framework for modelling the elasto-plastic behaviour of friction welded lightweight structures under tension</td>
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<td>E. Heppner, R. Glüge, M. Weber, E. Woschke</td>
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<td>Cell enrichment and separation technique using active hydrogel membranes</td>
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<td>R. Friebe, D. Gruner, A. Ehrenhofer, A. Richter, T. Wallmersperger</td>
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<td>Probabilistic damage simulation for strengthening design of concrete structures</td>
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<td>Modeling and simulation of the thermo-mechanical material behavior of an epoxy system in electric traction machines</td>
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<td>Rheological and tomographical investigation of thermosensitive magnetorheological gels</td>
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<td>L. Selzer, S. Odenbach</td>
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<td>15:40</td>
<td>Slightly precurved layered beams with interlayer slip</td>
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<td>Prediction of residual stresses of second kind in deep drawing using an incremental two-scale material model</td>
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<td>J. Hofinger, H. Erdle, T. Böhlke</td>
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<td>Sensitivity Analysis of a Simulated Hydrogel</td>
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<td>14:00</td>
<td>S08.11</td>
<td>Computational homogenization of atomistically induced damage</td>
<td>Dennis M. Kochmann</td>
<td>Campus Center - Hörsaal 5</td>
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<td>D. Floros, P. Steinmann</td>
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<td>Ritz-type surface homogenization: from atomistic to continuum surface</td>
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<td>models of Copper despite imperfect bulk models</td>
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<td>Simulation of the mechanical in-plane properties of graphene sheets</td>
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<td>by quasicontinuum (QC) method</td>
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<td>S08.11</td>
<td>Towards first-principles-based updated-Lagrangian non-equilibrium</td>
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<td>14:00</td>
<td>S09.02</td>
<td>Lagrangian transport in two-dimensional time periodic cavity flow</td>
<td>Peter Ehrhard</td>
<td>Arnold-Bode-Straße 2 - Seminarraum 0404</td>
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<td>S09.02</td>
<td>Particle accumulation in mono- and polydisperse suspensions in</td>
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<td>Least-squares finite element formulations for incompressible</td>
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<td>S. Averweg, A. Schwarz, C. Nisters, J. Schröder</td>
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<td>15:00</td>
<td>S09.02</td>
<td>Simultaneous determination of Bingham material parameters using a</td>
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<td>ball probe concrete rheometer</td>
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<td>F. Gerland, T. Schomberg, A. Wetzel, B. Middendorf, O. Wünsch</td>
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<td>15:20</td>
<td>S09.02</td>
<td>Virtual testing of geometrically imperfect additively manufactured</td>
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<td>lattice structures</td>
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<td>U. Gebhardt, M. Kästner, J. K. Hufenbach, U. Kühn, M. Berner, S.</td>
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<td>Holtzhausen</td>
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<td>S09.02</td>
<td>Numerical simulation of flow processes of wood-polymer composites in</td>
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<td>F. Liese, O. Wünsch</td>
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<td>S10.06</td>
<td>Disentangling Lagrangian Turbulence</td>
<td>Olga Shishkina</td>
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<td>M. Wilczek</td>
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<td>Coarse-grained Lagrangian statistics in turbulent von-Kármán flow</td>
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<td>A. Dyck, T. Böhke</td>
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<td>Global Stability Analysis of the Interaction Between a Longitudinal Vortex and an Oblique Shock Wave</td>
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<td>Stationary oblique solitary waves in free-surface flows</td>
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<td>14:40</td>
<td>Study on the Interaction of Nonlinear Water Waves</td>
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<td>15:00</td>
<td>Partitioned simulation of the acoustic behavior of flexible marine propellers using finite and boundary elements</td>
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<td>15:20</td>
<td>Modelling wave propagation in a visco-hyperelastic soft tissue surrogate using the finite element and finite difference method</td>
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<td>15:40</td>
<td>Determination of the sound insulation property of 2D periodic wall structures by a fluid-structure interaction model</td>
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<td>S16.06</td>
<td>Adjoint-based Data Assimilation for a Compressible Jet using PIV</td>
<td>P. Schwarz, M. Lemke, J. Sesterhenn</td>
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<td>Certified Reduced Basis Methods for Variational Data Assimilation and Optimal Experimental Design</td>
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<td>A mixed finite element formulation for non-Newtonian fluid flows with appropriate natural outflow boundary condition</td>
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<td>Bounds on thermal convection derived from semidefinite programs</td>
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<td>Parametric regularity and reduced basis approximation for a fractional Laplace equation</td>
<td>O. Burkovska, M. Gunzburger</td>
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<td>Implicit LES for 3D homogeneous isotropic turbulence</td>
<td>G. Lube, P. W. Schroeder, C. Lehrenfeld</td>
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<td>Data-based drive models for automation technology in automotive production</td>
<td>E. Dierkes, F. Jung</td>
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<td>Efficient implementation of the shifted Proper Orthogonal Decomposition online stage</td>
<td>F. Black, P. Schulze, B. Unger</td>
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<td>S18.09</td>
<td>A nonconforming pressure robust finite element method for the Stokes equations on anisotropic meshes</td>
<td>T. Apel, V. Kempf, A. Linke, C. Merdon</td>
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<td>S16.06</td>
<td>Inverse Design Based on Nonlinear Thermoelastic Material Models</td>
<td>F. Zwicke, S. Elgeti</td>
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<td>S18.08</td>
<td>Simultaneous optimal Stratification and Allocation</td>
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<td>Adaptive Trust Region Reduced Basis Method in PDE-Constrained Parameter Optimization</td>
<td>T. Keil, L. Mechelli, M. Ohlberger, F. Schindler, S. Volkwein</td>
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<td>S18.09</td>
<td>A novel gradient-robust, well-balanced discretisation for the compressible isothermal Stokes problem</td>
<td>C. Merdon, A. Linke</td>
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<td>15:40</td>
<td>S16.06</td>
<td>Speedup of three-dimensional global shape optimization in supersonic flow</td>
<td>A. NASTASE</td>
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<td>14:00</td>
<td>Impulse free stabilization of switched differential algebraic equations</td>
<td>P. Wijnbergen</td>
<td>Nora-Platiel-Straße 6 - Seminarraum 0207</td>
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<td>14:20</td>
<td>A time-varying Gramian based model reduction approach for Linear Switched DAEs</td>
<td>M. S. Hossain, S. Trenn</td>
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<td>14:40</td>
<td>The differentiation index of nonlinear differential-algebraic equations versus the relative degree of nonlinear control systems.</td>
<td>Y. Chen, S. Trenn</td>
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<td>15:00</td>
<td>The Signature Matrix Method for Delay Differential-Algebraic Equations</td>
<td>K. Albrecht, A. Iske</td>
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<td>15:20</td>
<td>Delayed feedback regularization for descriptor systems</td>
<td>M. Schmischke, D. Potts</td>
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<td>15:40</td>
<td>A modal approach to late-lumping of transformation-based observer designs</td>
<td>O. Burghardt, N. Gauger</td>
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**S20.07**

**DAE and PDE Systems**

Chair: Stephan Trenn

Impulse free stabilization of switched differential algebraic equations

P. Wijnbergen

A time-varying Gramian based model reduction approach for Linear Switched DAEs

M. S. Hossain, S. Trenn

The differentiation index of nonlinear differential-algebraic equations versus the relative degree of nonlinear control systems.

Y. Chen, S. Trenn

The Signature Matrix Method for Delay Differential-Algebraic Equations

I. Ahrens, B. Unger

Delayed feedback regularization for descriptor systems

S. Trenn, B. Unger

A modal approach to late-lumping of transformation-based observer designs

M. Riesmeier, F. Woittennek

**S21.07**

Chair: Michael Moeller, Gerlind Plonka-Hoch

Approximating diffeomorphic transforms in signal registration using neural networks

J. Braunsmann, B. Wirth, S. Rave

Deeply Learned Spectral Total Variation Decomposition

T. G. Großmann, Y. Korolev, G. Gilboa, C. Schönlieb

Greedy methods in kernel-based learning

K. Albrecht, A. Iske

Learning multivariate functions with low-dimensional structure

M. Schmischke, D. Potts

Learning-informed model meets integrated physics-based method in quantitative MRI

G. Dong, M. Hintermueller, K. Papafitsoros

Efficient computation of multiphysics discrete adjoints with SU2

O. Burghardt, N. Gauger

**S22.05**

Chair: Christian Hesch

A Parallel Matrix-Free Finite Element Solver for Phase Separation in Electrode Particles of Lithium Ion Batteries

F. Castelli, W. Dörfler

Hybrid and Additive Nonlinear Two-Level Schwarz Methods

M. Lanser, A. Heinlein

Three-Level Extensions for Fast and Robust Overlapping Schwarz (FROSch) Preconditioners

F. Röver, A. Heinlein, O. Rheinbach

Exploiting low Precision Accelerator Hardware for Poisson-like problems via Prehandling as Explicit Preconditioning

S. Turek

A domain-based IMEX decomposition strategy for domain-based implicit-explicit (IMEX) type schemes

V. Straub, S. Ortleb

Efficient computation of multiphysics discrete adjoints with SU2

O. Burghardt, N. Gauger
Embeddability of matrices into real and positive semigroups
A. Radl, T. Eisner

Stability under structured perturbations
B. Jacob, S. Möller, C. Wyss

Split-operator algorithm for the Moyal equation.
Comparative studies of second and fourth order factorizations
D. T. Kolaczek, B. J. Spisak, M. Wołoszyn, M. Wojtylak

Discrete and continuous Dirac systems and structured operators
A. L. Sakhnovich

Pseudospectrum inclusions by discretization
A. Frommer, B. Jacob, C. Wyss, I. Zwaan
## Contributed Sessions

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<td>Testing individualized trauma implants via a new workflow under realistic daily life scenarios</td>
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<td>Hardware-in-the-Loop Simulator for Dynamic Analysis of the Shoulder after Total Joint Replacement</td>
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<td>An Active Female Human Body Model for Simulation of Rear-End Impact Scenarios</td>
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<td>Damage and fracture of the optimized X0-specimen</td>
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<td>S. Gerke, J. Liedmann, M. Brüning, F. Barthold</td>
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<td>18:20</td>
<td>Damage and fracture of the optimized X0-specimen</td>
<td>Arnold-Bode-Straße 12 - Hörsaal 4</td>
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<td>Hysteretic behaviour of octet-truss lattice material with shape memory</td>
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### S06.11
**Chair:** Ingo Muench, Rainer Schlebusch  
**Campus Center - Hörsaal 3**

**17:40**  
Numerical approach for a continuum theory with higher gradients of stress  
S. A. Ghasemi, I. Muench

**18:00**  
On Matrix Representations of Tensor Algebra in Continuum Physics  
R. Schlebusch

**18:20**  
Work - conjugacy of stress and strain tensors and its role in 3D hyperelastic isotropic material formulation  
A. Dutzler, G. Werner

### S08.12
**Chair:** Gianluca Rizzi  
**Campus Center - Hörsaal 5**

**17:40**  
On the Computational Homogenization of Deformation-Diffusion Processes  
E. Polukhov, M. Keip

**18:00**  
From micro- to macroscale modeling of two-phase fluid flow in porous media.  
M. Chaaban, Y. Heider, B. Markert

**18:20**  
Model Reduction in Thin Deformable Porous Media  
A. Z. Armiti-Juber, T. Ricken

### S13.03
**Chair:** Olaf Wünsch  
**Arnold-Bode-Straße 12 - Hörsaal 6**

**17:40**  
Towards a stochastic model for electrohydrodynamic turbulence with application to electrolytes  
M. Klein, H. Schmidt

**18:00**  
Actuation of an elastic membrane by the use of an electrorheological valve  
T. Schomberg, F. Gerland, M. Rütten, O. Wünsch

**18:20**  
Analyzing drug distribution in the aqueous humor flow  
E. Friedmann, A. Drobny, S. Dörsam

**18:40**  
Von Kármán Vortex-Shedding Modes of Shear thinning Flows around a Spinning Cylinder  
M. Rütten
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<td>I. Y. Dmitrieva</td>
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<td>Recent applications of the adjoint in nonlinear nonstationary fluid-structure interaction</td>
<td>W. Wollner</td>
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<td>08:30</td>
<td><strong>Contributed Sessions</strong></td>
<td>Lecture rooms</td>
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<td>10:30</td>
<td><strong>Coffee Break</strong></td>
<td>Ground Floor</td>
<td>Refreshment including coffee, tea, soft drinks, fruits, and biscuits</td>
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<tr>
<td>11:00</td>
<td><strong>Plenary Lecture - Mechanics</strong></td>
<td>Hörsaal 1, Campus Center</td>
<td>Laurette Tuckermann (ESPCI Paris)</td>
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<tr>
<td>11:00</td>
<td><strong>Plenary Lecture - Mechanics</strong></td>
<td>Hörsaal 1, Campus Center</td>
<td>Jörn Mosler (TU Dortmund)</td>
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<td>13:00</td>
<td><strong>Closing</strong></td>
<td>Hörsaal 1, Campus Center</td>
<td>GAMM 2021 organizers: Franz Bamer, Jaan Simon</td>
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<tr>
<td>Time</td>
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<td>08:30</td>
<td><strong>S03.09</strong> Machining and fracture of concrete and rock</td>
<td>Yousef Heider</td>
<td>Arnold-Bode-Straße 12 - Hörsaal 4</td>
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<td>08:50</td>
<td><strong>S04.11</strong> Extension of the eigenerosion approach to ductile crack propagation at large strains and its application on hard metal microstructures</td>
<td>D. Wingender, D. Balzani</td>
<td>Campus Center - Hörsaal 1</td>
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<td>09:10</td>
<td><strong>S06.12</strong> A comparison between constitutive isotropic and anisotropic plasticity material models for an indentation problem</td>
<td>K. de Payrebrune</td>
<td>Campus Center - Hörsaal 2</td>
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<td>09:30</td>
<td><strong>S04.11</strong> A gradient-enhanced micro-polar damage-plasticity approach for modeling mode I and mode II failure of concrete</td>
<td>G. Hofstetter</td>
<td>Campus Center - Hörsaal 1</td>
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<td>09:50</td>
<td><strong>S06.12</strong> Modeling inelastic-anisotropic damage behavior of concrete considering lateral deformation</td>
<td>A. H. Monnamithoeen Abdul Gafoor, D. Dinkler</td>
<td>Campus Center - Hörsaal 2</td>
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<td>10:10</td>
<td><strong>S06.12</strong> A discrete element model for reinforced concrete</td>
<td>D. Dinkler</td>
<td>Campus Center - Hörsaal 2</td>
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<td>08:30</td>
<td><strong>S07.08</strong> Thermodynamics &lt;br&gt;Chair: Andreas Menzel &lt;br&gt;Diagonale 3 - Hörsaal 2</td>
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<td>08:50</td>
<td><strong>S08.13</strong> Boundary Layers and other Topics &lt;br&gt;Chair: Sebastian Pfaller &lt;br&gt;Campus Center - Hörsaal 5</td>
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<td>09:10</td>
<td><strong>S09.03</strong> Boundary Layers and other Topics &lt;br&gt;Chair: Hendrik C. Kuhlmann &lt;br&gt;Arnold-Bode-Straße 2 - Seminarraum 0404</td>
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<td>09:30</td>
<td>A thermomechanical-phase-field approach for modeling of residual stresses in fusion welding &lt;br&gt;B. R. A. Ali, Y. Heider, B. Markert</td>
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<td>09:50</td>
<td>Corrosion fatigue - A first simplified combined electrochemical and mechanical damage model. &lt;br&gt;M. Hofmann, Y. Shi, T. Wallmersperger</td>
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<td>09:50</td>
<td>Multilateral caloric-electromechanical couplings and dissipation self-heating in polycrystalline ferroelectrics and aspects of efficient energy harvesting &lt;br&gt;A. Warkentin, L. Behlen, A. Ricoeur</td>
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<td>10:10</td>
<td>On the micromechanical constitutive modelling and finite-element-based simulations of magnetic shape memory alloys using energy relaxation concepts &lt;br&gt;T. Bartel, B. Kiefer, A. Menzel</td>
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<td>10:10</td>
<td>Phase field modeling with deformation-dependent interface energies &lt;br&gt;H. Wilbuer, H. Lammen, J. Mosler</td>
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<td>10:10</td>
<td>Modeling rarefied plasma dynamics in micropropulsion systems for space applications &lt;br&gt;R. Groll, T. Frieler, C. Kühn</td>
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<td>08:30</td>
<td>Homogenisation of Stokes Flow in a Porous Medium with Evolving Microstructure</td>
<td>D. M. Wiedemann, M. A. Peter</td>
<td>Campus Center - Hörsaal 4</td>
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<td>08:50</td>
<td>Homogenization in periodic non-Lipschitz 3D domains, plates and beams.</td>
<td>L. Khilkova, G. Griso, J. Orlik, O. Sivak</td>
<td>Diagonale 5 - Hörsaal 3</td>
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<td>09:10</td>
<td>Homogenization for textiles</td>
<td>R. Falconi</td>
<td>Diagonale 1 - Hörsaal 1</td>
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<td>09:30</td>
<td>Refined dimensional reduction for isotropic elastic Cosserat shells with initial curvature and existence of minimizers</td>
<td>I. D. Ghiba, P. Neff, M. Birsan</td>
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<td>09:50</td>
<td>Homogenization of a contact problem on domains with a periodic layer</td>
<td>M. Grothaus, K. Orge, J. Orlik</td>
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<td>10:10</td>
<td>Stochastic homogenization on perforated domains</td>
<td>M. Heida</td>
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<td>Robust discretization of the Reissner–Mindlin plate with Taylor-Hood FEM</td>
<td>M. Schedensack, D. Gallistl</td>
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<td>Mixed FEM for Gradient Elasticity</td>
<td>J. W. Ketteler, M. Schedensack, J. Riesselmann, D. Balzani</td>
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<td>Stress-Based Adaptivity for Quasi-Variational Inequalities Associated with Frictional Contact</td>
<td>G. Starke, B. Kober</td>
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<td>Boundary Element Preconditioners for the Elasticity Equations</td>
<td>T. Rau, A. Liebel</td>
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<td>Implicit Analysis of Reissner-Mindlin shells with the Trace FEM</td>
<td>D. Schöllhammer, T. Fries</td>
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<td>Efficient Bayesian model updating and reliability analysis using model reduction techniques</td>
<td>A. Robens-Radermacher, J. F. Unger, F. Held, I. Coelho Lima, T. Titscher</td>
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<td>Simulation of weak-inertia single-phase flow in porous materials using SPH</td>
<td>D. Krach, H. Steeb</td>
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**Contributed Sessions**
Friday, March 20, 08:30-10:30

**S23.04**

Chair: Hafida Laasri

Arnold-Bode-Straße 2 - Seminarraum 0409

08:30 Recent progress in Functional Calculus

B. Haak

08:50

09:10 Well-posedness of linear first order port-Hamiltonian Systems on multidimensional spatial domains

N. Skrepek

09:30 Riesz bases of port-Hamiltonian systems

B. Jacob, J. Kaiser, H. Zwart

09:50 Approximate robust output regulation of boundary control systems

M. Kurula, J. Humaloja, L. Paunonen

10:10
Dear Early Career Researcher, dear YAMM member,

Please join us for an Author Workshop where we will take a look at what it takes to get your paper published. Topics will include how to select a suitable journal, what to expect during peer review, promoting your research post-publication, and we will discuss the latest developments in open access publishing. We look forward to seeing you!

Wednesday 18 March 2020
14:00 – 15:00
Seminar room 5

Speakers: Bette Nijboer & Mark Spencer
Editorial Management – Mathematics Team
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D. Gross, W. Hauger, J. Schröder, W.A. Wall  
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Technische Mechanik 2  
Elastostatik  
13., aktualisierte Aufl. 2017, XV, 309 S.,  
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